BHARATI MICROBIAL NEWS

A half yearly Microbiology Bulletin

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1964-2014 celebrating Golden Jubilee BHARATI VIDYAPEETH

From the Directors Desk

Hospital acquired infections are a global problem that require strict infection control measures and a well researched antibiotic policy for every hospital. I am extremely glad that the Department of Microbiology and Infection Control have initiated the publication of a half yearly News Letter giving details of various types of isolates, their sensitivity pattern, infection control measures to guide clinicians and all health care workers and appropriate use of antibiotics. Wishing the editorial team all the best in their endeavour and I congratulate them for initiating a publication that will go a long way in improving patient care at Bharati Hospital.

Dr. Sanjay Lalwani
Director & HOD Paediatrics
Bharati Hospital

From the Editor -in -Chief

A long cherished desire of our department to bring out the publication of "Bharati Microbial News "is finally seeing the light of the day. The editor Dr Abhijeet Mane and the entire team of advisers, faculty members, PGs and technicians have contributed to make it possible and need to be appreciated for their efforts. This news letter is an attempt to guide clinicians and all other health care workers to be aware of the various isolates obtained in our hospital and their sensitivity pattern, besides useful infection control practices that need to be strictly followed. This will enable us in our pursuit to keep the hospital infection rates low and prescribe antibiotics very judiciously so as to prevent the emergence of drug resistance. Besides that interesting cases, infection control tips, quiz etc have been included to enhance the content and give it a value addition. I am sure it will benefit our clientele and contribute to the fight against the scrouge of nosocomial infection and drug resistance. Any suggestion to improve the news letter will be welcome, as we would like this to be regular publication..

Dr. (Brig) K. K. Lahiri
Prof & HOD Microbiology

CASE REPORT - Cutaneous Diphtheria by Nontoxigenic Corynebacterium diphtheriae var mitis

S.R. Shah*[1], B.Y. Peerzade[1], Lahiri K. K. 1.

- **Introduction :** Cutaneous diphtheria is endemic in tropics and on the rise in developed countries. Cutaneous diphtheria is a neglected clinical entity. We are addressing a rare case of cutaneous (wound) diphtheria with nonhealing ulcer, from a non-endemic area of Pune, Unusual isolation of nontoxigenic strain of Corynebacterium diphtheriae var mitis makes this case more interesting.
- **Aim :** To highlight role of laboratory diagnosis in case of cutaneous diphtheria with a nonhealing ulcer and its impact on clinical outcome.
- **Case :** Male aged 37 was admitted to Bharati Hospital for a non-healing ulcer, increasing in size from last month. Gave a history of trauma. He tried to self-treat the wound. Other lab investigations were within normal limits.
- **Material and method :** Presence of Corynebacterial spp. was reported provisionally on Gram's and Albert's staining from sample. Various media yielded Corynebacterium diphtheriae var mitis, which was confirmed by automated system (Vitek-2). The Non-toxigenic nature of the isolate was detected by Elek's test. Antibiotic susceptibility was performed. Patient responded well with Augmentin (Amoxicillin-Clavulanic acid) and chlorhexidine hydrochloride dressings. No post diphtheric sequelae were observed.
- **Conclusion & Summary :** Laboratories should screen all samples from nonhealing ulcers for corynebacterial spp. If ignored it can have significant impact on clinical outcome in an individual and community and can be a concern for Hospital associated infections too.
- **Keywords :** Cutaneous(wound) diphtheria, Nontoxigenic C. diphtheriae var mitis, Non-healing Ulcer.

Department of Microbiology, BVDU Medical College, Pune. (India)

- ***Correspondence :** Dr. S. R. Shah. Department of Microbiology, BVDU Medical College, Pune. 411043. Maharashtra, India. Email : sunilratilal@yahoo.co.in

Cutaneous Diphtheria Figures And Legends

Fig. : 1

The Lesion :
Single ulcerated wound 5 X 3 cms., oval with demarcated undermined edges. Red colour base, having serosanguinous and tenacious slough, with few yellow to greyish white pseudomembranous resembling pocket. No eschar

Fig. : 1

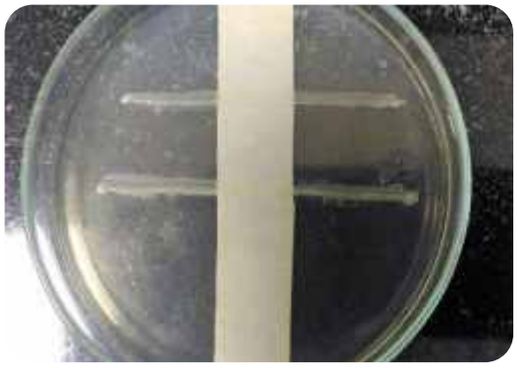
Alberts Stain :
Long slender bacilli with metachromatic granules arranged in V &L and palisades were evidently seen

