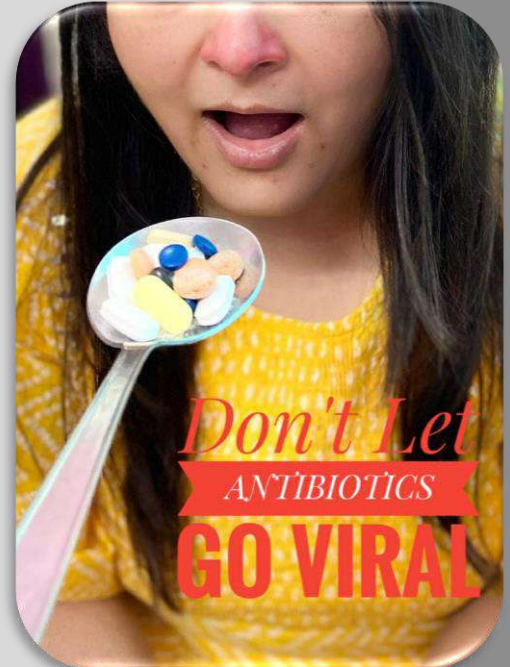




Issue 9, Published: February 2022

# MICROBIOLOGY NEWSLETTER



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

**Department of Microbiology**



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Virology/COVID Lab & Hospital Infection  
Surveillance Incharge**



**Prof. Vineeta Mittal  
Mycobacteriology & Immunology Lab Incharge**



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



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Bacteriology, ICTC & Mycology lab  
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Dr. Akanksha Gupta

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Dr. Soni Sinha  
Dr. Piyush Hari





Dear All

From Editor's Desk

New year Greetings!

We are back with yet another issue of our **Annual Microbiology Newsletter** containing annual antibiograms, lab data and details of academic and other achievements of the department of Microbiology, Dr RMLIMS, Lucknow. Last year for our virtual Annual CME cum release of Newsletter, we were fortunate to have the eminent virologist and vaccine expert **Prof. Gagandeep Kang** from CMC Vellore, to deliver the keynote address on *"An insight in to SARS-CoV-2 mutations and its impact on vaccination"*.

The past year has certainly been a tough one- there isn't a household left unaffected by the 2<sup>nd</sup> wave of COVID. Many of our own suffered personal losses and I wish to express my deepest condolences to the grieving families. Simultaneously I would also like to thank you all- doctors, staff and students alike for continued excellence in serving the hospital and patients, surmounting the many challenges that came their way. On the diagnostic front, our lab was the pride of the institute, being the best performing lab during the 2<sup>nd</sup> wave in the entire state. Not only did we surpass others in terms of the quantity of samples handled/day we also did so in reducing the turn-around time and delivering quality results. Our daily average was nearly 14000/day during the 2<sup>nd</sup> wave, a time where the % positivity was at its peak and pooled testing was not feasible for samples collected from several districts. In fact, on May 1<sup>st</sup> 2021, we actually created a sort-of record by testing >17000 samples by RT-PCR on a single day. The fact that we were able to do this, despite increasing number of infections even in our lab staff shows the dedication of the Lab team including my colleagues Prof. Manodeep, Dr. Anupam, Dr. Jaya and Dr. Vikramjeet. I wish to take this opportunity to thank everyone who has supported us during this (ongoing) fight against COVID starting from the house keeping staff, to the administrative staff and officers, from the civil and electric departments to the purchase section, to the IT section.....the list is expansive, but the truth stands that you are the wind beneath our wings. It is largely due to your sincerity that **the cumulative testing done at our lab as of today is ~31.5lakhs RT-PCR (second highest in the State) and ~45,000 Truenat tests (highest in the state).**

In the spirit of celebrating the hard work of those associated with our COVID diagnostic lab (Control room, Collection booth, BSL-2 lab, BMW team, Administrative staff), we organized a felicitation function which was made possible thanks to the blessings from our new **Director, Professor Soniya Nityanand**, and through the generous support from NGOs and from the citizens of Lucknow, in form of gift hampers. We are extremely grateful to our Vice president, Principal Secretary, Department of Medical Education, Govt. of U.P, **Shri Alok Kumar ji** for gracing the occasion. It is true that no matter the circumstances, life must go on. We endeavored to maintain our quality of education and teaching, trying to make it as fruitful and smooth as possible. The 2<sup>nd</sup> MD batch exited successfully, and on MBBS front, thanks to Prof. Vineeta's efforts, we could implement the CBME curriculum for 2019 batch, to the extent possible, given all the COVID related limitations. We also were able to make an in-house CBME based Practical Manual and the Log Book for the students. We organized a webinar on the occasion of **'World Antimicrobial Resistance'** week in November 2021 and our Guest speaker for the occasion was Dr. Meher Rizvi, Asso. Prof., Dept. of Microbiology, Sultan Qaboos University, Muscat. During her sessions, she deliberated on *"Antimicrobial stewardship in LMIC: can Microbiologists Power it?"* and it was well-met by doctors and students alike. At the first ever **Research Showcase** of RMLIMS, in February 2021, our department literally stole the show, with not just good participation and turnout, but Dr. Jaya and myself bagging the top two awards!

Before I end this note, I want to extend a big thank you to my Editorial team Dr. Soni and Dr. Piyush for putting together this issue in timely manner. Lastly, I'm grateful to each one of you in the department of Microbiology. It is each of your efforts and sincerity that are reflecting in the department's accomplishments.

In the end you are only as good as your TEAM.....isn't it!!

- Prof. Jyotsna Agarwal



डॉ० राम मनोहर लोहिया आयुर्विज्ञान संस्थान,  
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प्रो० सोनिया नित्यानन्द  
निदेशक  
**Prof. Soniya Nityanand**  
MD, PhD, FNASc, FASc  
DIRECTOR



### Message From Director

It is a pleasure to know that Department of Microbiology, Dr Ram Manohar Lohia Institute of Medical Sciences is organizing an online guest lecture cum CME as well as release of 9<sup>th</sup> Annual Newsletter on 5<sup>th</sup> February, 2022. The distinguished speaker of online guest lecture is Professor Priya Abraham, Director ICMR National Institute of Virology. It will be an enlightening experience to listen to her especially in context of the current pandemic situation of COVID-19.

In the ongoing pandemic, Department of Microbiology has played a crucial role in diagnosis of COVID-19. From their inception to their proposed upgradation to Biosafety level 3 lab at the threshold, the Department has come a long way, having conducted over 32 lakh RT PCR tests till date and performing the highest number of TrueNAT tests (over 46000 presently) by any Medical College/Institute in the State.

One of the most important activities performed by any clinical microbiology laboratory is the reporting of cumulative and ongoing summaries of institutional patterns of antimicrobial susceptibilities, which are called antibiograms. The ninth annual newsletter from the Department contains antibiogram and relevant laboratory data from January to December 2021. This data shall sensitize us towards trends of antimicrobial resistance and to plan empirical antimicrobial policy based on the type and severity of infection, the infecting organism, and the patient's medical history and past antibiotic use.

I congratulate the Head along with the other faculty members, residents and staff of Department of Microbiology for managing to bring out the annual newsletter unflinchingly in the current scenario and thus maintaining their continuity in this academic endeavor.

*S. Nityanand*  
**Prof. Soniya Nityanand**  
(Director)

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**Message From Dean**

At the outset a hearty congratulations to the super-achievers at the Department of Microbiology, Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow on the release of 9th Annual Newsletter. Microbiology at RMLIMS has hit high targets and standards of care in Covid testing. It is wonderful that in a continued effort of exchange and enhancement in knowledge they have invited Professor Priya Abraham distinguished speaker Director ICMR National Institute of Virology, online, to discuss her experiences in COVID 19 diagnostics and give us a perspective on what's new in the third wave of the pandemic, on 5th February, 2022.

Antibiotic policy is one of the mandatory requirements for accreditation, and making an antibiogram is the first step to framing the antibiotic policy. The ninth annual newsletter with the antibiogram and relevant laboratory data from January to December 2021 will be invaluable in assisting us to monitor trends of antimicrobial resistance and focus on effective management of drug resistant infections.

I especially commend the efforts of all faculty members, residents and staff members of the department who have managed to bring out this annual newsletter despite being engaged in managing the current pandemic as one of the leading labs in the state.

  
Nuzhat Husain MD  
(Dean)



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**Message From Chief Medical Superintendent**

It is a moment of pleasure and pride to note that Department of Microbiology, Dr Ram Manohar Lohia Institute of Medical Sciences is organizing an online guest lecture cum CME as well as release of 9th Annual Newsletter on 5th February, 2022. The distinguished speaker of online guest key note lecture is Professor Priya Abraham, Director ICMR National Institute of Virology, which shall evoke thought provoking discussions regarding ongoing pandemic.

Department of Microbiology is at forefront of COVID-19 diagnostics not only in the city but in the state. They have been awarded as best testing facility with relentless, exemplary and dedicated service in combating COVID-19 pandemic from Department of Medical Education, Government of Uttar Pradesh.

The ninth annual newsletter from the department contains antibiogram and relevant laboratory data from January to December 2021. Every year this newsletter aids our clinicians to keep track of susceptibility rates and resistance trends.

I applaud the unstinting academic efforts of the faculty members, residents and other staff members from Department of Microbiology in having succeeded in materializing the newsletter despite being engaged in combating challenges of current pandemic.

I wish all success to Department of Microbiology in their endeavor.

