Waitematā
District Health Board

Best Care for Everyone

DHB Board Office
15 Shea Terrace
Takapuna, Auckland 0622
Private Bag 93-503, Takapuna
North Shore City 0740
Telephone: 09 486 8900
Facsimile: 09 486 8924
www.waitematadhb.govt.nz

15 October 2019

[redacted]

Dear [redacted]

Re: OIA request - Copies of reports regarding drug-resistant bacteria and number of deaths

Thank you for your Official Information Act request received by Waitematā District Health Board (DHB) on 30 September 2019 seeking information about drug-resistant bacteria.

To provide some context to your query, as most bacteria seen in clinical isolates are resistant to one or more antibiotic, we focus on the different multi-drug-resistant bacteria, specifically: ESBL (extended spectrum beta-lactamase), MRSA (methicillin-resistant Staphylococcus aureus), CPE (carbapenemase-producing enterobacteriaceae), CRO (carbapenem-resistant organisms) and VRE (vancomycin-resistant enterococci).

All data relating to multi-drug-resistant organisms (MDROs) are collated and presented in Infection Prevention & Control (IP&C) monthly reports, which are presented to the IP&C Executive committee. Information from the IP&C monthly reports is extracted and included in Hospital Advisory Committee (HAC) reports, which are publicly available.

To avoid misinterpretation of data the IP&C Service does not produce any stand-alone reports.
The IP&C Service also guides screening for MDROs, in the event of an MDRO outbreak, under the direction of the Clinical Microbiologists / Infectious Diseases Physicians.

The purpose of the IP&C Executive is to establish the Infection Prevention and Control strategy, monitor progress, and recommend key infection control practices and priorities.

You will note from the *Infection Prevention and Control 2018 Year End Report* that Waitematā DHB achieved the highest hand hygiene compliance in the country (from 1 April to 31 October 2018). During 2018, we also achieved our highest hand hygiene compliance (91%) since the programme started in 2009.

In addition, the report demonstrates that cleaning quality at North Shore and Waitakere hospitals is high or very high measured against national benchmarks.

Your questions and our responses are detailed on the following page.

I am writing to request any internal or external reports prepared for Waitematā DHB leaders on drug-resistant bacteria in North Shore and Waitakere hospitals in the past year, please.
In response, please find attached:

1. *Waitematā DHB Infection Prevention and Control October 2018.* This information was reported in full in the following Health Advisory Committee report:
2. *HAC-Open-December-2018* – PP 172-177
3. *Waitematā DHB Infection Prevention and Control 2018 Year End Report*
4. *Waitematā DHB's Infection and Prevention Control Mid-Year Report Jan-July 2019.* This information was reported in full in the following Health Advisory Committee report:
5. *HAC-Open-Meeting-31.07.19* – PP 152-160

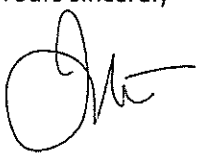
I would also like information on any deaths in 2019 attributed to hospital-acquired antibiotic-resistant bacteria - how many, age, hospital, type of bacteria, etc.
Attributing deaths directly to MDRO (multi-drug-resistant organisms) depends on how they are clinically coded. Given the reduction in ESBL-related infections, as seen in the attached six-monthly report, it is unlikely there were any deaths directly related to MDRO status. MDRO may have been a possible contributing factor but a direct correlation cannot be proven.

I trust that this information meets your requirements. Waitematā DHB, like other agencies across the state sector, supports the open disclosure of information to assist the public's understanding of how we are delivering publicly-funded healthcare.

This includes the proactive publication of anonymised Official Information Act responses on our website from 10 working days after they have been released.

If you feel that there are good reasons why your response should not be made publicly available, we will be happy to consider this.

Yours sincerely



Dr Jonathan Christiansen
Chief Medical Officer
Waitematā District Health Board

Waitemata
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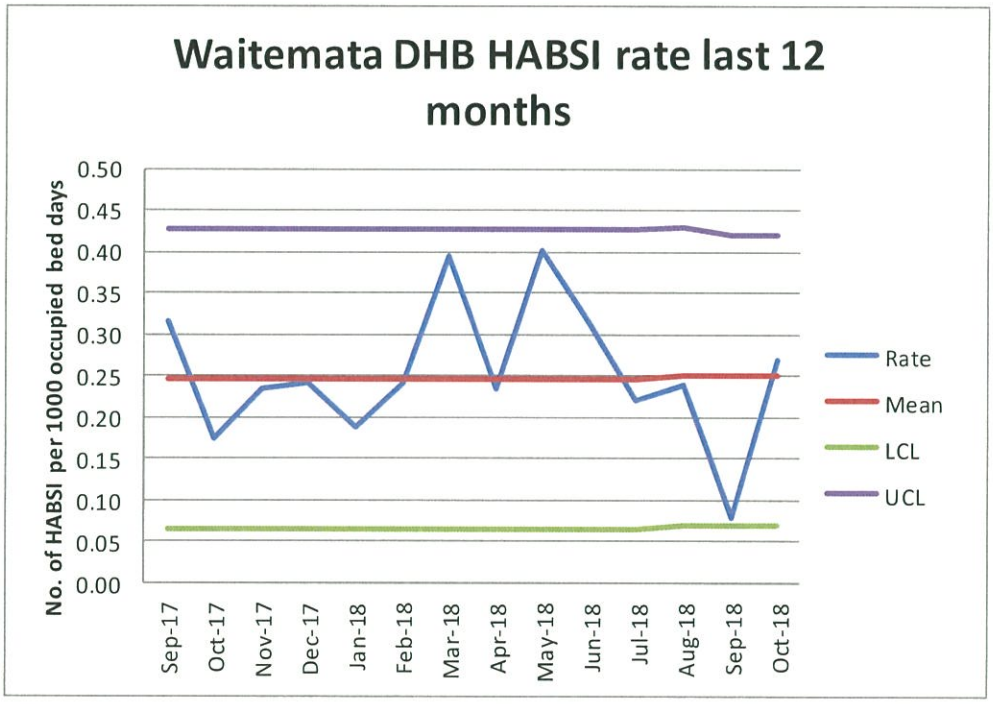
Waitemata DHB Infection Prevention and Control October 2018

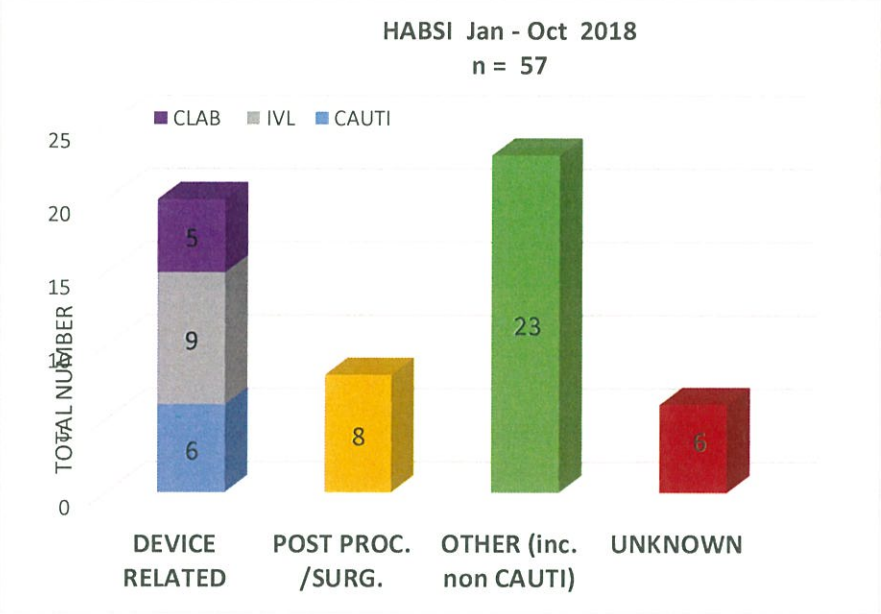
1. Hospital acquired bacteremia (HABSI)

A total of 6 HABSI's were identified in October (rate 0.27/1000 bed days). Three of these were device related - 2 CLAB and 1 CAUTI but considered non-preventable after review of individual cases by the IPC team.

Table: Monthly distribution of HABSI Jan – October 2018

2018	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct
Total No. HABSI	4	5	8	5	9	7	5	6	2	6
Rates/1000 Bed Days	0.19	0.24	0.4	0.23	0.40	0.31	0.22	0.25	0.09	0.27





Sources of HABSI January – Oct 2018

Table: HABSI classification for October 2018

Source	Total	Ward	Organism	Comments
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		Ward 8	Citrobacter koseri	Pelvic exenterating in August 2018. Readmitted in October for exploration / dissection soft tissue and wound washout. Developed bacteraemia post operatively deemed unavoidable due to history of infected wound requiring on-going negative pressure dressing

2. Extended spectrum Beta lactamase producing bacteria (ESBL)

PLEASE NOTE THAT THE DEFINITIONS OF HA-ESBL HAVE BEEN MODIFIED SINCE AUGUST 2018 FOR REPORTING PURPOSES. THE NEW DEFINITION (BELOW) IS MORE SIMPLIFIED AND ALIGNS WITH THE ICNET AND CDC SURVEILLANCE DEFINITION.
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Overall, the HA-ESBL rate for October remains low, especially ESBL Kleb pneumoniae.
E Coli and other ESBL producing Enterobacteriaceae contributed to 14 of 15 ESBL's. Only 1 HA ESBL K.pneumoniae was found.
12 of the 15 HA-ESBL were at NSH from 8 different wards (surgical wards 4 and 8 had 4 HA ESBL's combined, medical wards 2, 3, 10, had total of 5 HA ESBL's combined). No HA ESBL identifed in older adults wards 14, 15

Overall rate/number at NSH and WTH	2017 Overall	Jan – June 18	July 2018	August 2018 New definition	Sept 2018	October 2018
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HA Def-ESBL	9.1 (243)	7.0 (90)	NSH: 7.5 (12) WTH: 1.4 (1)			

This sustained reduction in ESBL K. pneumoniae cross-transmission along with low numbers (approximately 10-15) known ESBL K.pneumoniae patients admitted to NSH Gen Med wards at any given time has resulted in underutilisation of ward 11 over the last few months. Hence, the scope of ward 11 will likely be expanded in near future to admit non- MDRO patients also, in addition to designated cohorting of ESBL K.pneumoniae patients.

3. Clostridium Difficile

- There were a total of 12 CDI in October 2018, this is comprised of 6 x HO-HCA CDIs, 5 x CO CDI and 1 recurrence
- The proportion of HO-HCA infections for the year to date is 48%. For October the proportion was 50%
- 5 of the 6 HO-HCA cases were reviewed by the AMS group. Two cases were assessed as being potentially avoidable

The CDI rate for YTD 2018 is 3.5 per 10,000 bed days and the rate for October was 4.9 per 10,000 bed day

4. Seasonal Influenza 2018

Following a late peak in August and September, the number of confirmed influenza cases at NSH and WTH continues to decline sharply in keeping with national seasonal influenza trend. Local surveillance reporting will cease for 2018. Influenza A H3N2 was the predominant type in 2018 with a small proportionate increase in Inf B cases towards the latter part of the season.