Fig. : 1

Potassium tellurite showing black colored colonies

Fig. : 1

Elek's gel ppt. Test :
Negative - suggesting nontoxigenic strain of C. diphtheriae

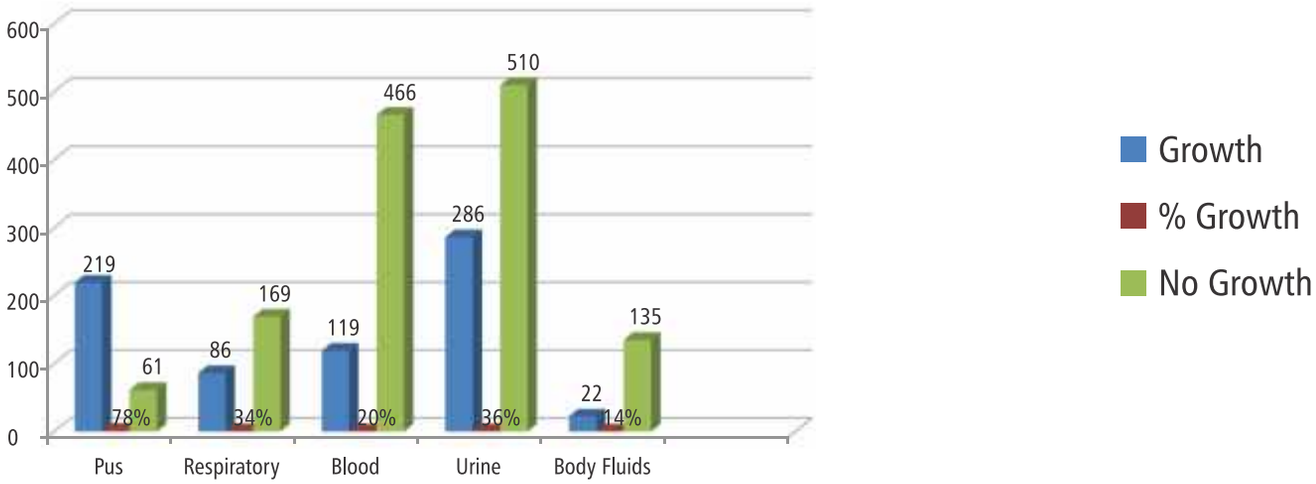


Most Common Isolates (March 2017 to May 2017)

Sr. No.	Pus (n=219)	Respiratory (n=86)	Urine (n=286)	Blood (n=119)
1.	S.aureus (43%)	Acinetobacter (33%)	E.coli (40%)	Klebsiella (21%)
2.	E.coli (14%)	Klebsiella (28%)	Klebsiella (17%)	Acinetobacter (15%)
3.	Klebsiella (11%)	Pseudomonas (13%)	Enterococcus (14%)	S.aureus (15%)
4.	Pseudomonas (9%)	S.aureus (6%)	Pseudomonas (7%)	E.coli (10%)
5.	Acinetobacter (4.5%)	-	-	CONS (10%)

Culture Sensitivity data March – May 2017

Sample Distribution (March 2017 to May 2017, n=2073)



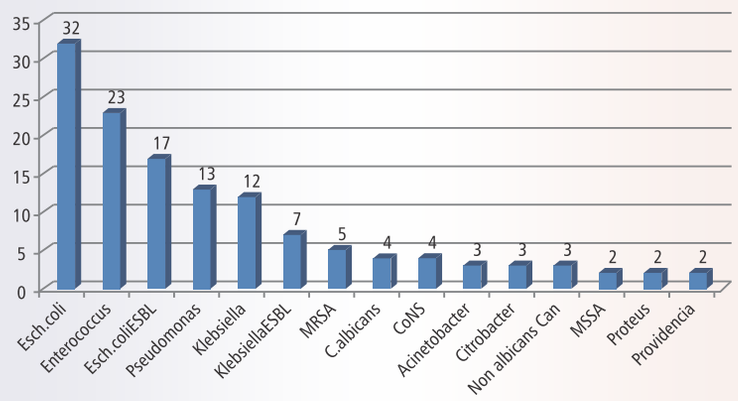
% Sensitivity from Bharati Hospital - Gram Negative Bacilli