Prof. Rajan Bhatnagar

Chief Medical Superintendent



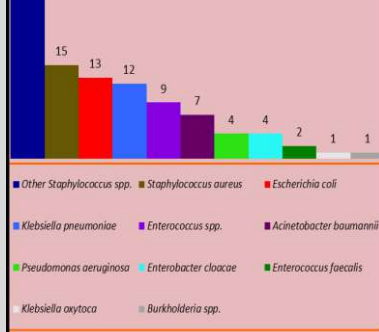


## Blood (January-December 2021)

Total sample received and analyzed = 4098

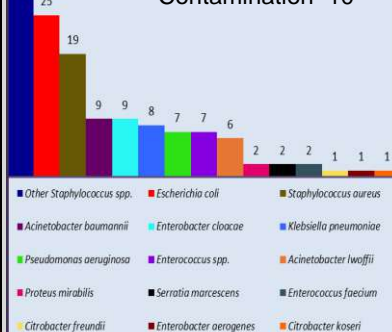
### OPD

Specimen-655  
Sterile-508  
Growth-132  
Contamination-15



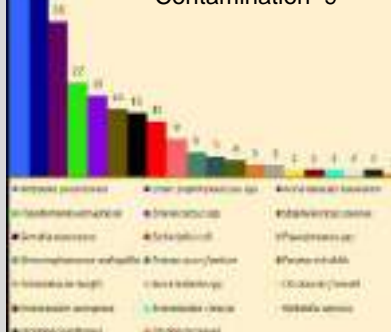
### IPD

Specimen-925  
Sterile-743  
Growth-172  
Contamination-10



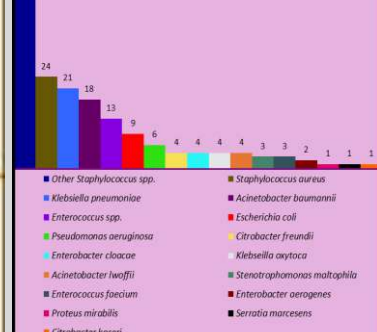
### ICU

Specimen-1618  
Sterile-1245  
Growth-364  
Contamination-9



### SRCLI

Specimen-900  
Sterile-599  
Growth-284  
Contamination-17



### 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
	30	3	4	15	12	10	3	9	9	11	4	3	4	12	0	7	8
	45	13	11	20	18	25	12	23	25	29	19	16	10	26	3	9	13
	101	5	8	38	38	14	10	17	17	13	12	5	9	21	3	6	13
	44	3	4	19	14	7	9	11	13	14	8	6	13	10	1	6	7

Other Staphylococcus spp.	Number	CX	CD	GENTA	AMIKA	NETIL	PENI	E	CIPRO	DOX	TET	TEICO	LZ	CHLOR	LEVO
	48	13	25	18	32	41	8	9	9	33	29	40	42	22	18
	55	13	26	21	26	41	9	9	11	42	36	38	47	36	14
	47	3	6	9	9	24	0	1	2	26	24	33	29	24	10
	89	29	46	45	42	66	19	10	20	68	61	63	80	63	38

Acinetobacter baumannii	Number	AS	CAZ	DORI	NETIL	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
	36	0	2	7	3	4	8	5	1	5	4	1	1	0	4	2

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 forming bacilli

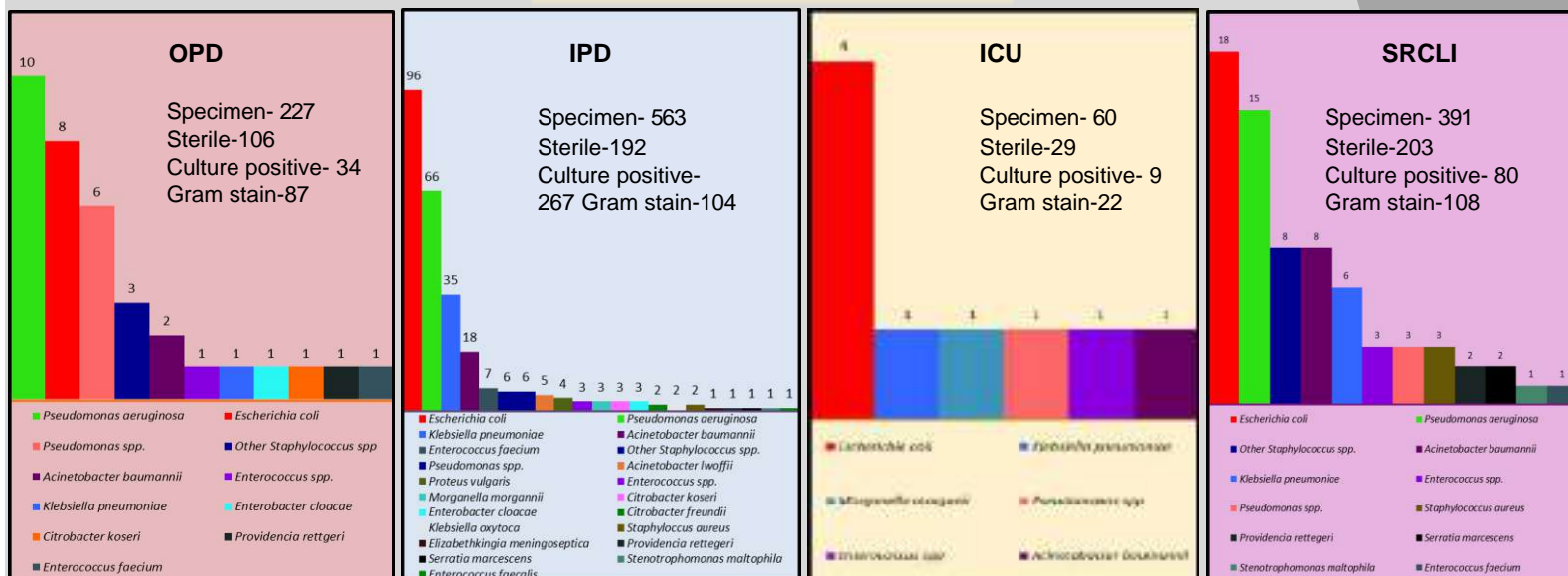
NPG No Pathogenic growth

NSG Non-significant growth



## \*Body fluids (January-December 2021)

Total sample received and analyzed=746



### Percentage sensitivity

	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
Lactose fermenter	138	11	18	37	39	35	17	48	50	69	36	20	20	69	7	22	39

	Number	CAZ	DORI	NETIL	OFLOX	AT	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
Pseudomonas Spp.	72	20	31	24	24	29	42	21	33	26	27	38	21	26	39

\*Sterile body fluids including CSF

### Abbreviations used

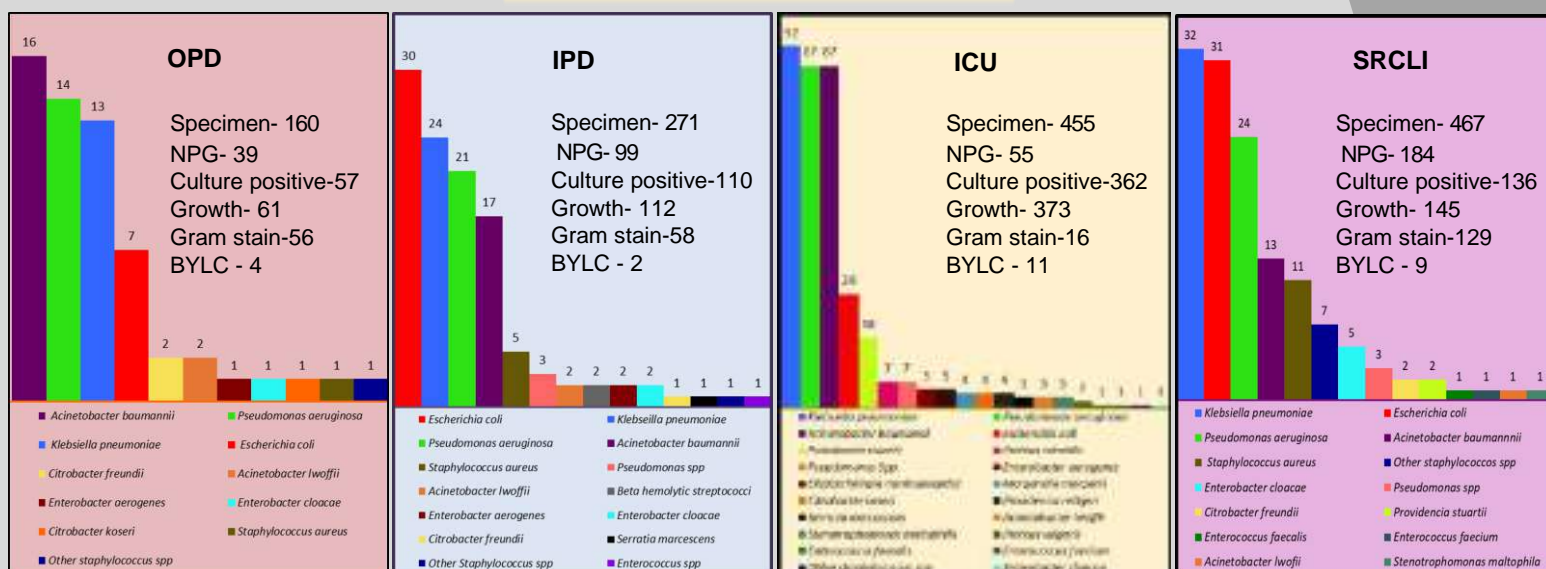
AS	Ampicilin-Sulbactam	DOX	Doxycycline	NOVO	Novobiocin
AT	Aztreonam	E	Erythromycin	NF	Nitrofurantoin
AMIKA	Amikacin	ETP	Ertapenem	NETIL	Netilmicin
AB	Amphotericin B	FLU	Flucytosine	OFLOX	Ofloxacin
CAS	Caspofungin	FLC	Fluconazole	PIT	Piperacillin-Tazobactam
CAZ	Ceftazidime	FOS	Fosfomycin	PENI	Penicillin
CX	Cefoxitin	GENTA	Gentamicin	TOB	Tobramycin
CZ	Cefazolin	HLG	High level Gentamicin	TET	Tetracycline
CPM	Cefipime	IMI	Imipenem	TEICO	Teicoplanin
CHLO R	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 2021)

Total sample received and analyzed= 1353



### Percentage sensitivity

Lactose fermenters	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
	59	3	1	13	12	11	5	17	23	28	12	4	8	23	1	8	10
	129	4	7	36	30	14	4	17	21	27	9	7	9	20	2	6	10
	70	10	19	19	19	31	21	38	39	48	26	24	21	41	3	13	25