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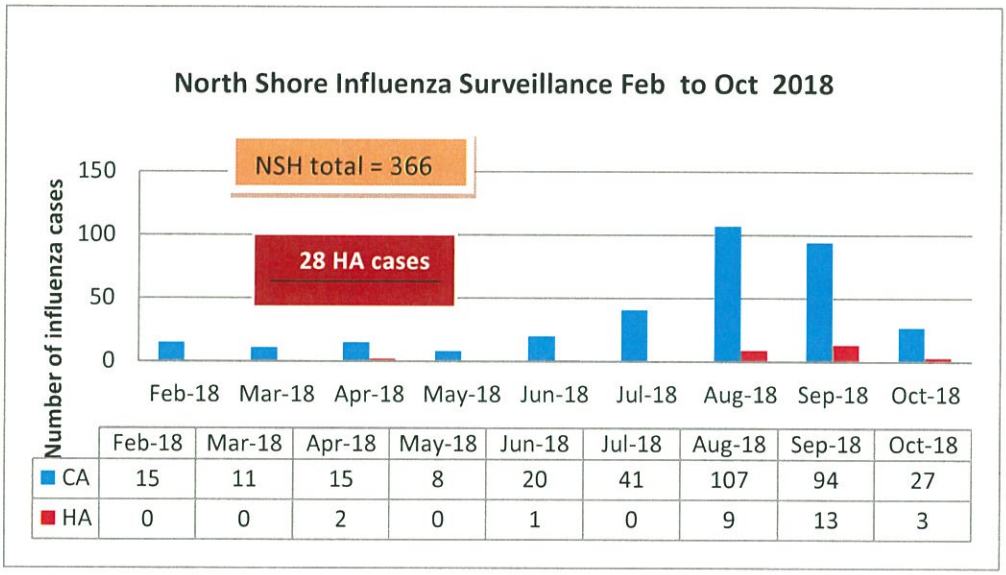
Compared to 2017, there has been a reduction in HA influenza cases due to collaborative efforts of IPC, operations, staff and WDHB central.



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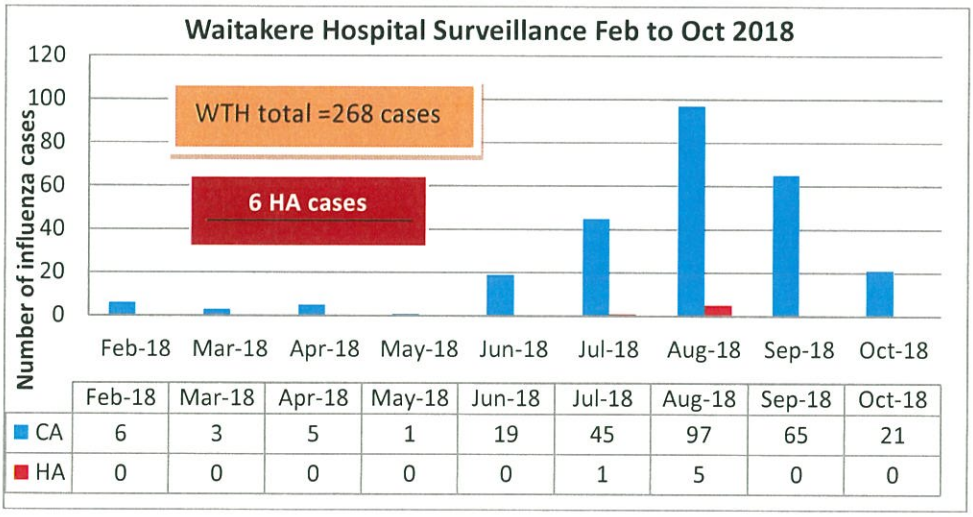

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No outbreaks or cluster for October 2018

Contact tracing October 2018

Disease	Total cases	Ward	No of pt. contacts	No of staff contacts	Comments
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6. Environmental Audits

Ward /Unit	Issues	Recommendations	Outcome
ED NSH	Several cleaning, maintenance and nursing issues identified i.e. same issues have been raised for past three years - clean items such as gloves located close to sluice disposal unit. No temperature monitoring of drugs fridge. Boxes on floor.Paeds waiting areas need scrubbing	Move stores into available shelving Fridge thermometers need to be purchased and daily temp recordings documented Relocate clean items away from sluice disposal unit to prevent contamination of gloves	Follow-up review November 2018
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CSSD NSH	Substandard cleaning of service lift between CSSD and Theatres. Generally all vents were dusty NB: Vast improvements made in CSSD since last audit. Cleaner is doing a great job keeping the floors clean despite the age and wear and tear of the flooring	Responsibility for cleaning lift need to be shared between CSSD and theatre. This needs to be done more regularly Increate cleaning of vents quarterly to coincide with HEPA filter checks	Follow-up review 30th November 2018

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IP&C input:

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Best Care for Everyone

HOSPITAL ADVISORY COMMITTEE (HAC) MEETING

Wednesday 5 December 2018

1.30pm

A G E N D A

VENUE

Waitemata District Health Board
Boardroom
Level 1, 15 Shea Tce
Takapuna

Waitemata District Health Board

Best Care for Everyone

Waitemata DHB Infection Prevention and Control October 2018

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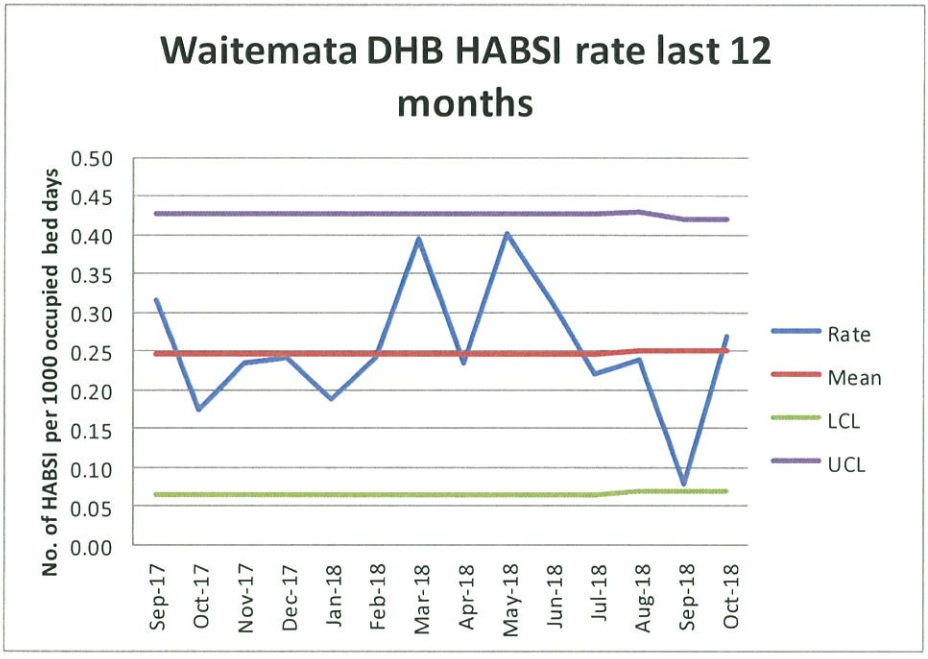

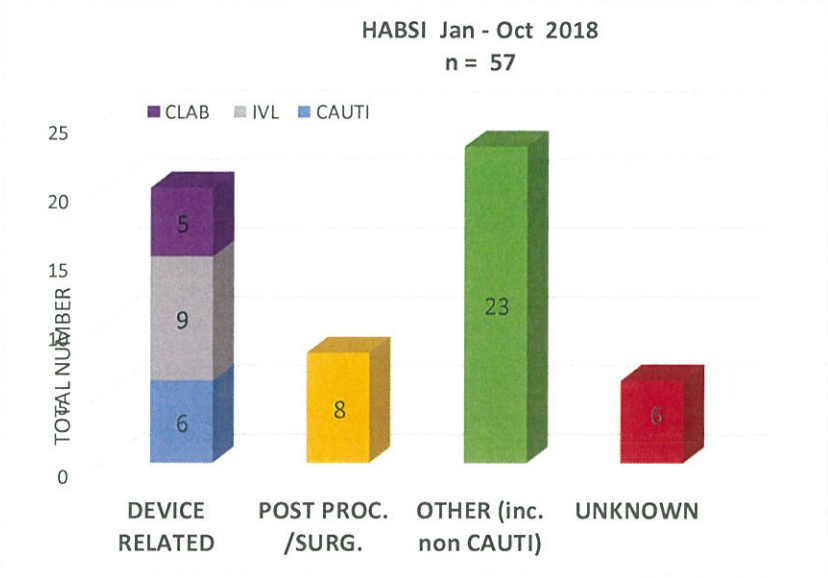

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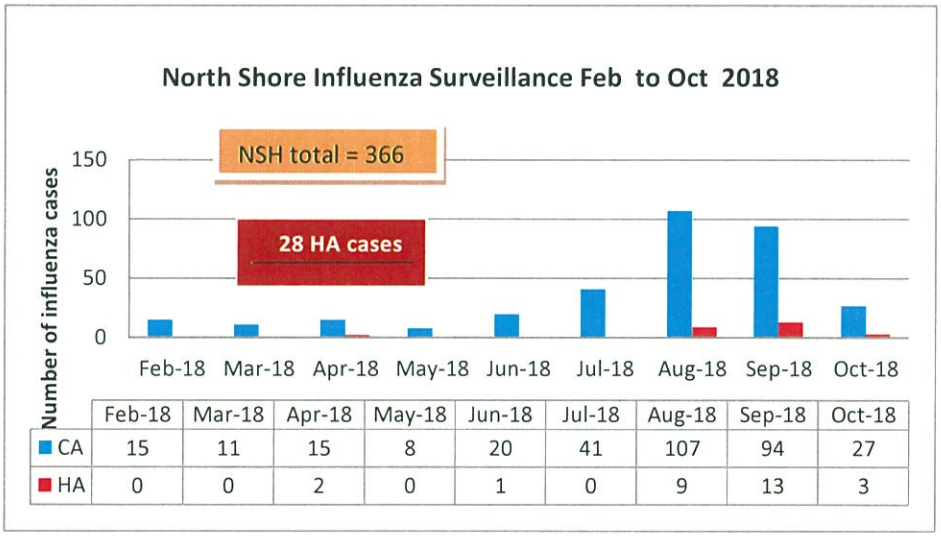

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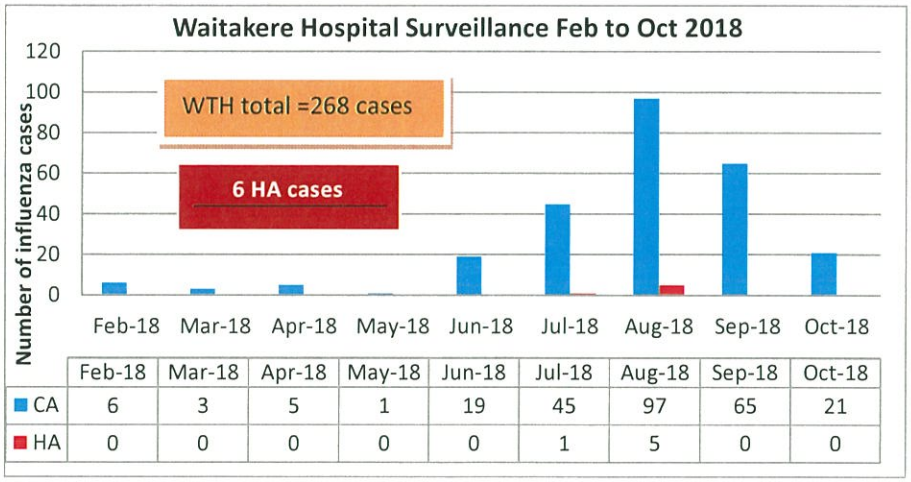

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Waitemata DHB Infection Prevention and Control 2018 Year End Report

This report includes data for last 12 months.