	Urine							Blood			Pus			Respiratory		
Antibiotic	Wards	Wards	Wards	OPD	OPD	ICU	ICU	ICU	NICU	NICU	Wards	Wards	Wards	Wards	ICU	ICU
	E.coli	Klebsi-ella	Pseudo-mona	E.coli	Klebsi-ella	E.coli	Klebsi-ella	E.coli	Klebsi-ella	Acineto-bacter	Pseudo-mona	E.coli	Klebsi-ella	Klebsi-ella	Acineto-bacter	Klebsi-ella
	n=49	n=19	n=13	n=44	n=17	n=13	n=8	n=11	n=16	n=8	n=17	n=23	n=15	n=10	n=19	n=11
Colistin	100	95	100	100	94	100	100	100	100	100	100	100	100	100	100	91
PolymixinB	100	100	100	100	94	100	100	100	100	100	100	100	100	100	100	91
Imi/Mero	94	84	69	98	71	92	63	91	63	25	94	87	93	90	26	55
Amikacin	74	37	62	89	53	69	13	91	94	0	50	91	93	100	22	45
Piptaz	75	58	85	84	56	69	25	54	25	13	65	70	80	90	11	27
Gentamicin	63	42	62	77	41	46	0	64	63	13	50	67	80	80	11	45
Ciproflox	31	31	33	59	46	40	0	18	44	13	50	30	73	70	11	36
Cotrimoxazole	32	21		50	44	23	13	36	63			55	67	78	16	36
Cefepime	31	11	67	50	47	15	0	27	13	13	38	26	47	70	11	18
Aztreo	31	11	63	37	40	17	0	9	0	0	56	17	40	67	11	18
AmoxClav	63	17		69	46	14	0	18	0	14		23	36	55	13	0
Ceftaz	28	11	58	40	41	15	0	9	0	13	44	26	33	50	11	10
Ceftriaxone			42	37	47	15	0	9	0	13	33	26	33	63	12	10
AmpiSulb	41	16	0	58	41	17	0	13	0	0	33	27	30	57	13	0
Cefotax	28	11	58	37	41	15	0	9	0	13	38	26	26	67	11	11
Piperacillin	6	11	72	24	29	8	0	13	0	0	50	8	21	33	5	20
Cefuroxime	27	11		35	41	15	0	9	0	13		18	20	63	11	0
Norflox				74	53	25	0									
Nitrofurantoin	64	35		85	37	76	0									

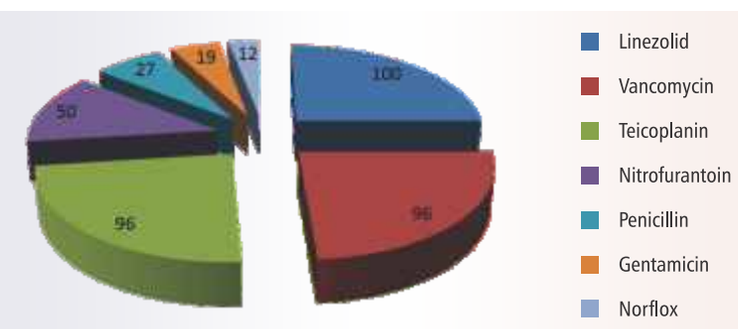
Percentage Sensitivity from Bharati Hospital - Gram Positive Cocci

Antibiotics	Urine	Pus	
	Wards Enterococcus n=23	Wards S.aureus n=55	OPDs S.aureus n=28
Vancomycin	96	100	93
Teicoplanin	96	100	96
Linezolid	100	98	100
Rifampicin		96	100
Chloramphenicol		92	96
Tetracycline		92	96
Clindamicin		77	75
Gentamicin	19	74	75
Cotrimoxazole		53	70
Erythromycin		48	50
Cefoxitin		35	39
Ciprofloxacin	12	30	21
Penicillin	27	5	11
Norfloxacin	12		

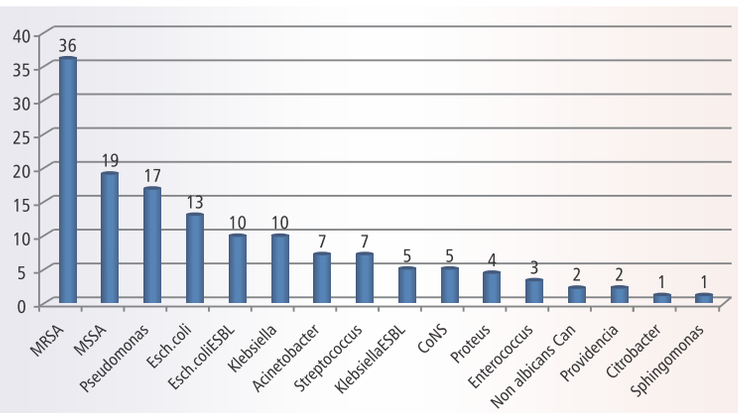
Types of isolates from All wards Urine (n=132)