Acinetobacter Spp.	Number	AS	CAZ	DORI	NETIL	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
	90	3	0	13	7	7	15	5	2	3	3	3	5	1	10	9

Pseudomonas Spp.	Number	CAZ	DORI	NETIL	OFLOX	AT	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
	94	15	20	10	9	13	18	10	15	15	15	9	11	13	16

\*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	<i>Escherichia coli</i> , <i>Citrobacter</i> spps, <i>Klebsiella</i> spps
Non fermenters	<i>Pseudomonas</i> spps., <i>Acinetobacter</i> spps., <i>Burkholderia</i> spp, <i>Stenotrophomonas</i> spp
Non Lactose fermenter	<i>Proteus</i> spp, <i>Providencia</i> spp, <i>Morganella morganii</i>
Other Staphylococcus spps	<i>Coagulase Negative Staphylococcus</i> spps (CoNS)

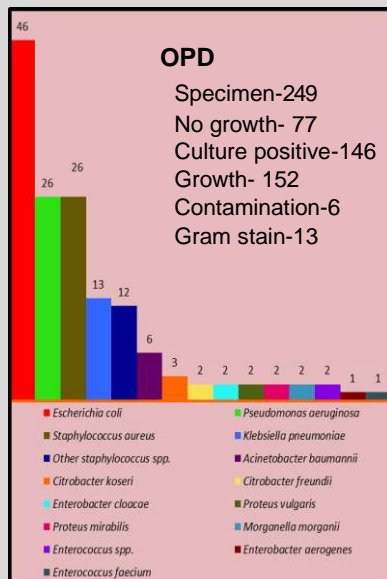


**\*Pus (January-December 2021)**

Total sample received and analyzed =1778, 64 samples showed polymicrobial growth

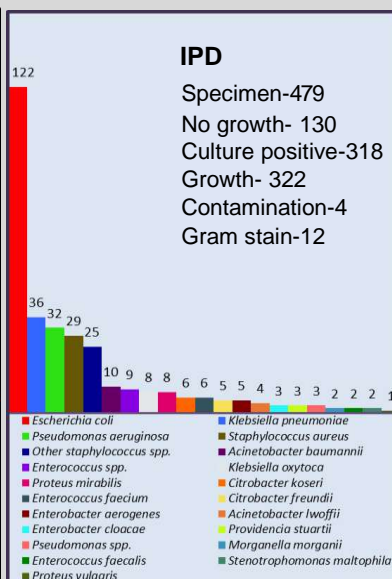
**OPD**

Specimen-249  
No growth- 77  
Culture positive-146  
Growth- 152  
Contamination-6  
Gram stain-13



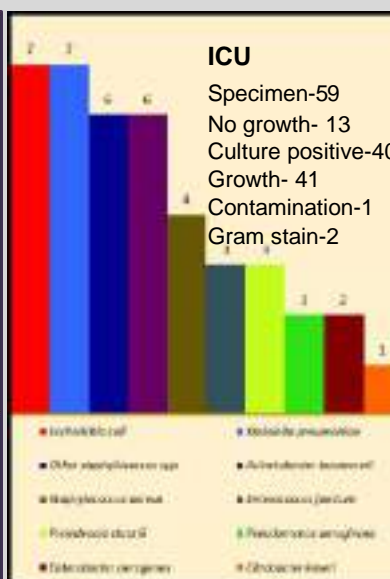
**IPD**

Specimen-479  
No growth- 130  
Culture positive-318  
Growth- 322  
Contamination-4  
Gram stain-12



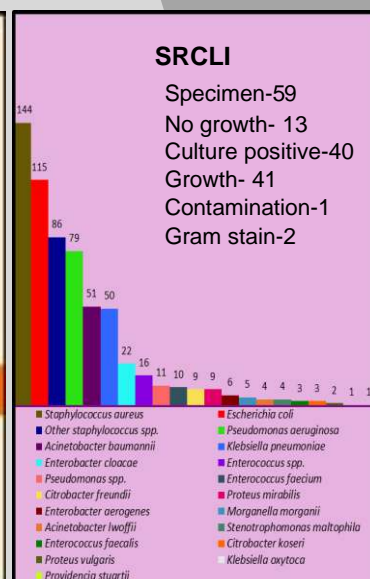
**ICU**

Specimen-59  
No growth- 13  
Culture positive-40  
Growth- 41  
Contamination-1  
Gram stain-2



**SRCLI**

Specimen-59  
No growth- 13  
Culture positive-40  
Growth- 41  
Contamination-1  
Gram stain-2



**Percentage sensitivity**

OPD ICU  
IPD SRCLI

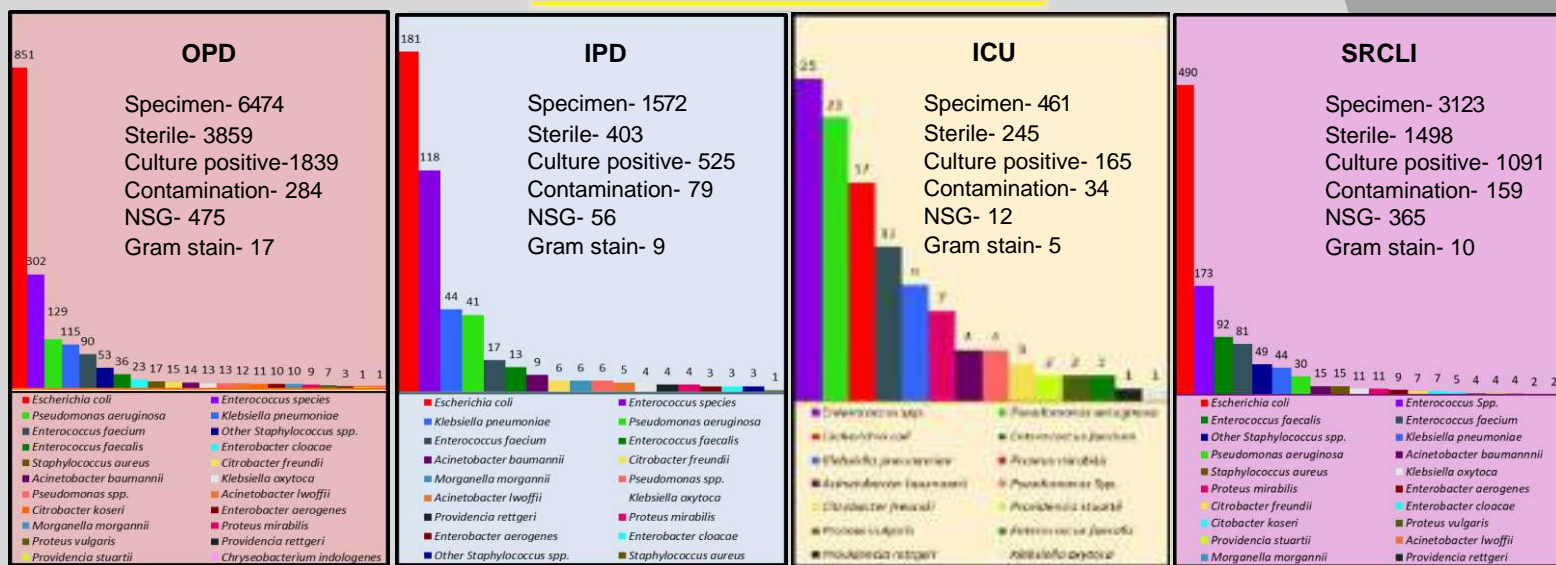
Staphylococcus aureus	Number	CX	CD	GENTA	AMIKA	NETIL	PENI	E	CIPRO	DOX	TET	TEICO	LZ	CHLOR	LEVO		
	144	55	73	69	48	84	33	44	29	98	90	83	128	87	71		
Other staphylococcus spp.	Number	CX	CD	GENTA	AMIKA	NETIL	PENI	E	CIPRO	DOX	TET	TEICO	LZ	CHLOR	LEVO		
	86	30	36	31	31	44	25	15	29	44	40	48	75	41	44		
Lactose fermenters	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
	64	12	16	27	25	32	10	21	34	42	18	21	17	34	1	15	26
	171	19	23	61	59	54	27	85	77	90	66	31	30	99	6	35	67
	202	41	36	90	88	99	60	100	107	132	82	67	69	119	12	46	73
Pseudomonas aeruginosa	Numb er	CAZ	DORI	NETIL	OFLO X	AT	PIT	CIPR O	GENT A	MERO	IMI	TOB	CPM	LEVO	AMIK A		
	32	18	20	15	17	19	24	20	21	17	19	19	17	17	20		
	79	41	47	29	32	37	47	43	44	38	49	42	38	42	46		

\*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 2021)

Total sample received and analyzed = 11630



### Percentage sensitivity

	Number	CX	NOVO	GENTA	NETIL	OFLOX	PENI	DOX	TET	TEICO	NF	LZ
Other Staphylococcus spp.	53	17	28	17	38	10	10	29	21	49	48	48
	49	16	35	17	34	3	7	28	19	45	45	49

	Number	AS	AT	TET	DOX	PIT	GENTA	MERO	IMI	TOB	CPM	AMIKA	CZ	CX	NF	ETP	NX	FOS
Escherichia coli	851	247	264	254	269	550	463	667	694	653	276	610	142	474	669	634	101	573
	181	21	26	53	51	82	72	106	110	56	40	101	17	65	122	101	5	122
	490	182	183	146	155	375	285	409	428	257	191	346	126	315	414	409	83	362
Klebsiella Spp.	128	29	43	75	59	69	69	73	75	58	49	71	23	51	52	65	29	80
	48	9	9	26	19	13	14	14	15	12	9	13	3	7	9	11	5	33
	55	25	33	37	34	41	39	41	42	35	35	39	17	24	31	39	25	37

	Number	AS	CAZ	DORI	NETIL	OFLOX	AT	PIT	GENTA	MERO	IMI	TOB	CPM	AMIKA	NX	TET	FOS
Pseudomonas Spp.	142	-	57	51	43	35	63	83	55	55	68	53	54	60	28	4	-
	47	-	14	13	7	8	18	22	11	9	13	15	12	17	-	-	-
	30	-	19	19	17	18	21	24	20	18	22	17	21	22	14	2	-