Please refer to attached Appendix for definitions of terms/categories used in this report

Highs –
Sustained reduction in the orthopedics arthroplasty SSI rate in conjunction with a successful S.aureus decolonisation program.
Record high hand hygiene compliance rates consistently above 87%
Reduction in CAUTI related HABSI.
Improved control of nosocomial ESBL and Influenza cross-transmission
Consistently low prevalence of VRE and CPE with ongoing active surveillance.

Lows –
Increase in vascular device especially IVL related BSI's.
Increase in TB and pertussis contact screening due to sub optimal infection prevention and awareness practice.
Increase in HO-C.diff cases in 2nd half of 2018, especially in Dec 2018.

Prepared by Dr. Hasan Bhally and Poobie Pillay
Acknowledgments
Graham Upton (Hand Hygiene/ SSI sections)
Kristen Bondesio (C.diff section)
IPC team for data collection and input.

1a. Hospital acquired bacteremia (HABSI)

In 2018, a total of 70 HABSI's were identified (rate 0.26/1000 bed days). This was similar to 2017 (67 cases, rate 0.25) but improved in comparison with rates in 2014-16. The proportion of vascular device related HABSI's (predominantly IV luer related) was concerningly high at 25.7% (compared to 13% in 2017). Vascular related HABSI's are generally considered preventable and such strategies exist in our national and local IPC policies. On the contrary, a 50% absolute reduction (8 vs 15 cases) was noted in CAUTI related HABSI's.

Table: Monthly distribution of HABSI 2018

2018	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Total No. HABSI	4	5	8	5	9	7	5	6	2	6	7	6
Rates/1000 Bed Days	0.2	0.24	0.4	0.23	0.4	0.3	0.22	0.25	0.1	0.2	0.3	0.3

Table: Comparison of sources of HABSI 2015-2018

HABSI SOURCE	2015	2016	2017	2018	2018 Jan-Jun	2018 July-Dec
Vascular device	**Total 14** 6 CLAB 8 IVL	**14** 3 CLAB 11 IVL	**9** 5 CLAB 4 IVL	**18** 7 CLAB 11 IVL	10 3 CLAB 7 IVL	8 4 CLAB 4 IVL
CAUTI	12	5	15	8	5	3
Post proc/ surgical	27	25	14	8	2	6
Other (mostly non-IDC related UTI)	15	31	16	25	17	8
Unknown	11	14	13	11	4	7
TOTAL	**79**	**89**	**67**	**70**	38	32

Common pathogens causing HABSI 2018

Organism	Total
Staph. aureus	12 (including 1 MRSA)
E.coli (EC)	23 (including 3 ESBL EC)
Klebsiella pneumonia (KP)	9 (including 6 ESBL KP)
Enterococci	18

Although Enterococci are the 2nd most common pathogens causing HABSI, the source is mostly considered non-preventable from either bacterial gut translocation post procedure/surgery unknown source or non- IDC related urinary tract infections.

HABSI source for 6 cases identified in December -2018

Source	Total	Ward	Organism	Comments
IVL	1	Indeterminate	S.aureus	HABSI 72 hours post IVL insertion. Unclear if attributable to ED or ADU. Poor IVL insertion and maintenance documentation.
CAUTI	2	Titirangi Ward 2	E coli S.marcescens	IDC indication was appropriate in a unwell patient with comfort cares. Good compliance with IDC maintenance bundle Indication for CAUTI was appropriate.
Other	2	Ward 5 Ward 15	E coli	Both BSI attributed urosepsis
Unknown	1	Ward 7	ESBL KP	Pt not screened on admission

1b. Healthcare associated bacteremia (HCA-BSI)

A total of 26 HCA-BSI's were recorded in 2018 (similar to 2017 with 27 cases), with the renal haemodialysis patients constituting the predominant group. Coagulase negative Staphylococci (like S.epidermidis) were commonest pathogens (14) followed by S.aureus (7) .

Table: Attributable causes of HCA- BSI Jan –December 2018

Source	Total	Ward	Organism	Comments
CLAB	10	Haemodialysis Unit	S.aureus, Staph sp. Lactobacillus, B. cepacia, Gram negatives Candida albicans	Majority of CLAB attributed to outpatient renal dialysis pts with permanent tunnel line.
	2	Medical / Surgical		1 PICC related in pt. receiving community TPN. 1 Port-a-cath infection.
IVL	1	Ward 8	S.aureus	Readmission within 96 hours with cellulitis at old IV site that was not evident on discharge.
Post-surg or procedure	3	Outpatients	ESBL E Coli E coli	1 post flexible cystoscopy 1 post laparoscopy surgery
Other	6	Ward 8	Strep. anginosus	1 post- biliary stent placement
		Hine Ora	E coli	ERCP in last 30 days
		Haemodialysis	S.aureus	2 fistula site infection
		OPD	E feacalis	Post cone biopsy
Unknown	3	Haemodialysis	Provetella oralis	Unclear of source of BSI

Our renal dialysis service has performed exceptionally well in reducing the CLAB incidence by 33% compared to 2017 despite a 25% increase in total number of lines. Overall CLAB rate was 0.3/1000 line days (10 CLAB's with 32,756 line days). No cases of CLAB were documented in home haemodialysis group. Several factors including enhanced prevention patient education, best practice and compliance with CLAB bundle, yearly MDRO screening and decolonisation for S.aureus, secondary prevention strategy in high risk patients, and introduction of alcohol line lock caps CUROS approved in 2018. Table below shows the distribution of line days and number of CLAB incidents at community (CDC), home (HHD), NSH (NSDC) and WTH (WTKHDU) dialysis centres.

CDC

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
L Days	395	422	361	343	409	417	478	533	647	715	781	832
Avg/Day	12.74	15.07	11.65	11.43	13.19	13.90	15.42	17.19	21.57	23.06	26.03	26.84
CLAB	0	0	0	0	0	0	1	0	0	0	1	0

2018 CLAB/1000 L.Days	Cumul. from 2014 Cumulative CLAB/1000 L.Days
0.316	0.439

HHD

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
L Days	213	222	321	309	321	356	391	402	387	396	374	372
Avg/Day	6.87	7.93	10.35	10.30	10.35	11.87	12.61	12.97	12.90	12.77	12.47	12.00
CLAB	0	0	0	0	0	0	0	0	0	0	0	0

2018 CLAB/1000 L.Days	Cumulative CLAB/1000 L.Days
0.00	0.980

NSDC

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
L Days	1464	1296	1549	1484	1548	1526	1450	1485	1408	1526	1441	1338
Avg/Day	47.23	46.29	49.97	49.47	49.94	50.87	46.77	47.90	46.93	49.23	48.03	43.16
CLAB	1	0	1	0	0	0	0	1		1		

2018 CLAB/1000 L.Days	Cumulative CLAB/1000 L.Days
0.228	0.303

WTKHDU

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
L Days	341	303	316	380	417	408	418	400	390	445	485	541
Avg/Day	11	10.82	10.19	12.67	13.45	13.60	13.48	12.90	13.00	14.35	16.17	17.45
CLAB	0	0	1	1	0	1	1	0	0	0	0	0

2018 CLAB/1000 L.Days	Cumulative CLAB/1000 L.Days
0.826	0.417

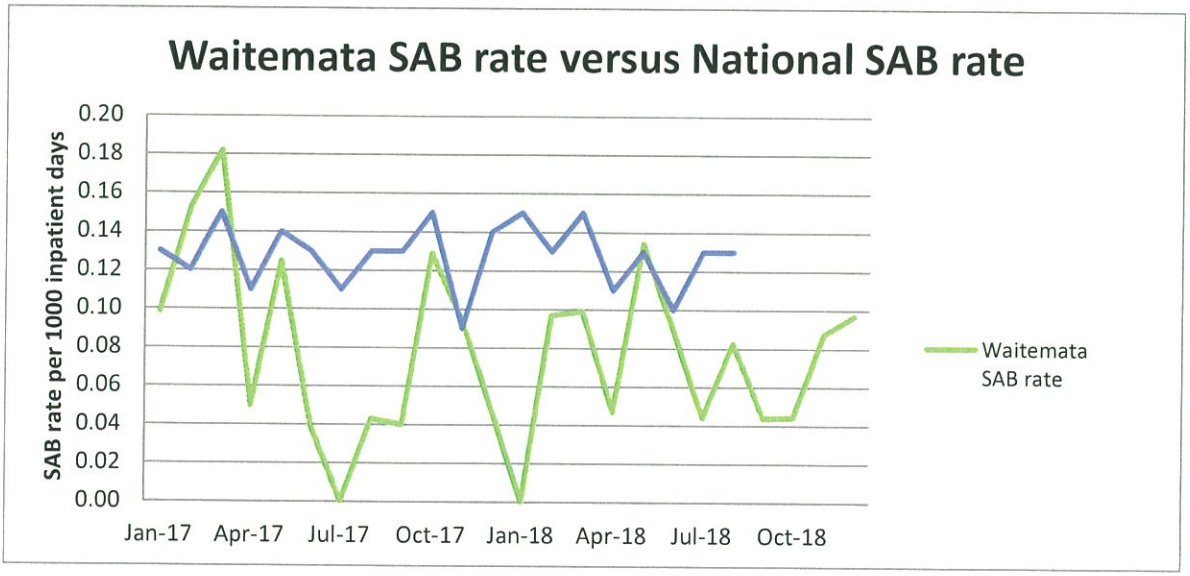
WDHB Renal service

2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
L Days	2413	2243	2547	2516	2695	2707	2737	2820	2832	3082	3081	3083
Avg/Day	77.84	80.11	82.16	83.87	86.93	90.24	88.28	90.96	94.40	99.41	102.70	99.45
CLAB	1	0	2	1	0	1	2	1	0	1	1	0

2018 CLAB/1000 L.Days	Cumulative CLAB/1000 L.Days
0.305	0.417

1c. Healthcare associated S.aureus bacteremia (SAB HCA-BSI)

Surveillance for S.aureus HCA-BSI is a requirement from Health Quality and Safety Commission as a quality indicator and outcome measure for hand hygiene. Both hospital acquired and community S.aureus bacteraemia in patients with indwelling devices or recent surgery are included since August 17.
At WDHB, 19 SAB HCA-BSI cases were identified in 2018 (rate 0.072/1000 bed days).
68% SAB BSI were attributed to vascular device (8 IVL & 5 CLAB).
Compared to national average, WDHB SAB HCA-BSI rate is low as shown in figure below.
We have not found an association between hand hygiene compliance and S.aureus HCA- BSI despite an all-time high hand hygiene compliance rate at WDHB in 2018.