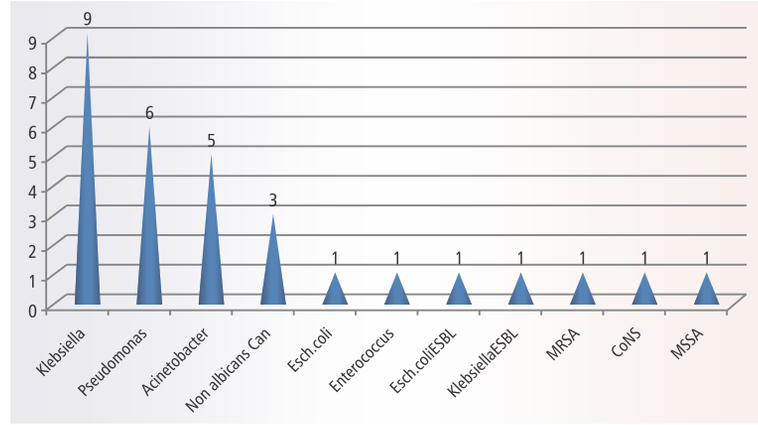
Antibiotic Sensitivity Pattern - Urine All wards Enterococcus (n=23)



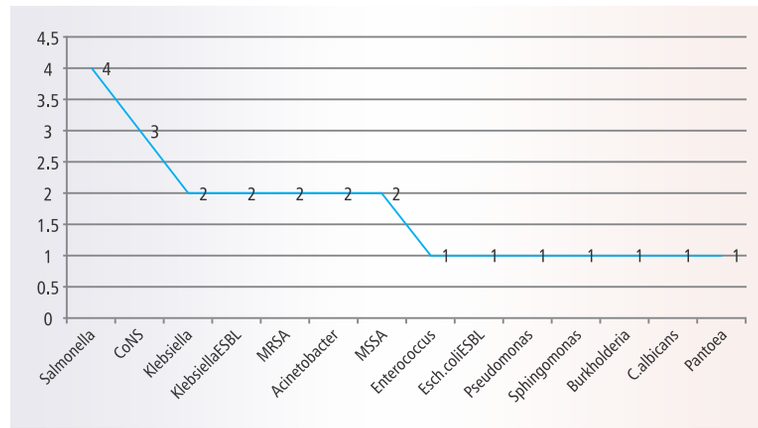
Types of isolates from All wards PUS (n=142)



Types of Respiratory isolates from All wards (n=30)



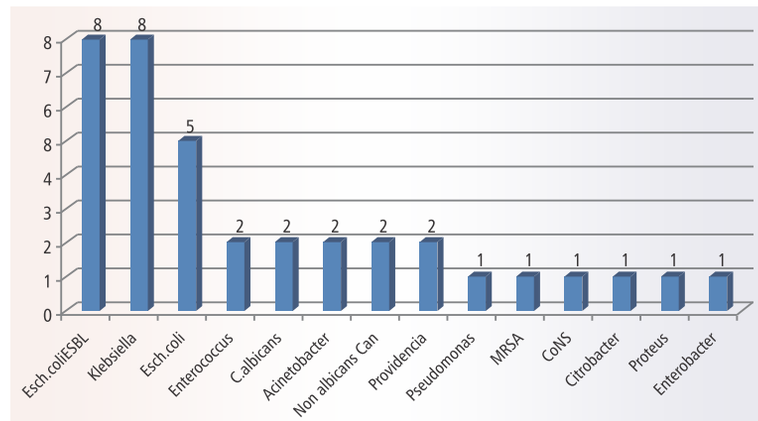
Types of Blood isolates All wards Blood (n=24)



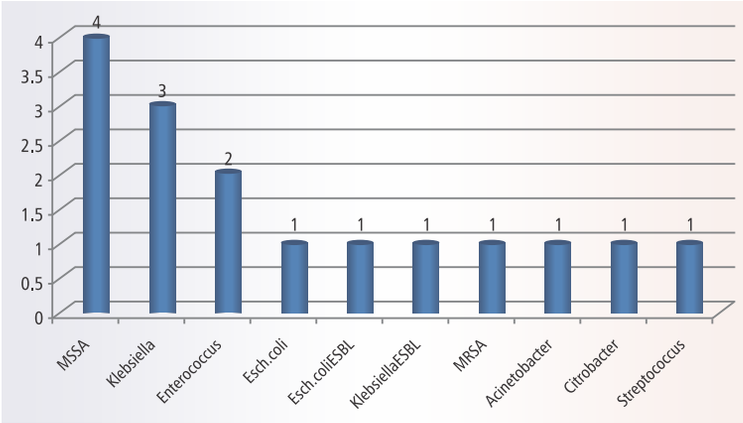
No. of isolates from ICU - (n=154)