Continued from previous page; Urine antibiogram

	Number	PENI	DOX	TET	TEICO	NF	VA	LZ	HLG	NX	FOS
<i>Enterococcus faecium</i>	90	41	47	20	76	66	73	85	27	9	12
	81	53	22	9	78	72	67	79	39	10	11
<i>Enterococcus faecalis</i>	36	24	11	3	34	33	31	35	15	-	26
	92	75	32	15	89	84	86	88	41	14	65
<i>Enterococcus Spp.</i>	302	200	117	41	283	251	280	290	139	18	261
	118	45	57	24	91	77	92	108	38	3	89
	173	120	60	28	165	152	163	165	90	17	149

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

Superspeciality Block Surveillance for Infection Control, 2021

S.NO	Site	Number of Air Culture	Total Swab	S.NO	Site	Number of Air Culture	Total Swab
1.	ICU 1 <sup>st</sup> Floor	10	64	14.	Hematology Unit	10	64
2.	Neuro ICU	6	26	15.	CVTS OT	6	26
3.	CTVS ICU	6	35	16.	Pain OT	6	35
4.	Cardio ICU	1	10	17.	Arthroplasty OT	1	10
5.	K.T.U	4	30	18.	Oncosurgery OT (1 & 2)	4	30
6.	Post COVID ICU	1	5	19.	Oncosurgery Post op area	1	5
7.	Post COVID Ward	1	5	20.	Gastrosurgery OT (1 & 2)	1	5
8.	Neurosurgery Ward	7	39	21.	Gastrosurgery Post op area	7	39
9.	Neurology Ward	6	32	22.	Neurosurgery OT (1 & 2)	6	32
10.	Urology Ward	1	4	23.	Post op area	1	4
11.	Oncosurgery Ward	4	24	24.	Urology OT (1 & 2)	4	24
12.	Private Ward 5 <sup>th</sup> Floor	1	4	25.	Urology Post op area	1	4
13.	Dialysis Unit	2	6				

“Outreach services” Surveillance work from District Hospitals of Lucknow and Adjoining Areas

S. No.	Center	Total Swabs
1	Veerangna Jhalkari Bai Referral Center, Lucknow	287
2	Veerangna Avanti Bai Mahila Hospital, Lucknow	269
3	LokBandhu Raj Naraysan Combined Hospital Lucknow	24
4	District Hospital Raebareilly	168
5	UCHC Silver Jubli Lucknow	24



Hospital Block Surveillance for Infection Control, 2021

Sr 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 -5	12	48
6	General Surgery OT -6	12	48
7	Emergency Gynae OT	12	48
8	Blood Bank	12	24
9	Dialysis Unit	12	48
10	USG Unit	-	36
11	X-RAY Digital	-	12
12	X-RAY Manual	-	12
13	M.R.I.	-	12
14	C.S.S.D.	-	60
15	S.N.C.U. 1 <sup>st</sup>	12	48
16	S.N.C.U. 2 <sup>nd</sup>	12	48
17	Semi Private ward (Ground Floor)	12	48
18	Private Ward (Ground Floor)	12	48

Vancomycin Susceptibility of *Staphylococcus* spp. by VITEK 2® COMPACT (BioMérieux);  
January-December 2021

Organism	Detectable MIC Range Lower than Susceptible MIC breakpoint (µg/ml)			Susceptible (µg/ml)	Intermediate (µg/ml)	
	<0.5	1		2	4	
<i>Staphylococcus aureus</i>	-	3		2	-	

Organism	Detectable MIC Range Lower than Susceptible MIC breakpoint (µg/ml)			Susceptible (µg/ml)	Intermediate (µg/ml)	
	<0.5	1	2	4	8	16
Other <i>Staphylococcus</i> spp	2	2	3	-	-	-

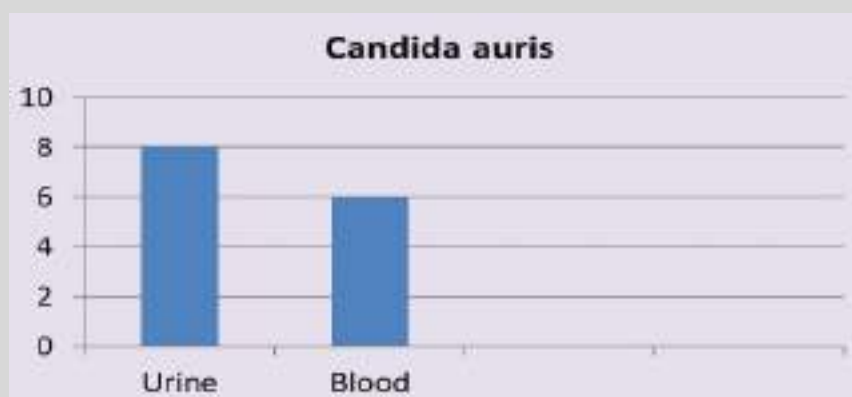


**Colistin Susceptibility in Gram Negative isolates by VITEK 2® COMPACT  
(BioMérieux); January-December 2021**

Micro Organism (Number)	Detectable MIC range Lower than Intermediate MIC breakpoint		Intermediate	Resistant	Detectable MIC Range Higher than Resistant MIC breakpoint	
	≤0.5 µg/ml ( % isolate)	1 µg/ml ( % isolate)	2 µg/ml ( % isolate)	≥4µg/ml ( % isolates)	8µg/ml ( % isolates)	≥16µg/ml ( % isolates)
<i>Escherichia coli</i> (16)	82%	-	6%	-	6%	6%
<i>Klebsiella Pneumoniae</i> (35)	89%	-	-	3%	-	8%
<i>Acinetobacter baumannii</i> (19)	58%	11%	16%	-	5%	10%
<i>Pseudomonas aeruginosa</i> (24)	58%	8%	16%	5%	-	13%
<i>Pseudomonas spp</i> (3)	67%	-	-	-	-	33%

❖ 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 30<sup>th</sup> ed 2021 has therefore removed susceptibility category for Colistin and Polymyxin B for *Enterobacterales*, *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

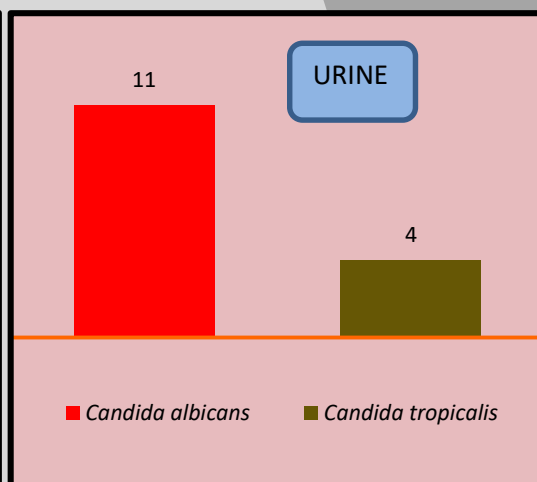
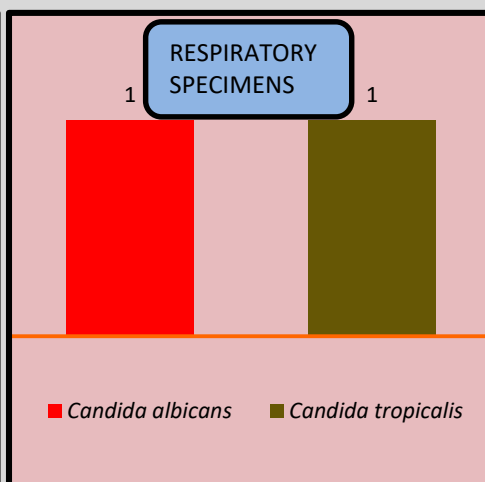
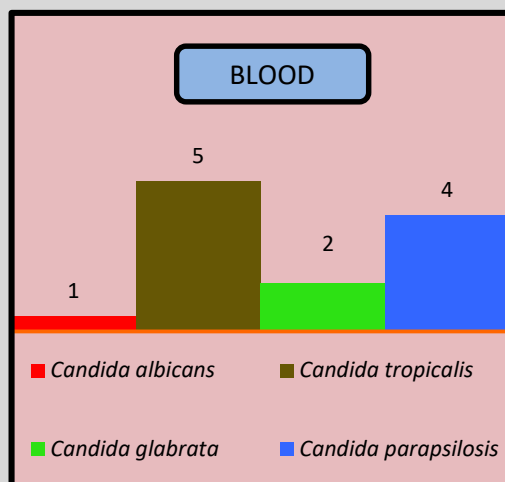
SAMPLE	ISOLATE NO	FLUCONAZOLE	VORICONAZOLE	CASPOFUNGIN	MICAFUNGIN	AMPHO	FLUCYTOCIN E
URINE	8	2	2	4	4	2	3
BLOOD	6	3	3	4	2	-	-

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





### Mycology data



**Antifungal Susceptibility Testing** : was carried out only when requested

SAMPLE	ISOLATE	TOTAL NUMBER	FLC	VRC	CAS	MYC	AB	FLU
Blood	<i>Candida parapsilosis</i>	4	2	2	2	3	2	3
	<i>Candida albicans</i>	1	1	1	1	0	1	1
	<i>Candida tropicalis</i>	5	4	4	4	4	3	3
	<i>Candida glabrata</i>	2	2	1	2	2	2	1
Respiratory sample	<i>Candida tropicalis</i>	1	1	1	1	1	1	1
	<i>Candida albicans</i>	1	1	0	1	1	1	1
Urine	<i>Candida tropicalis</i>	4	4	3	4	4	3	3
	<i>Candida albicans</i>	11	11	10	9	12	13	11