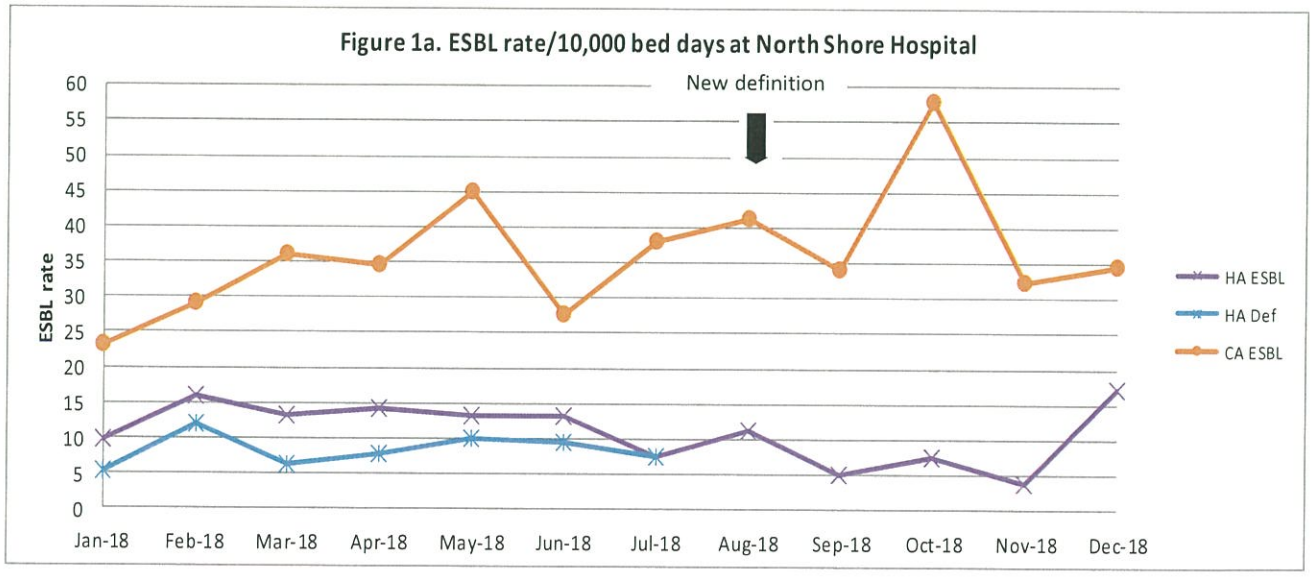


2. Extended spectrum Beta lactamase producing bacteria (ESBL)

A change in the surveillance definition of hospital acquired ESBL (HA-ESBL) came into effect from August 2018 (see appendix). The purpose of this change was to align the definitions with the scope of surveillance available through ICNET, simplification of definitions for case attribution performed by IPC staff, and alignment with current CDC definition in the absence of national guidance.
Due to a longer cut-off for hospital stay (72 vs 48 hrs), and lack of recognition of recent hospitalisation with no screening or negative ESBL screening results, it is possible that the current definition underestimates the true healthcare attribution. A comparison of HA-ESBL rates pre-Aug'18 is therefore difficult.
In 2018, 256 HA-ESBL cases were identified compared to 369 in 2017. A vast majority of these (80%) were from screening specimens. Despite the limitations of our current definitions (discussed above), HA-ESBL rate has reduced in the 2nd half of the year with the exception of December at NSH. This was partly attributed to Ward 14 ESBL KP cross transmission cluster of 6 cases. ESBL KP contributes to almost half of all HA-ESBL cases.
On the contrary, community acquired ESBL cases remain high and are predominantly from E.coli which do not require cohorting or single rooms.
As a result of sustained reduction in new ESBL Klebsiella cases since mid-2017, ward 11 has been disestablished as an ESBL MDRO only ward since Dec 2018. An 8 bedded dedicated section (wing B) only will be used for ESBL KP patients.
Only 74 ESBL isolates (55 E.coli and 19 Kleb sp) were identified from clinical specimens, with urinary tract infection or asymptomatic bacteriuria as the predominant group. There were 9 bacteremias (6 from ESBL KP).

Table 1: Total HA-ESBL and HA-Def. (till July'18) ESBL rate/ 10,000 bed days in 2017-18

Overall rate/no. NSH & WTH	2017 Overall	Jan-July'18	Aug-Dec'18	New def.	Aug'18	Sep'18	Oct'18	Nov'18	Dec'18
HA-ESBL rate/10,000 bed days (number)	**13.8 (369)**	**12.2 (171)**	**7.1 (85)**	HA-ESBL **NSH**	**11 (19)**	**5.0 (8)**	**7.6 (12)**	**3.7 (6)**	**17 (25)**
HA Def-ESBL	**9.1 (243)**	**7.2 (103)**		HA-ESBL **WTH**	**2.7 (2)**	**5.8 (4)**	**4.3 (3)**	**1.4 (1)**	**8.0 (5)**



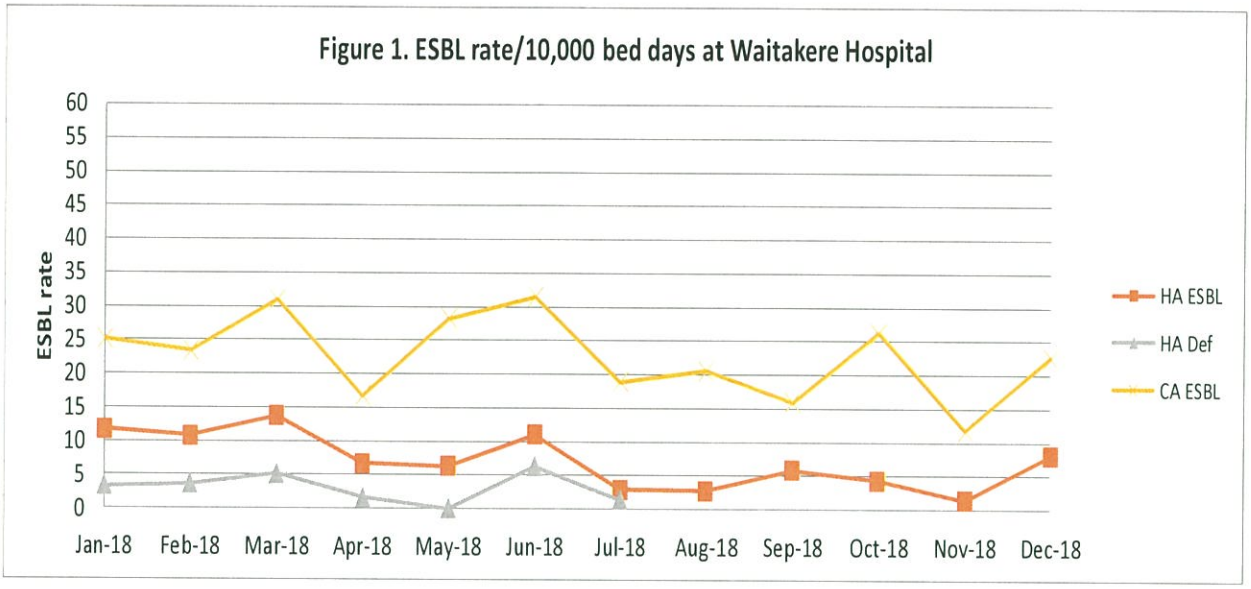


Figure: Distribution of community (CA) vs hospital (HA) ESBL Jan –Dec 2018

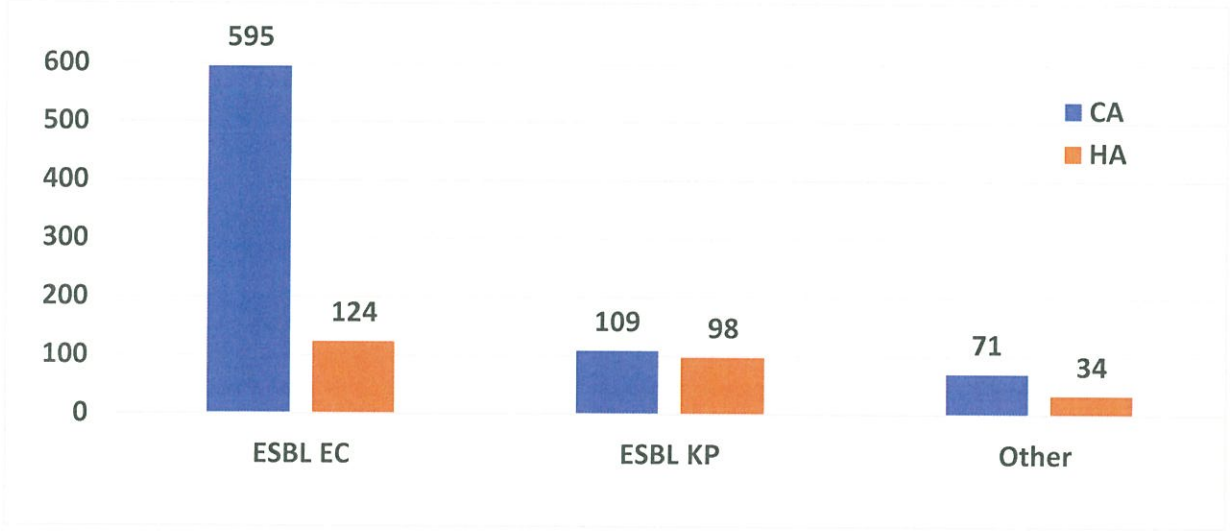


Table: Comparisn of ESBL KP, EC and other species between NSH and WTH

	KP	EC	Other
NSH HA ESBL	82	96	22
WTH HA-ESBL	16	28	12
NSH CA	89	475	54
WTH CA	20	120	17

Table: Attribution of HA-ESBL according to ward's 2018

Ward	Ward 8	Ward 7	Ward 4	Ward 14	Ward 15	Ward 6	Ward 9	Ward 10	Wainamu	Indeterminate location
No of HA ESBL	23	23	15	12	14	13	12	12	9	12

3. Carbapenemase producing Enterobacterales and Pseudomonas (CPE)

Nationally, concern has been raised about emergence and spread of CPE's in NZ since 2015. These are the 'next generation' of antimicrobial resistant bacteria with minimal or no effective antibiotics that can be used for treatment of infections caused by them. In addition, CPE's have important IPC implications. Different types of Carbapenemase genes (NDM, OXA-48, KPC's) confer resistance which can be detected by molecular testing. A national guidance strategy on testing and surveillance for CPE was released last month. In 2018, a total of 95 CPE /CPO were isolated predominantly from screening specimens (including those form an outbreak by NDM producing Providencia and K.pneumoniae at Counties Manukau DHB burns unit). Only 3 of these isolates were from WDHB patients (Table).
Waitemata DHB has undertaken CPE screening as part of active MDRO screening for high risk patients since 2017. Any patient suspicious of CPE on initial testing (identified as CRO) is generally placed in contact isolation pending further confirmation. 3 of the 12 cases flagged as CPO's by our lab were confirmed by ESR as CPE/CPO's. No clusters or outbreaks from CPE or CPO were identified at WDHB.