- Blood = 50
- Respiratory = 48
- Urine = 37
- Pus 16
- PF 3
- Pleurd Fluid

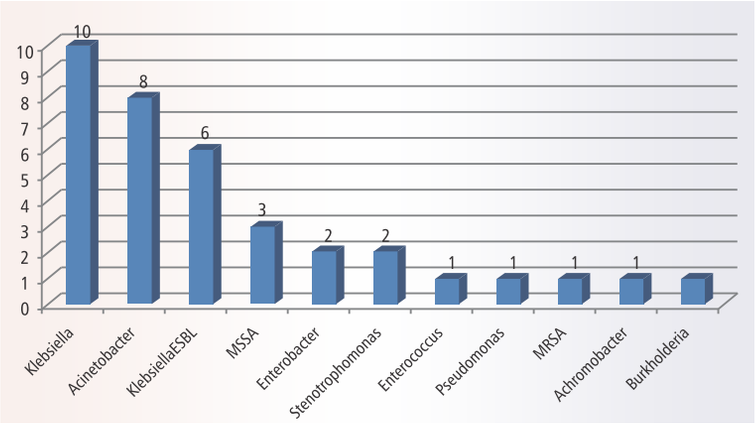
Types of isolates from ICU - Urine (n=37)



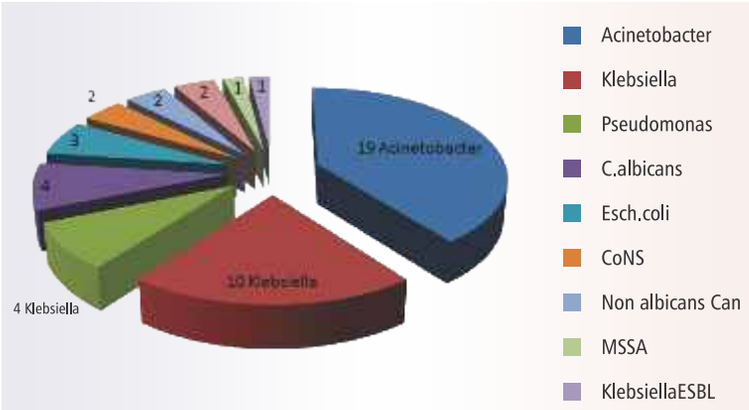
Types of isolates from ICU PUS (n=16)



Types of isolates from NICU Blood (n=36)



Types of isolates from ICU Respirratory (n=48)

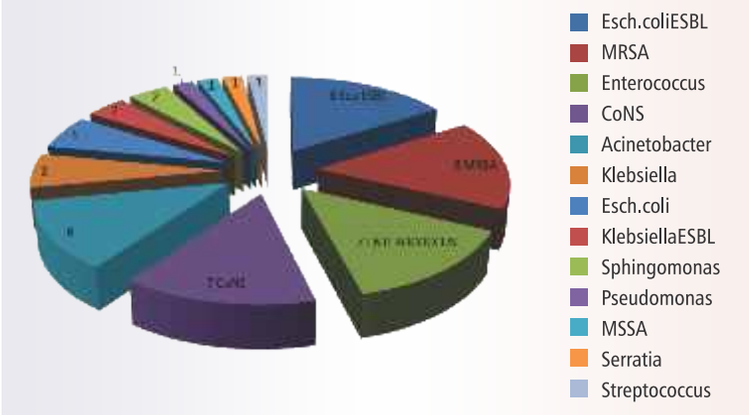


Isolates From

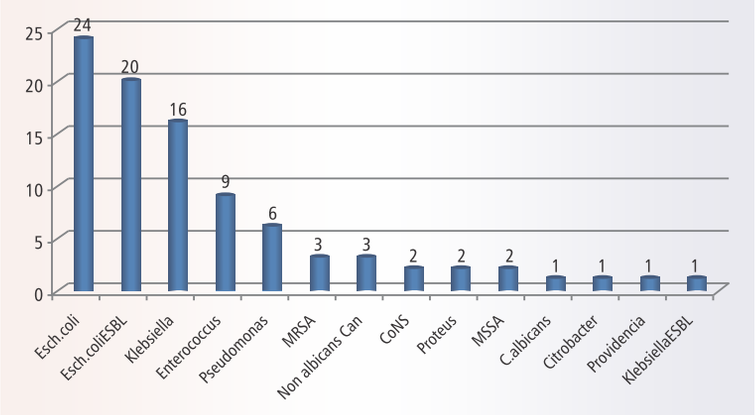
- PICU (n=23)
- Blood 8
- Pus 7
- Respiratory (ETT) 5
- Urine 1
- CSF 1
- AF 1

- All OPDs (n=146)
- Urine 91
- Pus 53
- Respiratory 1
- Blood 1

Types of isolates from ICU Blood (n=50)