\*BAL, Bronchial aspirate, Endotracheal aspirate

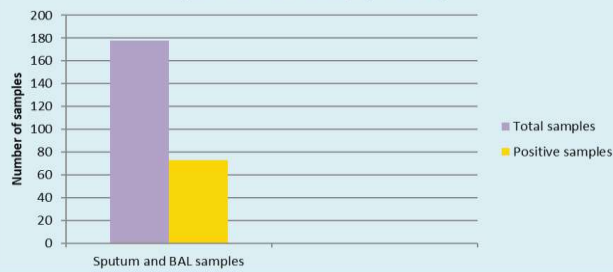
Cover page features winning entry of Mobillography competition held during *World Antimicrobial Awareness Week*, November 2021; by **Dr. Harshita Y.**, JR-2, Dept of Microbiology

COVID Lab Task Team includes: First row: Ms. Anamika; Second row: Dr. Sugandha (L), Ms. Chetana (R); Third row (L-R): Mr. Avneesh Srivastava, Dr. Alok Tripathi and Mr. Avneesh Sharma

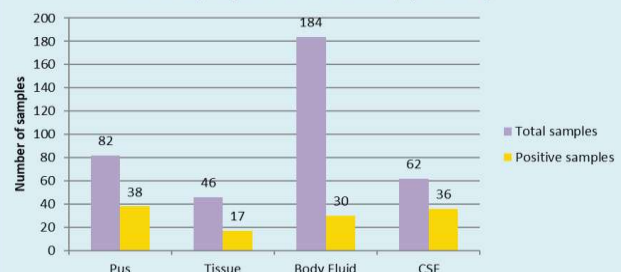


### Tuberculosis lab data

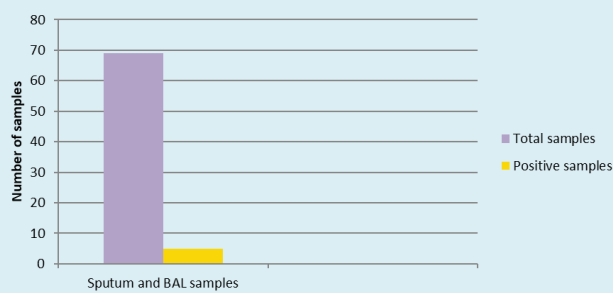
**Analysis of Pulmonary Samples from OPD by Xpert MTB Assay (n=178)**



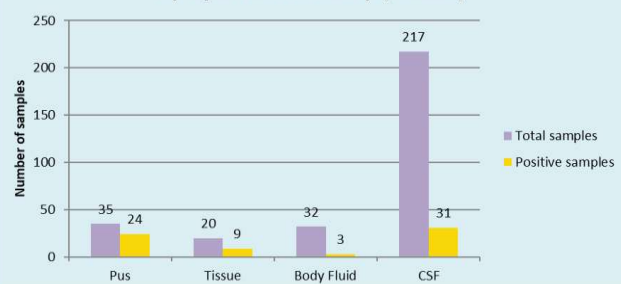
**Analysis of extrapulmonary samples from OPD by Xpert MTB Assay (n=374)**



**Analysis of Pulmonary Samples from IPD by Xpert MTB Assay (n=69)**

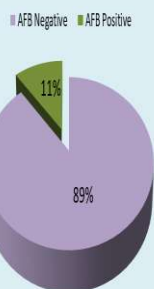


**Analysis of extrapulmonary samples from IPD by Xpert MTB Assay (n=304)**

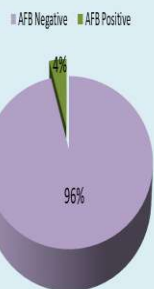


### AFB MICROSCOPY DATA

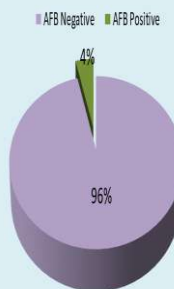
**Analysis of Pulmonary Samples by Microscopy from OPD (n=312)**



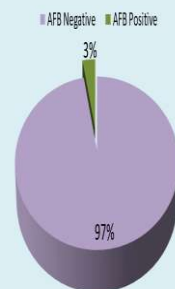
**Analysis of Pulmonary Samples by Microscopy from IPD (n=111)**



**Analysis of Extrapulmonary Samples by Microscopy from OPD (n=312)**

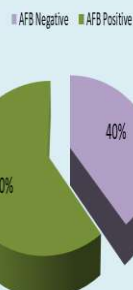


**Analysis of Extrapulmonary Samples by Microscopy from IPD (n=296)**

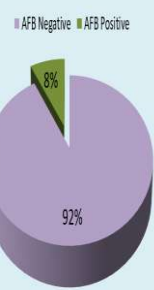


### TB CULTURE DATA

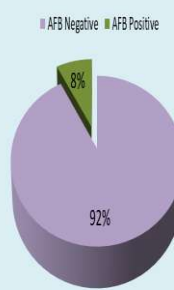
**Analysis Pulmonary Samples by MGIT culture from OPD (n=40)**



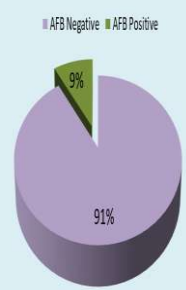
**Analysis Pulmonary Samples by MGIT culture from IPD (n=40)**



**Analysis of Extrapulmonary Samples by MGIT culture from OPD (n=113)**



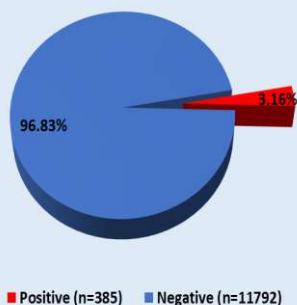
**Analysis of Extrapulmonary Samples by MGIT culture from IPD (n=178)**



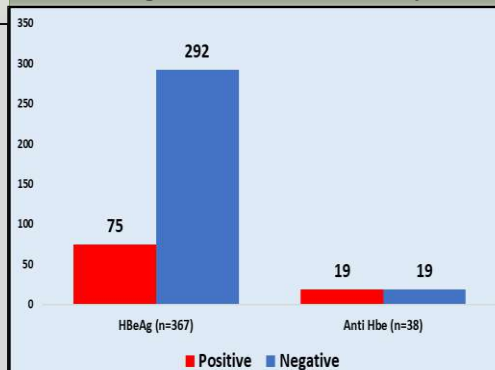


## Serology/Immunology lab data, 2021

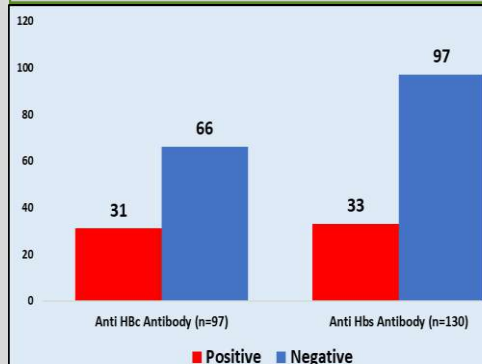
**HBsAg (n=12177)**



**HBeAg and Anti Hbe Antibody**



**Anti HBc Antibody and Anti HBs Antibody**

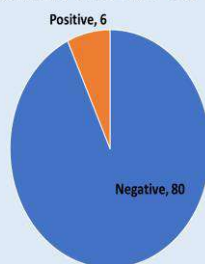


### Analysis of samples for Anti HIV Antibody in 2021

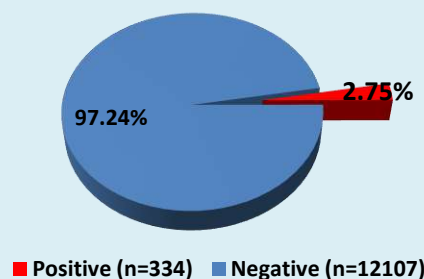
**Analysis of OPD samples for Anti HIV antibody in 2021 (n= 8251)**



**Analysis of IPD samples for Anti HIV antibody in 2021 (n= 86)**

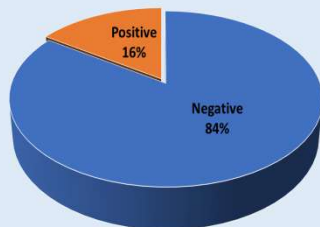


### Anti HCV IgM Antibody (n=12441)

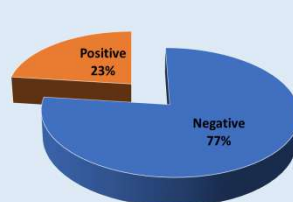


### Analysis of Total dengue samples, 2021

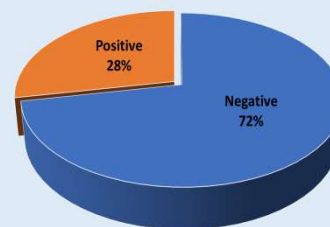
**Analysis of IPD samples for Dengue serology in 2021 (n= 1620)**



**Analysis of Dengue samples in 2021 (n= 4010)**

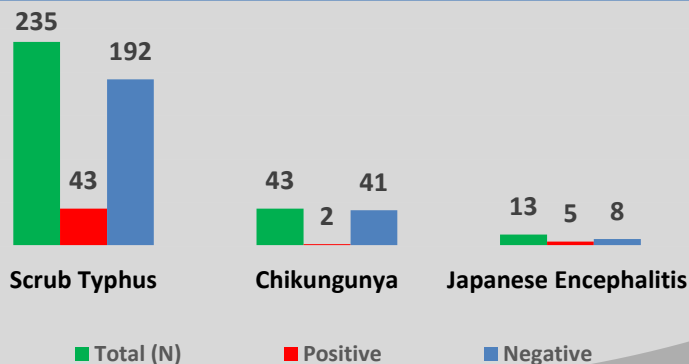


**Analysis of OPD samples for Dengue serology in 2021 (n=2390)**

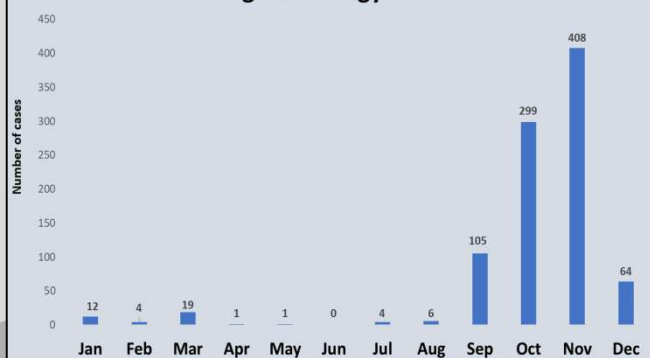


Positive include all samples positive for NS1 or positive/equivocal for IgM or both. Maximum Dengue cases appeared during September to December 2021