Table: Confirmed CPE /CPO cases from WDHB 2018

Species	Carbapenemase type	Specimen date	Likely place of acquisition	Specimen source	Referring laboratory
P. aeruginosa and C Freundi	NDM-1 NDM4	02/02/2018	Indian hospital	Screen	Waitakere
Acinetobacter	OXA-23, 40, 51		Samoan Hospital	Screen	Waitakere
E. coli	**NDM-5**	31/10/2018	No history of travel	Screen	North Shore Hospital

4. Methicillin Resistant Staphylococcus Aureus (MRSA)

WDHB continues to have low MRSA infection rates based on information primarily collected from laboratory antibiotic susceptibility data. Less than 10% of S.aureus clinical isolates are MRSA, majority being non multi resistant. Routine MRSA is not performed at WDHB with the exception of specific patient group's e.g renal haemodialysis population and overseas hospitalised patients.
Table below shows the number of MRSA isolates in 2017-18.

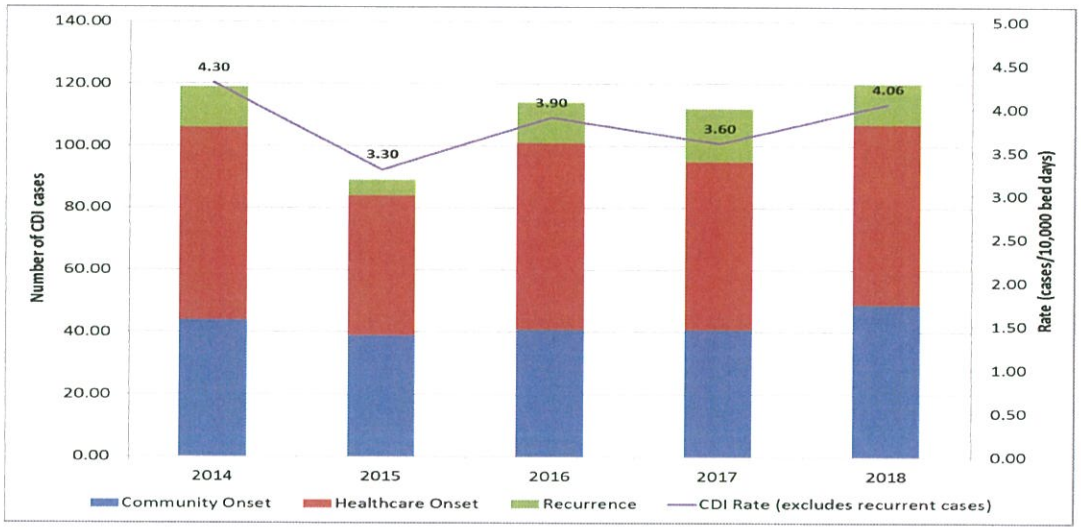
	2017 NSH/WTH	2018 NSH/WTH
Total MRSA isolates	180/151 Total = 331	157/105 Total=262
Community MRSA and other HCF (new cases)	117/123 (240)	117/82 (199)
Community MRSA (known on admission)	29 /13 (42)	Jan-Jun 10/13(23) July onwards- ICNET not collecting data
New healthcare onset (hospital acquired)	22 / 9 (31)	24/14 (38)
Health care onset (known on admission)	12 /6 (18)	6/1 (7)

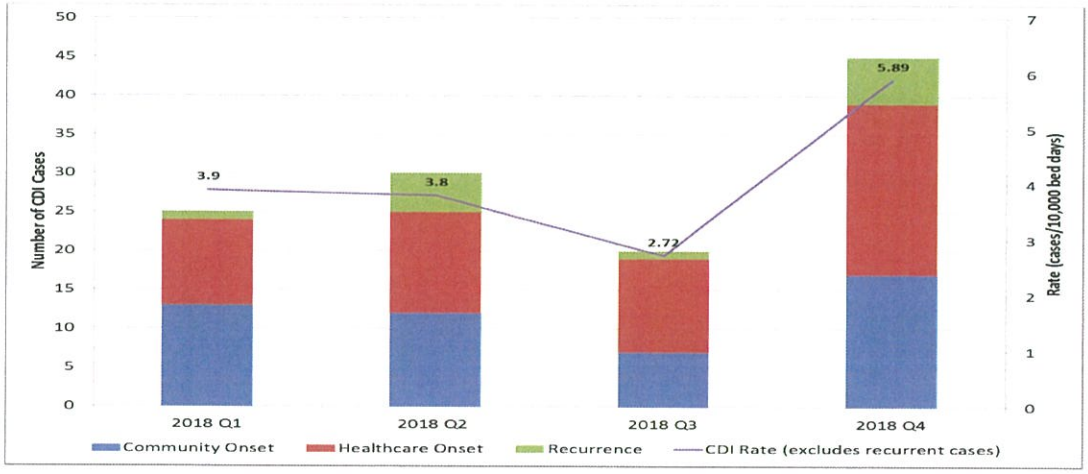
5. Vancomycin resistant Enterococci (VRE)

Active VRE surveillance, similar to ESBL since 2007 and CPE since 2017, is performed at WDHB since May'15 after an outbreak at NSH in 2014. Identification of new VRE colonisation or infection continues to be very low due to enhanced IPC measures including use of Deprox for environmental decontamination in selected situations.
Only 5 HA VRE were identified in 1st half of 2018- 2 in Anawhata in Feb and no HA-VRE was identified in the 2nd half. Contact screening did not find in evidence of cross transmission at NSH
Two community acquired VRE isolated from high risk patients. No VRE infections were seen over a prolonged period and the burden of VRE has also reduced slightly.

6. Clostridium Difficile (now called Clostridioides difficile)

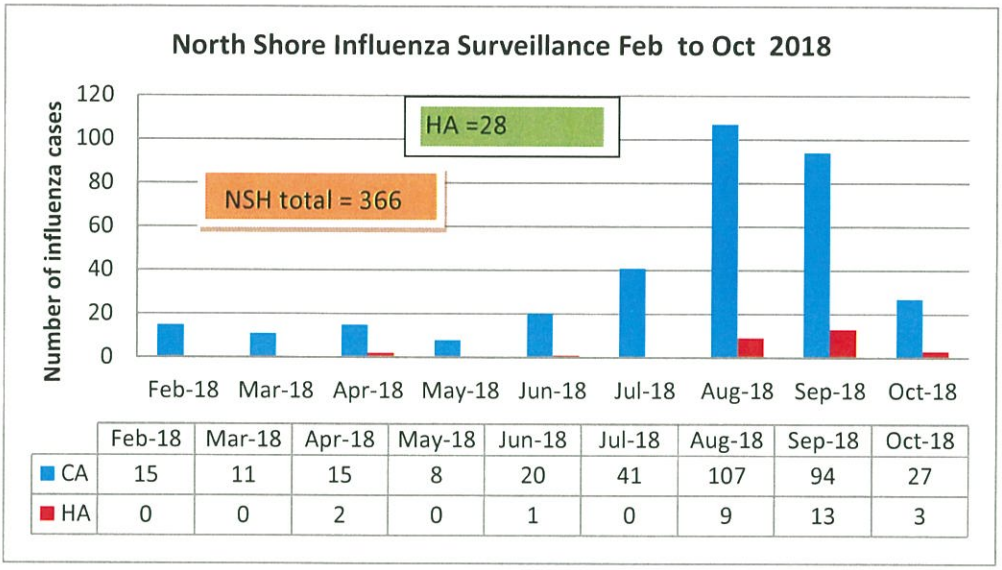
There were 107 CDI cases in 2018 consisting of 49 community onset infections (CO and CO-HCA) and 58 healthcare onset infections (54%)- Graph 1. 80% of cases were at NSH.
A significant increase in the CDI rate in quarter 4 of 2018 as seen in Graph 2. This was primarily due to a large increase in the number of HO-HCA cases at NSH in December (11 cases) due to unclear reasons. There has been no change in antibiotic treatment guidelines recently to account for this. Of the 58 HO-HCA cases in 2018 (48 NSH and 10 WTH), 2/3rds were reviewed by AMS MDT team with 7 (18%) were considered avoidable. Feedback was provided to treating teams.



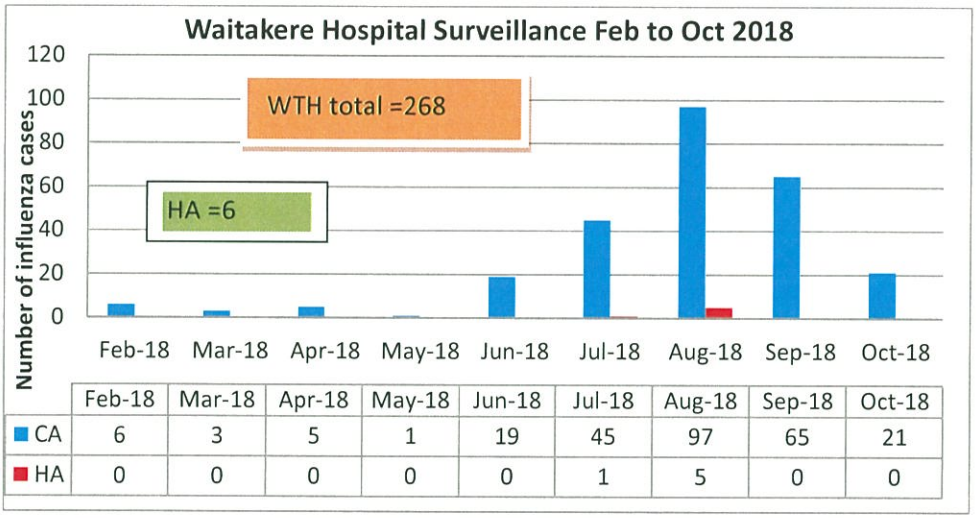


7. Seasonal Influenza 2018

The 2018 seasonal influenza activity at WDHB was moderate with 576 confirmed cases during the surveillance period from May till October 2018. Compared to the previous year where DHB population was an outlier with the highest community consultations for ILI, high burden of admissions for confirmed influenza, and cases of new influenza infection after >48 hrs of hospitalisation (defined as nosocomial acquisition or HA-Influenza) number of confirmed Inf cases in 2018 was lower.
Following a late peak in August and September influenza cases at NSH and WTH declined sharply.
Influenza A H3N2 was the predominant type in 2018. Data of vaccine efficacy is awaited.
Reduction in HA influenza cases was also noted (34 vs 100 in 2017) due to collaborative efforts of IPC, operations, staff and WDHB central services.
In September 2018, Ward d 5 had an outbreak of HA-influenza A with 6 confirmed cases (in addition to 1 Inf B). No staff had confirmed Influenza and the index case was not identified.