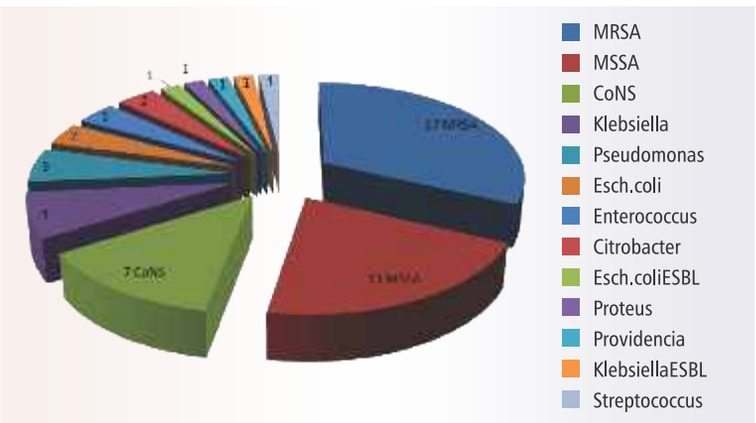
Types of isolates from All OPDs Urine (n=146)



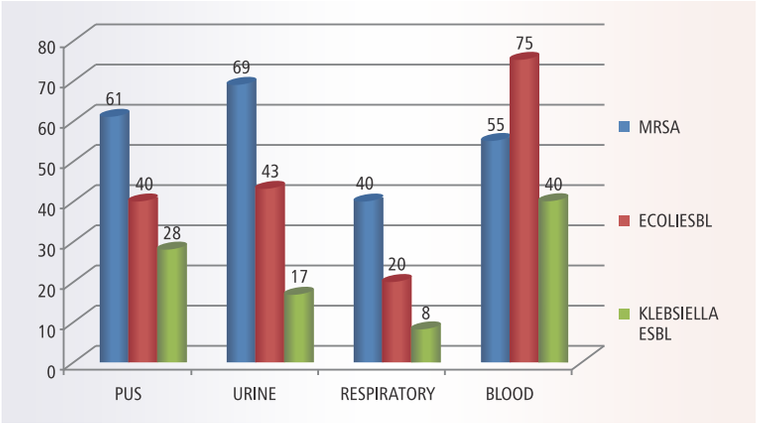
Isolates From

- NICU (n=52)
- Blood 36
- Urine 5
- Pus 5
- CSF 5
- Respiratory 1

Types of isolates from All OPDs Pus (n=53)



Multi Drug Resistant Organisms sample wise (%)



Positive Viral Serology Data

1st January 2017 - 30 June 2017			
	HIV	HBsAg	HCV
Total	2943	3603	2943
OPD	942	1524	942
IPD	2001	2079	2001
Pasitive	61	97	61
%Positive	2.07%	2.69%	2.07%

DENGUE DATA OF JANUARY 2017 - JUNE 2017

Sr. No.	Month	Total Tests	Positive Test	NS1	IgG	IgM	NS1-IgG	NS1-IgG	IgG-IgM	NS1-IgG-IgM	Total
1.	Jan	43	10	2	0	4	0	0	3	1	10
2.	Feb	42	6	1	2	1	0	1	1	0	6
3.	Mar	43	7	0	1	5	0	0	1	0	7
4.	Apr	52	6	0	1	2	0	0	2	0	6
5.	May	41	11	1	2	4	2	0	2	0	11
6.	June	65	13	5	1	6	0	0	1	0	13
Total		**286**	**53**	**10**	**7**	**22**	**2**	**1**	**10**	**1**	**53**

Microbiology Trivia

1. Which microorganism produces a toxin which helps get rid of wrinkles?
2. In what 1995 Hollywood movie, did the Motaba virus infect the fictional town of Cedar Creek, California?
3. What was the name of dog that pulled the sled that brought antiserum to Nome, Alaska during the 1925 diphtheria epidemic?
4. Which virus did Tom Hanks suffer from in the 1993 movie, "Philadelphia"?

Microbiology Trivia (Answers)

- Clostridium botulinum
- Outbreak
- Balto
- HIV

Hospital Infection Control tips…

- Use one needle. One syringe. Only one time
- Skin disinfection – always from centre to periphery in circular motion and discard swab
- Do not palpate area after skin disinfection
- After application of tourniquet, collect blood sample within 1 minute
- If blood sample is collected for multiple tests, Blood C/S sample should always be collected first
- Always flush i.v. line with sterile normal saline before and
- No sticking should be applied to cover Multi Dose Vial rubber cork after administering antibiotic

Fun exercise…

Hand Hygiene Word Search

The words hidden within this word search run horizontally. vertically and diagonally. Total possible points for this exercise are 30: one point for each question you complete correctly. and one point for when you find the word within the word search grid below.