### Result of Scrub Typhus, Chikungunya and JE IgM ELISA, 2021



### Monthly analysis of samples positive for Dengue serology in 2021

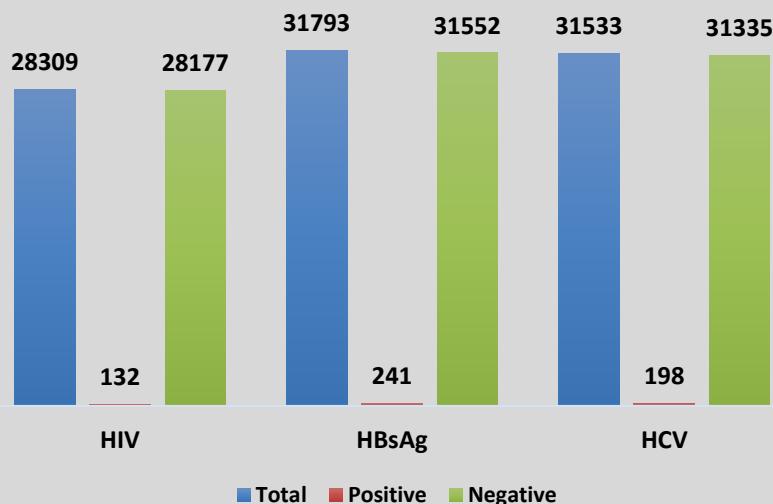






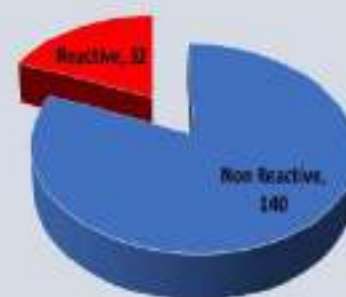
## Emergency lab data, 2021

### Analysis of samples for HIV, HbsAg and HCV in Emergency 2021



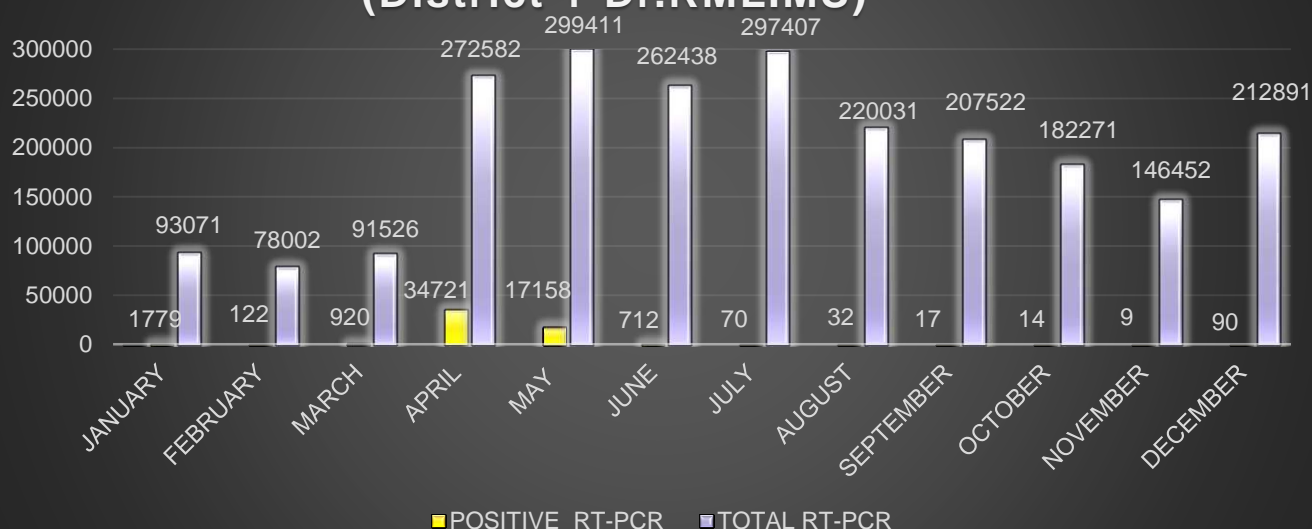
### Analysis of samples for CRP

#### Analysis of Emergency CRP samples in 2021 (N= 172)



## COVID-19 LABORATORY DATA

### Total RTPCR Month wise Results (2021) (District + Dr.RMLIMS)



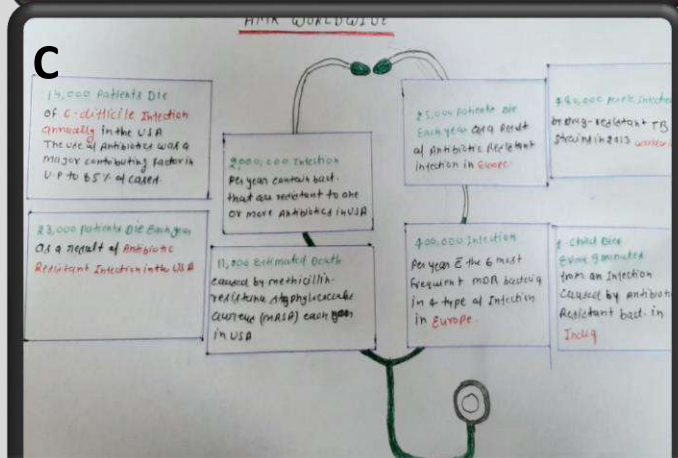
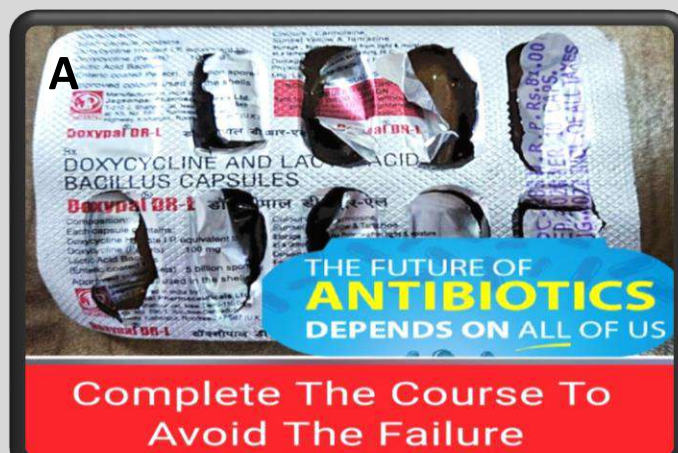
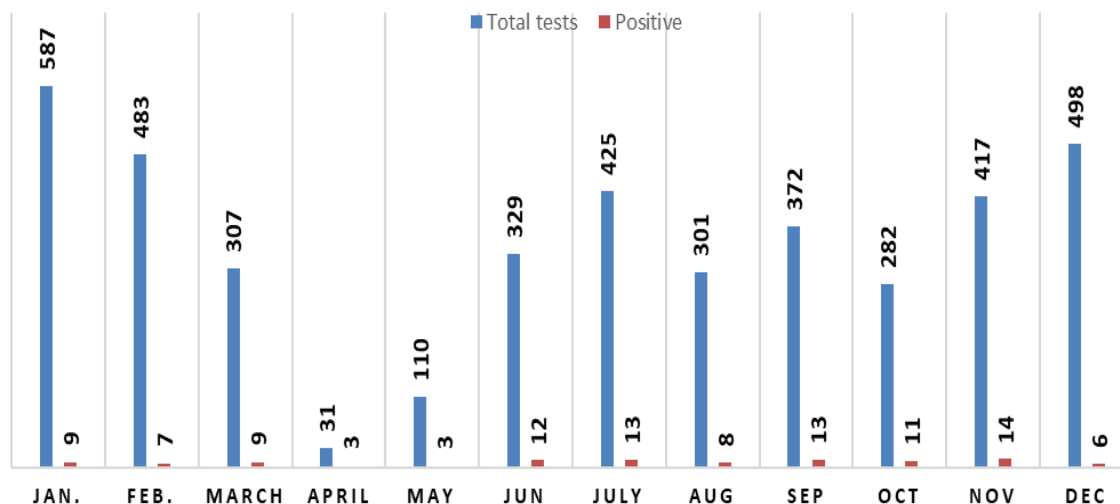
Cumulative test done in the COVID Lab from April 2020, Department of Microbiology (till 14<sup>th</sup> Jan)

- ❖ Cumulative RTPCR data - 3212530
- ❖ Cumulative TrueNat data - 44946



## ICTC DATA , 2021

### ICTC SERVICES AT DR. RMLIMS HIV TESTING (2021)



**Mobiolography competition held in Microbiology department for the Junior Residents :-**

**First Position:** Dr. Harshita Yadav featured on the cover page. Other entries are featured in this collage **A:** Dr Himanshi Srivastava; **B:** Dr. Amit Kumar; **C:** : Dr. Manoj Kumar; **D:** Dr. Shipra Dobhal



## **From Trainee to Task master: my experiences in COVID laboratory**

*-Dr Pranshu Pandey, SR, Department of Microbiology, Dr RMLIMS, Lucknow (MD batch of 2018)*

It's been more than 2 years when the COVID waves started and each wave brought with it some changes in everyone's life, most of which was observed by candidates enrolled for post graduation in various courses under medical teaching institutes. When the first news of spread of a deadly virus started floating in news, I was in second year of my residency under MD microbiology programme. As the virus started showing its monstrous nature the need for increasing diagnostic facility also increased. Our institute, being a tertiary care centre, was vested with the responsibility of testing samples from various districts and I was fortunate enough to be a part of team formed to establish a dedicated laboratory to diagnose SARS CoV-2.