	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18
CA	15	11	15	8	20	41	107	94	27
HA	0	0	2	0	1	0	9	13	3



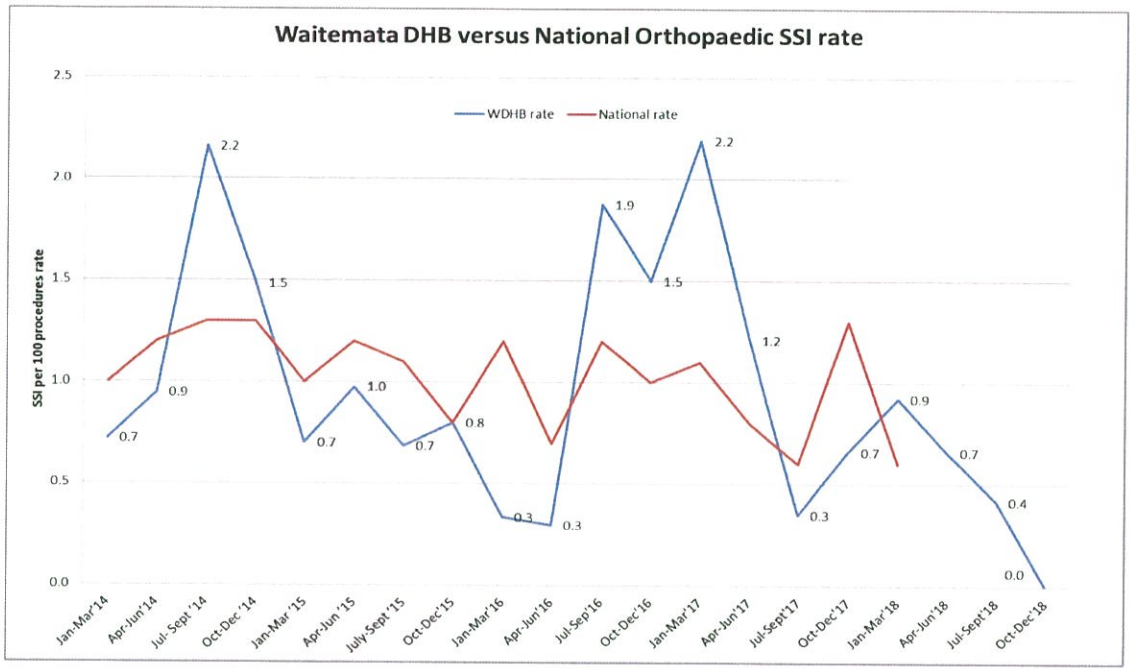
	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18
CA	6	3	5	1	19	45	97	65	21
HA	0	0	0	0	0	1	5	0	0

8. Surgical Site Infections (SSI) for knee and hip arthroplasties

- In scope procedures for SSI surveillance are primary and revision hip/knee arthroplasty performed at either NSH or elective surgical centre (ESC), in accordance with National Surgical Infection Improvement (SSII) program. Surveillance criteria are for 90 days post-operative for deep infection and 30 days for superficial infection.
- Overall, the SSI rate for 650 procedures performed in 1st 3 quarters of 2018 was 0.8/100 procedures (5 SSI's) based on the HQSC definition. No deep SSI were identified. No SSI's have been identified to date for the last quarter.
- Since the introduction of Staph decolonisation bundle in Nov 2017 no S.aureus SSI's have been documented in this surveillance group.

Table: SSI's per 100 procedures (Jan 2015- October 2018) - WDHB

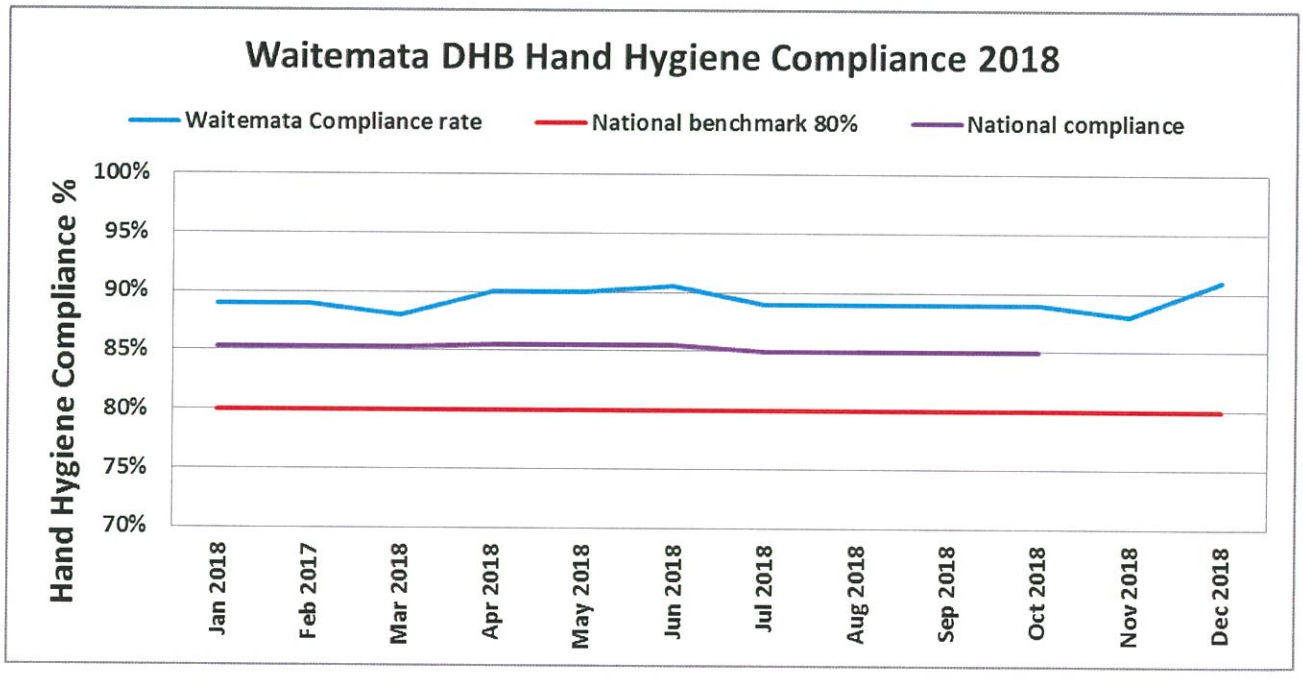
Quarter	2015 Q1	Q2	Q3	Q4	2016 Q1	Q2	Q3	Q4	2017 Q1	Q2	Q3	Q4	2018 Q1	Q2	Q3
WDHB total proc.	285	205	292	250	299	340	311	267	274	331	288	298	217	314	119
SSI's (n)	2	2	1	2	1	1	6	4	6	4	1	2	2	2	1



9. Hand Hygiene

Overall, WDHB hand hygiene compliance rate was consistently >87% for each month in 2018.

Waitemata DHB Hand Hygiene Annual Report 2018



Key achievements in the hand hygiene program in 2018:

- From 1st April to 31st October 2018 WDHB achieved the highest hand hygiene compliance in the country.
- Waitemata DHB has achieved the highest hand hygiene compliance during 2018 (compliance of 91%) since the program started in 2009

- 48 new hand hygiene auditors trained. 4 hand hygiene auditor training sessions successfully run.
- 2 existing auditor refresher sessions successfully run.
- Waitemata DHB hand hygiene policy updated November 2018 including expanded bare below the elbows policy recommendations.
- Successfully promoted hand hygiene during Patient Safety Week 5th to 9th November 2018 at WTK and NSH – including developing 2 new hand hygiene promotional videos with the assistance of Quality Department.
- 3 Waitemata DHB medical officers (including 2 ICU registrars) trained as hand hygiene auditors.
- Waiatarau Mental Health Unit at WTK joined the hand hygiene program.
- 100ml ABHR bottles and belt clips available to be ordered in clinical areas (especially useful for medical officers)

10. Communicable Diseases, Clusters and Outbreaks

Table 1: Communicable Diseases

Disease	Total cases	Ward	No of pt. contacts	No of staff contacts	Comments
Pertussis	44	WTH ED, Rangitira, NSH ADU, ward 5, Wainamu	11	73 staff	Majority of cases were from paediatrics at Waitakere ED. These patients were not placed in droplet precautions on admission. Extensive education carried out in this area to highlight increase in Pertussis
Tuberculosis-December	13	Ward 9, 10, 2, 6, Rangitira, EDWTH, ADU NSH, Renal Endoscopy NSH,	16	Approx. 100	Contact tracing performed in inpatients after diagnosis of pulmonary or miliary TB confirmed. Most patients were not isolated on admission due to low clinical suspicion. Tb isolated in sputum or bronchial washings. Includes pt. attending haemodialysis with miliary TB requiring extensive public health involvement. OCH&S followed up on staff and ARPHS followed up on patents
	1	N/A	2	16	Staff member with Laryngeal TB which resulted in contact tracing of staff and patients
Measles	3	WTH ED, Huia	9	4	Not all patents were placed in airborne precaution on admission resulting in contact tracing of staff and patients.
N Meningitis	7	ED NSH & WTH, wards 3,5, 6,	4	8	Not all patient were isolated with droplet precaution on admission resulting in contact tracing of staff and patents .staff and patent contact given the recommended prophylaxis

Table 2: Outbreaks & Cluster

Disease	No of outbreaks /cluster	Ward	No of staff contacts	No of patient contacts	Comments
ESBL	1	14	0		Continue heightened cleaning with Hypochlorite solution : • Screen for another week. • Discharge screening of all patients. • Continue contact precautions audit. • Continue Hand hygiene. • On-going education sessions
Norovirus	2	14	6	3	Index case was transferred from Ward 3. Rooms 7, 8, 9 were closed to admission for 7 days. This was declared as an outbreak. ARHS was involved. The wing was reopened after a deprox clean
		3	12	3	Symptomatic patients spread across several rooms. Entire ward was closed to admission for 6 days. Index case was possibly the patient that was TX to Ward 14 with norovirus. ARPPs involved in outbreak. Ward was reopened after Deprox clean of entire ward
Gastroenteritis	1	Kauri Unit Mason Clinic	6	4	4 patients and 6 staff developed diarrhoea from the 9th to 11th May. Norovirus antigen testing returned negative. Cluster was contained within 3 days with heightened infection control measures, staff and client education. Source of gastro enteritis cluster was not established
C difficile	1	8	0	2	17/ 18th May 2 HO- HCA CDI cases identified in Ward 8 (1 toxin positive and other PCR positive) Both patients had elective reversal of ileostomy performed by the same surgeon with overlap in their hospital stays. Both received only single dose Cefuroxime and Metro pre-operatively. Both patients developed diarrhoea around day 3 prompting CDI testing and required treatment with Metronidazole. IP&C investigation did not find any environmental issue. IPC measures were heightened. No new cases since. Reference lab unable to perform molecular testing to assess similarity in strain types.
Influenza A	3	5	0	7	6 cases of HA- Influenza A and 1 case of Inf B Potential transmission from a staff member was postulated since 1 symptomatic HCA (not vaccinated). Staff member did not access OHSS services and was never tested for Influenza. No visitors were identified as symptomatic with ILI. Ward 5 has about 6-8 haematology patients (25%) most days making it a high risk ward for infections Influenza vaccine coverage for ward 5 staff is 62%.
		Muriwai	0	4	4 patients developed influenza whilst inpatients in B end of Muriwai ward. Index case , unclear whether it was a unwell staff or visitor that spread the influenza to patients
		14	0	3	Two patients with influenza from medical wards. TX. Ward 14, placed in multibedded room's .This resulted influenza cross transmission in Room 2 and 9. Room contacts given Tamiflu prophylaxis

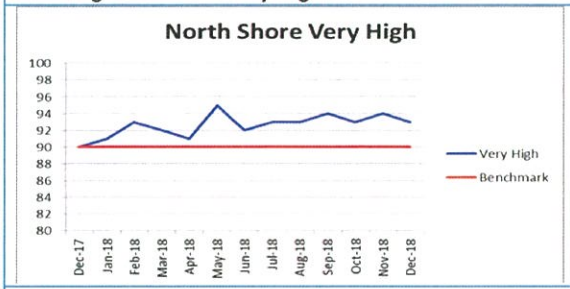
11. Environmental Audits

The Cleaning Services undertake monthly cleaning audits .All wards/ units are audited against the Victorian Cleaning standards.