D	B	C	A	V	C	B	D	G	Y	C	V	G	A	Y
F	E	X	L	F	N	E	F	R	L	H	T	E	T	L
J	H	C	C	H	A	N	D	C	R	E	A	M	O	R
A	A	E	O	L	L	A	A	L	O	M	P	A	Z	O
S	V	S	H	N	N	V	R	E	S	I	D	E	N	T
W	I	P	O	K	T	I	W	K	H	C	L	I	N	H
U	O	R	L	W	E	A	U	R	O	A	W	E	R	A
M	U	E	B	Q	P	U	M	Q	I	L	I	U	Q	I
A	R	A	A	U	J	R	A	I	I	S	V	R	I	R
P	H	D	S	E	A	H	P	E	N	H	K	H	E	B
I	B	H	E	W	L	E	I	A	N	A	E	B	A	O
L	Y	O	D	H	E	Y	R	H	E	Y	T	Y	H	R
B	D	L	D	O	O	T	B	O	D	T	E	I	D	N
C	E	O	P	Y	S	U	S	P	E	N	D	S	O	E
P	O	W	D	E	R	F	R	E	E	G	P	F	Q	N

Write the words as you find them below, and then add up your score.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7.8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____ Total scored out of 15

e.g. diagonal – DECONTAMINATION

Please send maximum answers to Infection Control Department; Highest scorer will win a prize

Faculty publications 2016-17

1. Dalal.B.A.,Bhatawadekar S.M. Hook worm infestation in Infant: A rare case report. Paripex- Indian Journal of research. Oct 2015. Vol 4 :Issue10 :53

2. Ibrahim AJ, Bhatawadekar SM, Arunima et alBacterial profile of diabetic foot ulcer study from western India .Int J Health Sci Res. 2016;6(5):65-71.

3. Bushra Yousuf Peerzada, Sunita Mangesh Bhatawadekar, Ankana Chakraborty, Kunal K Lahiri. Non fermenting gram negative bacilli as emerging pathogens - report from tertiary care hospital in Western India. Paripex- Indian Journal of research. 2017; 6(4):680-682.

4. Sonali Suryawanshi,Toltlani PS, Sahastrabudhe RA, BhatawadekarSM, Pandit VA. Branded versus Generic (Branded-Generic) Medicines- for whose Benefit? J basic Clin Pharma 2017; 8:158-161.

About EQAS...

- This department participates in the EQAS programme conducted for Bacteriology & Serology (since 2011) at CMC Vellore and Mycology (since 2016)at PGI Chandigarh respectively
- Bacteriolgy and serology

Sr. No.	Date	Marks Scored	% marks	Remarks
1	April 2016	22/23	95.7%	Excellent
2	July 2016	25/25	100%	Excellent
3	October 2016	16/17	94.1%	Excellent
4	February 2017	Bacteriology - 69.5/75 Viral Serology-24/24	96.5% 100%	Excellent Excellent

Mycology

Sr. No.	Date	Score	Remark
1	30/4/2016	40%	Average
2	5/10/2016	70%	Good
3	5/5/2017	80%	Excellent

Towards NABH Safe - I...

Towards NABH *Safe-I...*

NABH Safe I is a certification programme by NABH to enhance Infection control practices and protocols.

Six components of Safe – I are

- Safe injection
- Safe infusion
- Infection Prevention
- Healthcare Workers Safety
- Bio Medical Waste Management
- Disinfection and Sterilization

In this hospital baseline audit and training by NABH Safe – I was conducted for 60 HCWs including doctors and nursing staff. Subsequently, Infection Control Department and trainers will conduct on going training for paramedical and medical staff. Hoping to achieve NABH Safe-I accreditation by end of 2017

Dr. Anuradha Tolpadi
Incharge,
Infection Control Department
Bharati Hospital, Pune

Case 1 : Introduction – Sexualy transmited infections (STDs) constitute a major public health problem for both developing and developed countries. The emergence of HIV infection has increased the importance of measures aimed at control of STDs. Overall bacterial STDs like chancroid and gonorrhea are showing a declining trend, but the viral STDs like herpes genitalis and condylomata acuminata are showing upward trend. Donovanosis will be eradicated in several nations; but syphilis still not been eradicated and Gonorrhea, chlamydia, chancroid and trichomoniasis are still persistant despite their curability.Hepatitis B, HIV and other blood-borne pathogens are stil a major health hazard.