I have been working in the COVID-19 BSL-2 laboratory for around 2 year now in some way or the other and almost everyday comes with some new experiences. When the laboratory was being established I understood the intricacies of proper construction of a BSL-2 laboratory which is definitely one of an experience which a postgraduate trainee would desire for. It's just not only the construction which makes a laboratory, but also the quality of sample processing, pre and post analytics, laboratory supervision, overall micromanagement skill including supplies, inventory etc, , which gives proficiency to the laboratory which I learnt more delicately while working in COVID laboratory. After setting up everything, the management of ever increasing sample load is another skill which I learnt from COVID laboratory. The sample handling in our laboratory was such proficient that our laboratory reached one of the highest performing labs in Uttar Pradesh. Postgraduate trainee in microbiology rarely gets a hand on training on molecular techniques but while working in covid laboratory I got to learn the smallest detail of nucleic acid amplification testing, reading, and interpreting PCR results etc. The covid laboratory experience also taught me the micromanagement skills of handling laboratory supplies, consumables etc.

The second wave of COVID-19 pandemic was the worst both for common public as well as for healthcare workers and being a medical microbiology resident, the experience of night shifts was surely thrilling as very few institutes in India would be having the 24 hour running microbiology laboratories. This surely inculcated in me a sense of responsibility and quality of working as a team. There have been times when patient's relative became agitated to get report of their loved ones, handling these situations also came in hand while working in COVID laboratory but at the end of the day it gave me immense satisfaction when I could help any patient or clinical colleague with their COVID-19 report and also solve their queries regarding various aspect of COVID-19.

Overall, my experience in COVID laboratory has been an unrivalled journey which taught me so many important lessons and none of this would have been possible without the support of my Head of department who trusted me with this challenging task and my seniors for guiding me in coming true to everyone's expectations. This makes me think that every postgraduate trainee should be exposed to such commando postings so that they may learn these important lessons in both professional and personal front.





Departmental Projects 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 August 2020  
**Role- Principal Investigator- Prof Jyotsna Agarwal**
2. **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**
3. **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. OTHERS

1. **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**
2. **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**
3. **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)**
4. **Project Title:** Study of cytokine assay in patients of dengue fever in a tertiary care center of Uttar Pradesh  
**Funded by:** Dr. RMLIMS for 2 years from Aug 2021  
**Role-Co-investigator- Prof Vineeta Mittal**
- 5.. **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**



Continued....

6. **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; Co-I: Prof. Vineeta Mittal, Dr. Anupam Das**
7. **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, Co-I: Dr Anupam Das**

### Departmental Publications in last one year

#### I. COVID RELATED

1. Jyotsna Agarwal, Anupam Das, Pranshu Pandey, Manodeep Sen, Jaya Garg. '**David vs Goliath' A Simple Antigen Detection by Rapid Immuno chromatographic Assay with a Potential to Change Laboratory Testing Strategy for Diagnosis of SARS-CoV-2.** Accepted for publication in Journal of Infection in Developing Countries, ID#13925, March 2021
2. Jyotsna Agarwal, Vikramjeet, Jaya Garg, Ritu Karoli, Swasti Tiwari, Shareh Naqvi, Anupam Das, Manodeep Sen. **RNAemia and clinical outcome in COVID-19 patients a Critical point and time period analysis** Accepted for publication in J Microb Infect Dis-01812
3. Jaya Garg, Jyotsna Agarwal; Anupam Das; Manodeep Sen. **Recurrent COVID-19 infection in Health care worker: Reinfection or Reactivation?** Accepted for publication in Journal of Medical Case Reports MCR-D-20-01450R1
4. Garg, J, Singh, V, Pandey, P, et al. **Evaluation of sample pooling for diagnosis of COVID-19 by real time-PCR: A resource-saving combat strategy.** J Med Virol. 2021; 93: 1526- 1531.  
<https://doi.org/10.1002/jmv.26475>
5. Vikramjeet, Jyotsna Agarwal, Jaya Garg, Anupam Das, Manodeep Sen. **Role of Cycle Threshold of RT-PCR in the Prediction of COVID-19 Cases.** Accepted for publication in J Microb Infect Dis-01830
6. Garg A, Garg J. **Evaluation of Coronavirus Disease 2019 (COVID-19) RT-qPCR Tests in Multi-sample Pools.** Clinical Infectious Diseases. 2021 May 1; 72(9):e434-35.
7. Garg J, Garg A. **Evaluation of SARS CoV-2 RT-PCR in a multiple sample pool.** The Indian journal of medical research. 2021 May;153(5-6):699
8. Singh V, Das A, Sen M, Gupta N, garg J, Agarwal J **Co-infection of mucormycosis and aspergillosis in post COVID-19 patient: A concerning rare case report during second wave of COVID-19 pandemic** International Journal of Medical Microbiology and Tropical Diseases 2021;7(4):300–303
9. Kumar V, Mishra S, Sharma R, Agarwal J, Ghoshal U, Khanna T, K lokendra, Verma SK, Mishra P, Tiwari S, **Development of RNA-based assay for rapid detection of SARS-CoV-2 in clinical samples.** Accepted for publication in International Journal of Fundamental and Medical Virology.2021

#### II. OTHERS

1. Sana Islahi, Anupam Das, Abhilash Chandra, Manodeep Sen, Jaya Garg, Kirti Maurya, Jyotsna Agarwal. **Endonyx onychomycosis due to Trichophyton soudanense: Rare case with successful treatment.** Indian Journal of Microbiology Research. Year-2021 | Volume: 8 | Issue 1 .page no : 93-95
2. Co-editor: Renu Tripathi ,Manodeep Sen, G.P. Dutta **The Use of Artemisinin Derivative Suppositories as Life-Saving Remedy for Critical Malaria Patients.** Cambridge Scholars Publishing ISBN: 1-5275-6589-0; ISBN13: 978-1-5275-6589-0(Published on 16th March 2021)



Continued....

3. Yadav P, Srivastava Jk, Sen M. **Bone Marrow Invasion Of Cryptococcus In HIV Infected Patients With Asymptomatic Meningitis: A Case Report.** International Journal of Biology, Pharmacy and Allied Sciences 2021; June 1;10(6). Available from: <http://dx.doi.org/10.31032/ijbpas/2021/10.6.5506>
4. Yadav P, Sen M, Srivastava JK. **Fatal Cryptococcal Meningitis In A Non-HIV Patient: A Case Report.** International Journal of Biology, Pharmacy and Allied Sciences [Internet]. BPAS Publishers LLP; 2021 Jun 1;10(6). Available from: <http://dx.doi.org/10.31032/ijbpas/2021/10.6.5511>
5. Singh V, Pandey P, Das A, Sen M, Agarwal J, **Transformation of commensal to a pathogen: Blood stream infection due to coagulase negative staphylococci among patients attending tertiary care hospital in North India.** *IP Int J Med Microbiol Trop Dis* 2021;7(2):71-76
6. Jyotsna Agarwal, Vikramjeet Singh, Anupam Das, Soumya S Nath, Rajeev Kumar, Manodeep Sen. **Reversing the Trend of Antimicrobial Resistance in ICU: Role of Antimicrobial and Diagnostic Stewardship.** Indian Journal of Critical Care Medicine (June 2021): 10.5005/jp-journals-10071-23861. Indian Journal of Critical Care Medicine (2021): 10.5005/jp-journals-10071-23861.
7. Maurya R, Rastogi M, Sen M, Singh AK, Sanyal S. **Effect of Chemo-radiotherapy on Salivary Flora of Oral Cancer Patients.** J Pure Appl Microbiol. Published on August 12, 2021. doi:10.22207/JPAM.15.3.44
8. Agarwal AC, Srivastava A, Sen M. **Chronic suppurative otitis media and microbial flora: Adult versus pediatric population.** Indian J Otol 2021;27:22-5
9. Rastogi, S., Mittal V. & Singh A. **Selection of Potential Probiotic Bacteria from Exclusively Breastfed Infant Faeces with Antagonistic Activity Against Multidrug-Resistant ESKAPE Pathogens.** *Probiotics & Antimicro. Prot.* 2021;13, 739–750 <https://doi.org/10.1007/s12602-020-09724-w>
10. Surabhi Shukla, Vineeta Mittal, Peetam Singh, Aditi Singh. **Evaluation of TaqMan based real-time PCR assay targeting LipL32 gene for leptospirosis in serologically positive human urine samples from north India,** Indian Journal of Medical Microbiology 2021;39:11-14, <https://doi.org/10.1016/j.ijmmb.2020.10.017>
11. Karoli R, Shakya S, Gupta N, Mittal V, Upadhyay AK. **Clinical profile of malaria at a tertiary care teaching hospital in North India.** Trop Parasitol 2021: 11: 25-30
12. Garg J, Garg A, kumar A. Circulating MicroRNA-29a: **An Evolving Biomarker for Diagnosis of Pulmonary Tuberculosis.** Journal of Clinical and Diagnostic Research. 2021 Mar, Vol-15(3): DC19-DC23 (Enclosure 3)

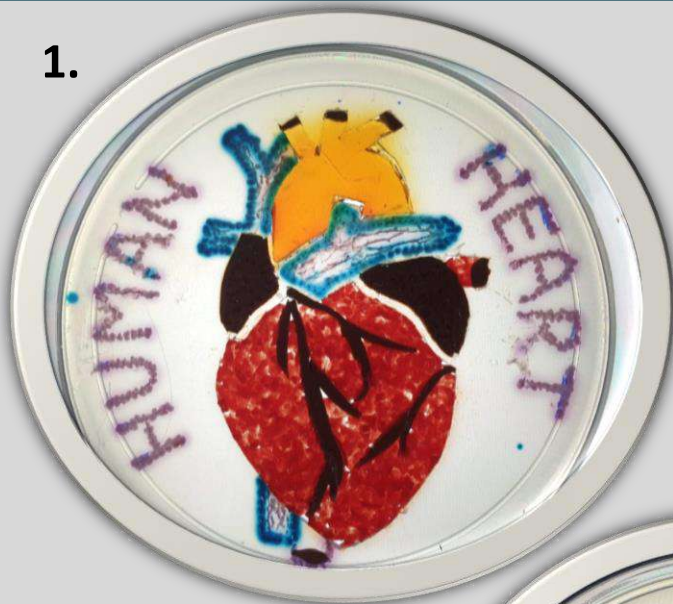
### Congratulations!!