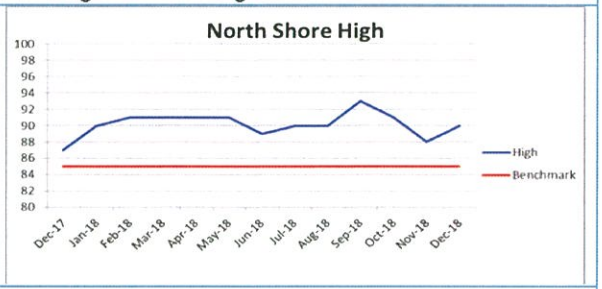
IPC Clinical Support Scorecard
December 2018

Quality

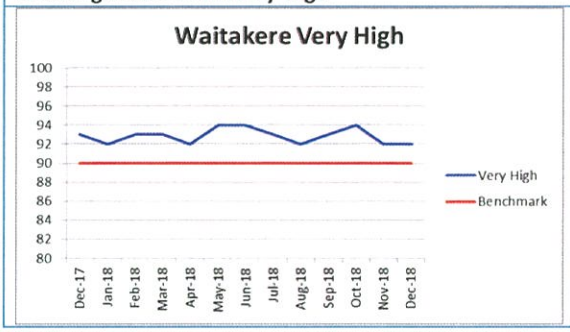
Cleaning audits NSH Very High



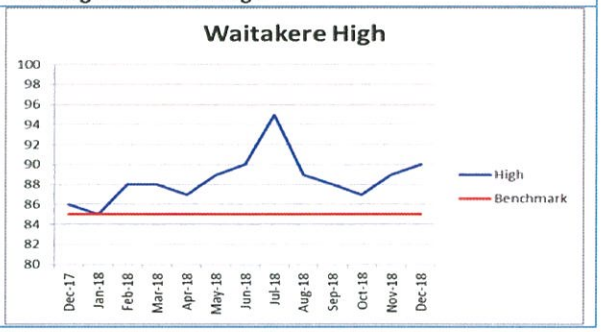
Cleaning audits NSH High



Cleaning audits WTH Very High

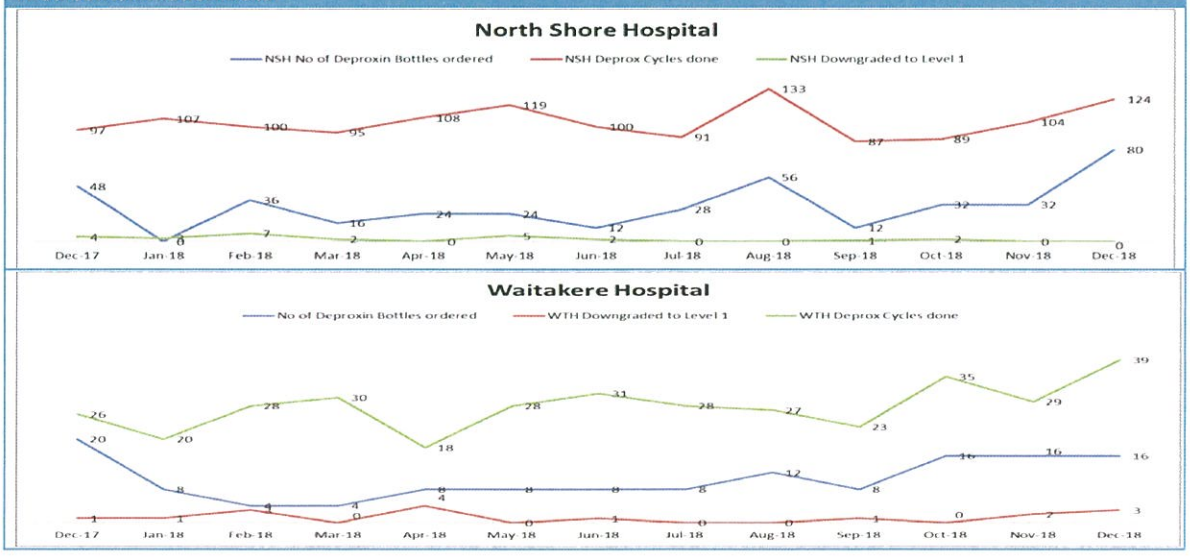


Cleaning audits WTH High



No of Environmental decontamination using DEPROX

Area Contamination Data



12. Infection Control Projects/Study

- ICNET project continues with new XP's
- SSI surveillance for colorectal surgery project
- Review furniture, furnishings and fittings for Waitemata DHB projects
- Health Benefits PPE project in progress/Pressure care devices
- Staph Aureus decolonisation Bundle implementation and patient information sheet implemented - received Clinical Excellency
- Health Benefits – Mattress and pressure relieving devices project –in progress
- CAUTI Pilot Study
- Communicable Disease Study ED/ADU WTH
- Updated policies and procedures
- IP&C staff involved in staff Influenza vaccination programme
- SSI ESBL FAST Project: Post implementation auditing completed
- Gold Auditors training
- Health and Disability Sector Standard audits -focus is on surveillance, self-assessment submitted. , interview with auditors in September (attach self-assessment)

13. Building, Renovations and other issues

IP&C input:

- Relocation of antenatal and outpatients paediatric unit
- CT Scanning refurbishment NSH and WTH
- ED –Radiology
- Antenatal Clinic
- PACU – Environmental controls requirements for introduction of incisional abscess
- Surgical Pathology Unit refurbishment
- E learning module upgrade –work in progress
- Work around Deprox use in negative pressure room- IP&C identified associated risks

Appendix –Waitemata DHB IPC Surveillance Definitions

ESBL Definitions	
HA-ESBL (Hospital acquired) ESBL defination was changed in August 2018. HA ESBL includes both Definite , probable and possible	HA-ESBL is defined as Isolation of ESBL producing Enterobacteriaceae (e.g. E.coli or Klebsiella sp.) from a clinical or screening specimen > 72 hrs post admission (not 48 hrs. as per old definition), in a pt. with previously negative or unknown ESBL status
Community Acquired (CA)	Isolation of ESBL from clinical or screening specimen within 48 hours of admission in a low risk patient with no exposure to acute or long term care facilities in last 6 months
Other Healthcare Facility onset ESBL (OHCF-E)	Isolation of ESBL on admission screen or clinical isolate within 48 hours admission in patients not previously ESBL colonised, admitted to WDHB acute care from rest home, private hospital, or other non WDHB acute care facilities
MRSA definitions	
Community onset MRSA (CA)	New MRSA identified from either clinical isolate or screening within 48 hrs. of admission in a patient with no contact with acute healthcare or contact >30 days prior to identification
A) Hospital Acquired (HA)	New MRSA identified after 48 hours of hospital stay
B) Healthcare associated (HCA)	Previous WDHB admissions and NEW MRSA identified in a patient admitted for <48 hours but had prior contact in the last 30 days with NSH/WTH
C) Healthcare associated-Other (HCA-O)	New MRSA identification in a patient admitted for <48 hours and had prior contact in last 30 days with any other DHBs or healthcare facility
D) Hospital acquired in known (HA in known)	MRSA identified in known patients after 48 hours of admission
VRE definitions	
VRE Burden	Total number of new and previously known VRE colonised/infected patients seen at NSH/WTK hospital during a month
VRE Incidence	Newly identified VRE colonised or infected pts during particular month.
A: Definite hospital acquired (HA)	If admission screen was negative and subsequent screening cultures >48 hrs. after admission confirm VRE
B: Probable hospital acquired (HA-Prob)	If admission screen not performed and subsequent screening cultures >48 hrs. after confirm VRE.
C: Other (CA)	If VRE is isolated on admission screen or within 48 hrs. of admission to NSH/WTK.
VRE infection (HA inf in known)	Any infection diagnosed either on admission to or during hospital stay. Includes infections in previously colonised
Bacteraemia	
Hospital Acquired BSI (HABSI)	Positive blood culture greater than 48hours after admission, procedure in last 48 hours, previous admission in last 48 hours.
Healthcare Associated BSI (HCA)	Occurred with 48 hours of admission from patients that had procedure in last 30 days from WDHB or not admitted, outpatient receiving treatment from WDHB, include dialysis and home dialysis patients.
Community Associated BSI (CA)	Positive blood culture less than 48 hours after admission.
HABSI category	Other - caused by UTI, wounds, pneumonia etc
	Unknown -Source of bacteraemia unknown
	Surgical /procedure - ERCP , Nephrostomy, TURP, TRUS, SSI
	CLAB - CVL , Tunnel line , Groshong, PICC etc.
	IVL - Peripheral venous catheter
	CAUTI - IDC , SPC

Clostridium Difficile	
Healthcare Facility Onset - HO-HCA	CDI symptom onset more than 48hours after admission (3rd calendar day).
Community Onset health care facility associated - CO-HCA	Discharged from a healthcare facility within previous 4 weeks.
Community Onset Community Associated - CO	No admission in the last 12 weeks.
Indeterminate	Discharged from a healthcare facility within the previous 4 to 12 weeks.
Recurrent	Episode of CDI that occurs 8 weeks or less after the onset of a previous episode provided the symptoms from the prior episode resolved.
Influenza	
community associated CA	positive result less than 48 hours after admission, admitted with coryzal symptoms and febrile > 38.0 degrees
healthcare associated HA	positive result after 48 hours from admission, not admitted with coryzal symptoms and not febrile >38.0 degrees

Waitemata
District Health Board
Best Care for Everyone

Waitemata DHB Infection Prevention and Control
Mid-Year Report Jan- July 2019

Prepared by Doctor Hasan Bhally, Poobie Pillay, Merissa Rajoo (Hand Hygiene report) and Kristen Bondesio and Mariam Basheer (C.diff report)

This report includes IPC surveillance data for last 6 months. Highlights are as follows

- Overall decrease in ESBL cross transmission rates and sustained low prevalence of CPE/VRE colonisation and hospital acquired MRSA infection
- Reduction in CAUTI related HABSI
- Increase in vascular device related HABSI
- High rates of HA influenza in staff with unknown burden of illness in staff
- Measles outbreak in West Auckland

Please refer to attached Appendix for definitions of terms/categories used in this report

1a. Hospital Acquired Bloodstream Infections

A total of **32** HABSI's were identified from January to June 2019- rate **0.24**/1000 bed days which is comparable to the HABSI rate at WDHB over the last few years. The monthly distribution of HABSI in 2019 (Table 1), source of HABSI (Table 2) and summary of cases in June (Table 3) can be found below.