Case - 20 year male unwell since 5 days admitted in Bharati hospital , Pune. He came with c/o fever redness of eyes , throat pain and vesicular erruptions over palate and oral mucosa and perioral ulcers. The mucositis had worsened so as that he had devoloped dysphagia. He also c / o burning micturition. He was sexualy active and gave h/ o unprotected sex along with h/o oral sex in recent past about a month back. On admission he was hemodynamicaly stable. Fever had decreased. On examination conjunctival congestion with some purulent sticky discharge was present s/ o conjunctivitis. Restricted mouth opening with perioral ulcer ,pooling of saliva ,mucositis of oral mucosa and thrush was present. The lesions were s/o Herpes simplex. Genitourinary examination showed pus discharge at penile site. No ulcer or pain at that site. No inguinal lymphadenopathy. There was no joint involvement. The pus was sent for microbiologicaly examination and revealed gonococci on gram stain but c/s didnt grow the organism. His serology was negative for HIV ,Hbs Ag ,HCV and VDRL. He was treated with ceftriaxone along with tab doxycycline. Better with treatment.

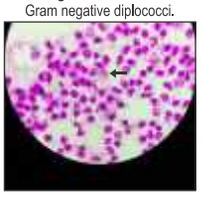
Discussion - Gonorrhea is a purulent infection of the mucous membrane surfaces caused by Neisseria gonorrhoeae. N gonorrhoeae is spread by sexual contact or through transmission during childbirth. It was one of the prevalent sexualy transmited infection But now with the advent of antibiotic the overall incidence in India of the bacterial STIs like chancroid and gonorrhea are declining, Treatment with single dose of Inj Ceftriaxone for urethritis is recommended. But now with emergence of cephalosporine resistance treatment of goorrhea is becoming a problem.

Correspondence – Dr. Swati Shelgikar ID Fellow Bharati hospital, Pune. Email id – drswatishelgikar@gmail.com

Image 1 – Oral ulcers with pharyngitis

Image 2 – Pus discharge at urethral site

Image 3 – Intracellular Gram negative diplococci.



Case 2 : Introduction : Pyrexia of unknown origin (PUO) is vexing for patients and clinicians alike, and needs detailed history taking, frequent assessment and thorough investigations for accurate diagnosis.

Case : Mrs. X, a 28 year old Farmer from Konkan, presented with Fever since 1 month, weight loss of 5 kg, malaise, skin lesions over limbs and redness in right eye. She was febrile and had erythema nodosum like lesions over both legs with few pustular lesions over arms. She had few oral lesions and right conjunctival suffusion. There were no palpable nerves or lymph nodes. No abnormal systemic findings. Lab investigations revealed Microcytic hypochromic anemia with mild leukocytosis and normal platelet count. She had mild transaminitis and A : G reversal. Tests for common tropical infections like Dengue (NS1, IgM), Ricketssial diseases(Weil Felix), Malaria(RMT), Leptospirosis (IgM), Brucella antibodies and viral serology(Hiv, Hbv, Hcv) were negative. Trans-thoracic Echo was normal. Ultrasound abdomen showed few mildly enlarged lymphnodes in perihilar region adjacent to pancreatic head. Considering her skin lesions and oral ulcers, autoimmune disorder was suspected, ANA blot tested negative, ASO titre-900, Sr LDH-491. Serial Blood cultures were sterile.

Keeping in mind her farming background, skin lesions and ?right eye phlecten, TB was suspected and she underwent bone marrow aspiration with culture and MRI chest and abdomen. BM histopathology showed normal marrow and culture was sterile. MRI did not reveal any necrotic nodes. Throughout the course of admission she had continuous high grade fever. Decision to treat her with empiric Anti-Tuberculous therapy was taken, steroids were deferred. Her fever persisted and she developed new pustular lesions on her limbs. Skin biopsy was taken, which on histopathology showed dense neutrophillic infiltration of dermis suggestive of Acute febrile neutrophilic dermatosis. She was then started with oral corticosteroids and showed rapid improvement with treatment.

Discussion : Sweet syndrome (acute febrile neutrophilic dermatosis) is an inflammatory disorder characterized by the presence of inflammatory papules, plaques, or nodules on the skin, systemic symptoms, fever >38? C and neutrophilic infiltration of the skin. It is divided into three categories based on etiology: classical Sweet syndrome, malignancy-associated Sweet syndrome, and drug-induced Sweet syndrome. Sweet syndrome is diagnosed by clinical and laboratory criteria. Patients typically show dramatic response to corticosteroids.

Correspondence : Dr.Sujata Rege, Department of Infectious diseases, Bharati Hospital and Research Centre, Pune. Email-sujrege@gmail.com

Fig 1 : **At admission -** Violaceous papules and plaques over arms

Fig 2 : Conjunctival suffusion

Fig 3 : Oral ulcers over buccal mucosa and tongue

Fig 4 : Erythematous papulo-nodular lesions over lower limbs

Fig 5 : **Day 7 :** progression of upper limb rash to pustular lesions

Fig 6 : **Day 10 :** Progression to Vesiculo-pustular lesions over limbs