- ❖ Congratulations and welcome to Dr. Vikramjeet Singh and Dr. Akanksha Gupta on joining the department as Assistant Professor (*ad hoc*) in March 2021 and January 2022 respectively.
- ❖ Department of Microbiology wishes happy married life to our Junior residents- Dr. Himanshi Srivastava (married to Vishwajeet Dass) and Dr. Manoj Kumar (married to Dr. Sandhya Mohan)
- ❖ Department of Microbiology congratulates Dr. Akanksha Gupta for being blessed with a baby boy.





1.



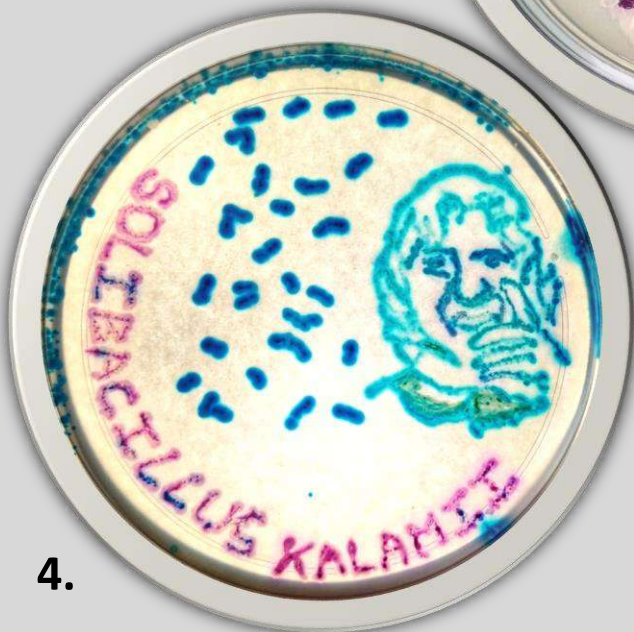
2.



3.



4.



5.



**Fourth Annual Agar art competition held in Microbiology department**

**First Position:** Lab Technician Shalini (Human Heart); **Second Position:** Lab Technician Saima Mansoori: (Microbiologist doing microscopy); **Third Position:** Dr. Shipra Dobhal; Junior Resident (Peace symbol); **Fourth Position:** Dr. Harshita Yadav ; Junior Resident (Solibacillus kalamii & Dr APJ Abdul Kalam) ; **Fifth Position:** Dr. Priyanka Gupta ; Junior Resident (Autumn season).





**Department of Microbiology  
Dr. RMLIMS, Lucknow**  
Invites you for CME cum Newsletter release  
On February 13<sup>th</sup> 2021, 11 AM to 12:30 PM

**"An insight into SARS-CoV-2 mutations & its impact on vaccination"**

Patron: Prof. A. K. Singh, Director, RMLIMS | Co-Patron: Prof. Rudrak Bhasin, Dean RMLIMS

**Keynote Speaker**  
  
Prof. Gagandeep Kang  
Global Strategist & Vaccine Researcher  
ICMR, India

Venue: Mini Auditorium, Ground Floor, Administrative Block, with COVID appropriate infection prevention protocols  
Zoom link will be shared for those who wish to attend online

**PROGRAM**  
11:00 am: Welcome by Head of the Dept.  
11:10 am: Dean's Address  
11:20 am: Director's Address and Newsletter release  
11:30 am: Online Keynote address by Prof. Gagandeep Kang  
11:45 am: Q & A session

Join us for the Academic Feast  
Organizing Chairperson:  
Prof. Jyotsna Agarwal, Head, Dept. of Microbiology, Dr. RMLIMS

8<sup>th</sup> issue of Microbiology Newsletter was released on 13<sup>th</sup> February 2021 & a webinar on "An Insight into SARS CoV-2 mutations & it's impact on vaccination" with Keynote speaker Dr. Gagandeep Kang organized by Deptt of Microbiology, Dr RMLIMS.



CME on recent advances in Management of Tuberculosis under NTEP on 30<sup>th</sup> October 2021 at Dr. RMLIMS

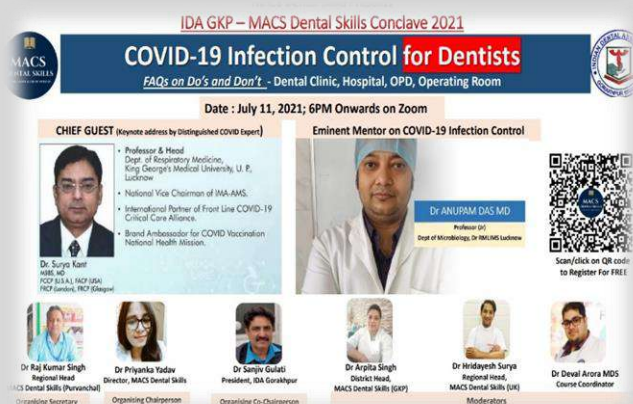




Department of Microbiology, Dr. RMLIMS conducted the module on "Specimen collection for microbiological investigations" as part of Annual resident development programme for all 1<sup>st</sup> year residents



Celebrating World Antibiotic Awareness Week by Web based Symposium on, 23<sup>rd</sup> November 2021

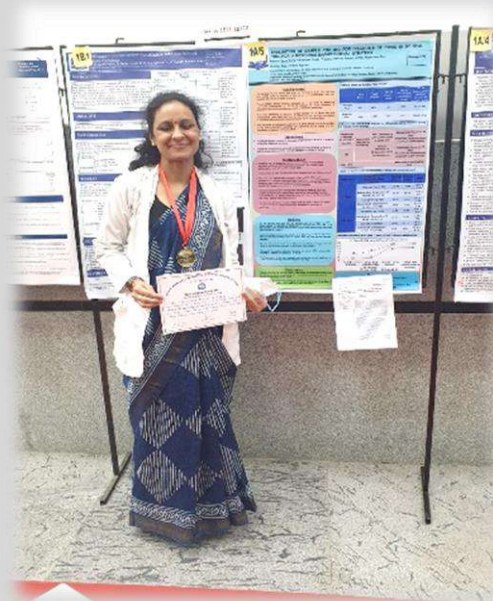
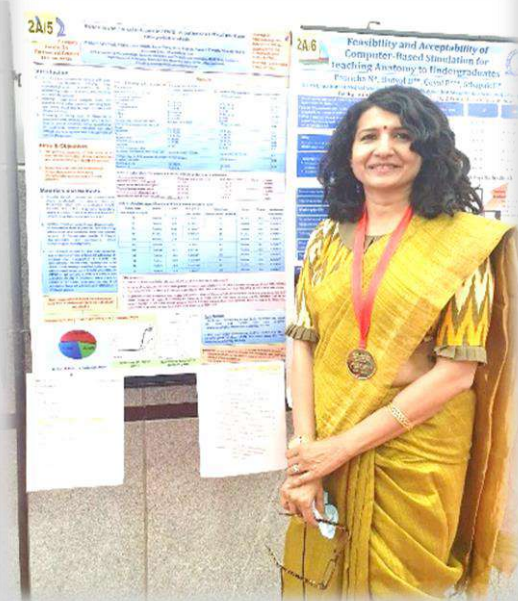


Dr. Anupam Das (Jr.Prof) as eminent speaker on COVID-19 infection Control for dentists, webinar conducted by IDA-GKP-MACS Dental skills conclave 11<sup>th</sup> July 2021



Dr. Anupam Das (Jr. Prof) delivered guest lecture on Mucormycosis in Clinico pathologico radiological conference at Dr. RMLIMS, on 14<sup>th</sup> August 2021





Research Showcase organized on the occasion of Dr. RMLIMS Foundation Day, 19<sup>th</sup> March 2021, Prof. Jyotsna Agarwal and Dr Jaya Garg received BEST POSTER AWARD.



Dr. Kriti Maurya (J.R Batch 2017-20) received Best M.D (Microbiology) Student Award from Hon'ble Governor of Uttar Pradesh, on 1<sup>st</sup> Foundation Day of Dr. RMLIMS, 19<sup>th</sup> March 2021



Dr. Nikhil Raj won First prize in the Quiz on Infection Prevention and Control Olympiad for Healthcare workers around India & Asia organized by Shulke



Dr Nikhil Raj & Dr Pranshu Pandey (Junior Residents) won 1<sup>st</sup> and 2<sup>nd</sup> Prize in MicroMania quiz of XVII UP-UK-MICROCON-2021 (e- conference)





**Sh. Alok Kumar, Principal Secretary, Med Edu (Govt. of U.P) as Chief Guest and Prof. Soniya Nityanand, as Guest of Honour on Felicitation of COVID-19 Laboratory & Associated warriors by Department of Microbiology, Dr RMLIMS on 22<sup>nd</sup> May 2021**



**Santosh Kr Pandey (Technician) received Prashashthi Praman Patra for his exemplary contribution in COVID-19 Pandemic**





COVID Testing Facility under Department of Microbiology of Dr RMLIMS was awarded “BEST TESTING FACILITY” during COVID warriors felicitation programme organized by Director General Medical Education, January 2022, Lucknow, U.P



Teachers Day Celebrations in Department on 5<sup>th</sup> September 2021



Deepawali Celebrations with COVID Lab Team, November 2021





## Departmental Celebrations



Holi Celebrations in the Department , March 2021

Deepawali Celebrations, November 2021



New Year Celebrations in Academic Block, Department of Microbiology, Dr RMLIMS on 1<sup>st</sup> January 2022





Department of Microbiology (Faculty and Residents), Academic Block, Dr RMLIMS, 2022

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## CHANGING

DIAGNOSTIC PARADIGMS FOR MICROBIOLOGY

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

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