- E.coli was the most common pathogen (**15/32- 47%**), which included 3 ESBL E.coli HABSI's. S.aureus (n=**5**) and Pseudomonas (n=4) were the next commonest. Only **one** case of ESBL K.pneumoniae HABSI was identified.
- As shown in Table 2, vascular access devices, predominantly IV luers continue to cause most of the HABSI's with identifiable causes. Any device related HABSI is considered a potentially preventable event.
- While the **two** CLAB's did not have any apparent correctable causes, complete assessment of preventability for IV luer related HABSI's has been difficult due to poor documentation in addition to excessive duration of IV luers and use of antecubital fossa for insertion (non-preferred site).

Table1: Monthly HABSI rate (per 1000 bed days) at WDHB 2019

2019	Jan	Feb	March	April	May	June
Total No. HABSI	3	3	10	6	6	4
Rates/1000 Bed Days	0.14	0.14	0.44	0.27	0.25	0.17

Table 2: Comparison of sources of HABSI 2017- mid 2019

HABSI source	2017	2018	Jan –June 2019
Vascular device	**9** 5 CLAB 4 IVL	**18** 7 CLAB 11 IVL	**7** **(2 CLAB & 5 IVL)**
CAUTI	15	8	**2**
Post proc/ surgical	14	8	**1**
Other (mostly non-IDC related UTI)	16	25	**17**

Unknown	13	11	5
TOTAL	**67**	**70**	**32**

Table 3: HABSI cases in June 2019

Source	Total	Ward	Organism	Comments
IVL	1	6	S. Aureus	Identified 5 days post luer insertion and considered avoidable. Limited documentation about indication for insertion and care.
Other/ Unknown	3	Muriwai	S.aureus	Source unknown
		8	E coli	Non-CAUTI UTI
		Anawhata	ESBL E.coli	Non- CAUTI UTI

1b. Healthcare associated bacteremia (HCA-BSI)

A total of **14** HCA-BSI's occurred during this period. All except **one** were in haemodialysis patients with tunnelled lines or fistulas as the expected predominant group. **Two** patients had more than **one** episode of HCA-BSI during this period. S.aureus was the most common pathogen (n=4).

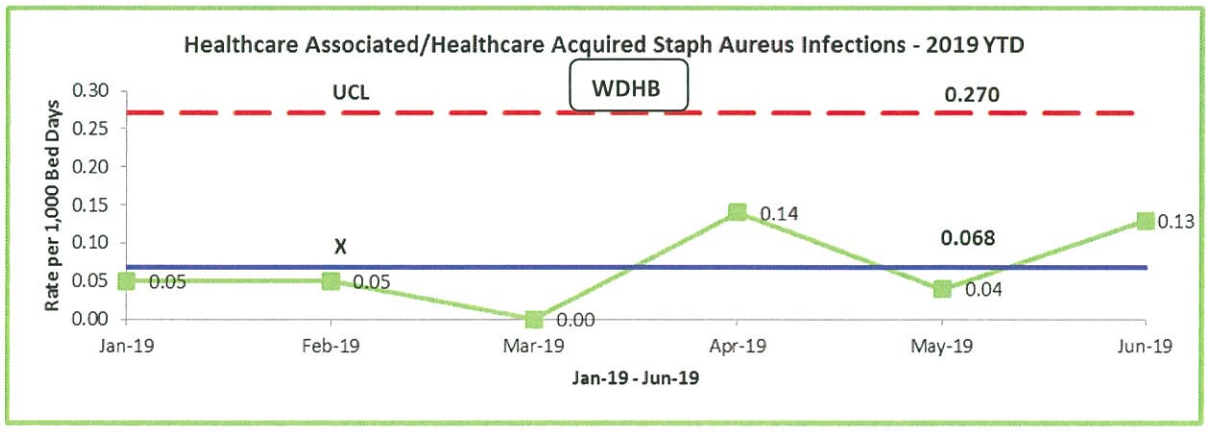
Table: Attributable causes of HCA- BSI Jan –June 2019

Source	Total	Ward	Comments
CLAB	13	Renal Services	All chronic haemodialysis patients with either tunnelled lines or AV fistulas
Other	1	Urology	48 hours post renal procedure i.e. cystoscopy

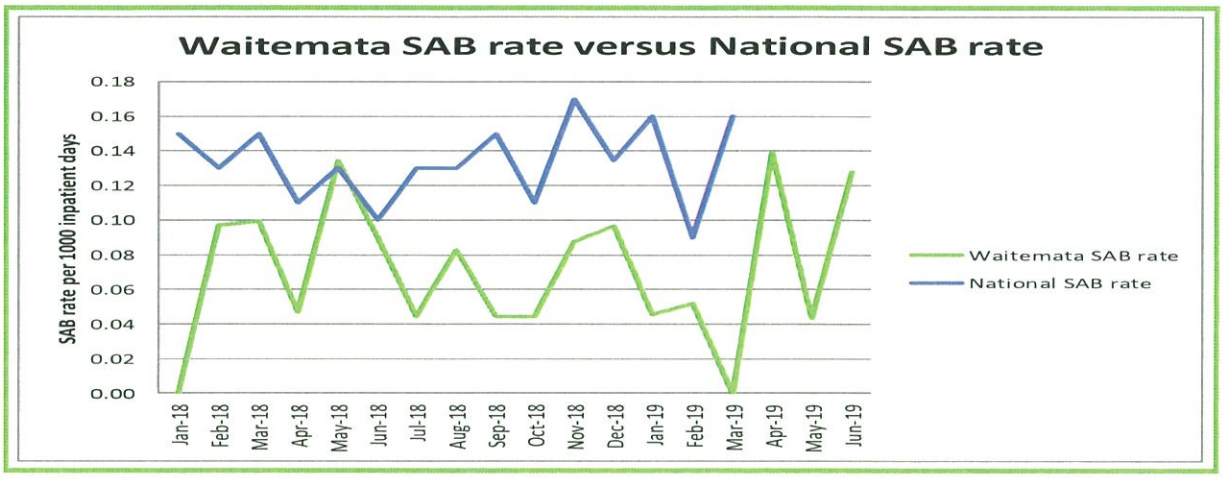
1c. Healthcare associated S.aureus bacteremia (SAB HCA-BSI)

Surveillance for S.aureus HCA-BSI is a requirement from Health Quality and Safety Commission as a quality indicator and outcome measure for hand hygiene. This includes both HABSI and HCA-BSI (1a and 1b) caused by S.aureus.

- A total of **nine** SAB HCA - BSI were identified (rate **0.068** per 1000 bed days) of which **eight** were vascular device related.



Our rates are comparable to 2018 and remain low compared to the national average as shown below



2. Extended spectrum Beta lactamase producing bacteria (ESBL) - E.coli (ESBL EC), K.pneumoniae (ESBL KP) and others

- An overall reduction in HA-ESBL was seen both at NSH and WTH in the first half of 2019 (Table 1).
- A total of **82** HA-ESBL patients (**66** at NSH) with either new colonisation or infection were identified compared to **157** for a similar period in 2018.
- There has been a significant reduction in ESBL cross-transmission despite the disestablishment of Ward 11 as a multi-drug resistant organisms (MDRO) ward and relaxation in cohorting rules for ESBL E coli. This reduction is also despite the change in our HA-ESBL definitions from August 2018; the old definitions were likely to over attribute ESBL acquisition to healthcare.
- While some aspects of the TAKE CHARGE ESBL bundle like hand hygiene (monthly) and contact precautions (periodically) are audited and successful, consistent and sustained implementation of a DHB wide prevention strategy can be further improved.

TABLE 1: HA-ESBL rates/number at WDHB

	2018	Jan 2019	Feb	March	April	May	June 2019
HA-ESBL rate/10,000 bed days (number)	9.7 (256)	NSH 8.9 (14)	9.5 (13)	8.7 (14)	8.3 (12)	5.6 (9)	2.4 (4)
		WTH 4.8 (3)	8.8 (5)	3.0 (2)	4.9 (3)	4.2 (3)	0

- Despite a high prevalence of ESBL in Waitematā DHB patients, the number of clinical isolates with ESBL in hospitalised patients remained relatively low with only **seven** hospital acquired (HA) ESBL E coli (EC); **six** HA ESBL Klebsiella Pneumoniae (KP), and **one** HA ESBL (other)
- In comparison to community acquired (CA), **58** CA ESBL EC, **10** CAESBL KP and **seven** CA ESBL (other)
- **90%** of these patients have urinary tract infections
- **29%** HA ESBL isolates were from blood cultures
- HA-ESBL were distributed throughout the NSH wards predominantly with the number of cases attributable to wards ranging from:
  - **nine** on Ward 7
  - **seven** on Ward 4
  - **seven** on Ward 8
  - **six** on Ward 5
  - **four** each for Wards 2, 3, 9, 10 and Titirangi Ward (WTH)
  - the four surgical wards contributed to 33% (n=27) of HA-ESBL cases

- Differences between types of ESBL and place of acquisition are shown in Table 2 with ESBL EC more likely to be community acquired compared to ESBL KP (88% vs 66%). However, it is worth noting that ESBL EC still contributes to 50% (41/82) of total HA ESBL.

TABLE 2: Comparison of ESBL KP, EC, other sp. in terms of place of acquisition

	ESBL KP	ESBL EC	Other
HA	**26**	**41**	**15**
CA	**51**	**319**	**27**
TOTAL	77	360	42

3. Carbapenem resistant Enterobacterales and Pseudomonas (CRE/O)

Nationally, since 2015, concern has been raised about emergence and spread of carbapenemase producing Enterobacterales (CPE's), a subset of CRE/O bacteria. These are the 'next generation' of antimicrobial resistant bacteria with minimal or no effective antibiotics that can be used for treatment of infections caused by them. In addition, CPE's have important IPC implications. Different types of Carbapenemase genes (NDM, OXA-48, and KPC's) confer resistance detected by molecular testing.

Waitemata DHB has undertaken CRE screening as part of active MDRO screening for high risk patients since 2017. Any patient suspicious of CRE/CRO on initial testing is placed in contact isolation pending further confirmation.

In 2019 to date, **seven** of 17 isolates flagged by Waitematā DHB lab were confirmed as CPE by molecular testing performed by the reference lab. Five patients were deemed high risk and hospitalised or travelled overseas. None of the CPE was attributed to NSH or WTH. No clusters or outbreaks have been identified at WDHB to date.

4. Methicillin Resistant Staphylococcus Aureus (MRSA)

MRSA Overview 2019 YTD

- Waitematā DHB continues to have low MRSA infection rates based on information primarily collected from laboratory antibiotic susceptibility data
- 99% of MRSA are community acquired

Table below shows the number of MRSA isolates in 2018-2019

	2018 NSH/WTH (TOTAL)	2019 NSH/WTH (TOTAL)
MRSA isolates	157/105 (262)	96/75 (171)
Community MRSA and other HCF (new cases)	117/82 (199)	62/48 (110)
Community MRSA (known on admission) *IC-NET not collecting data from July onwards*	10/13(23)	31/27(58)
New healthcare onset (hospital acquired)	24/14 (38)	3/0 (3)
Health care onset (known on admission)	6/1	0

5. Vancomycin resistant Enterococci (VRE)

Active VRE surveillance, similar to ESBL since 2007 and CPE since 2017, is performed at WDHB since May'15 after an outbreak at NSH in 2014. Identification of new VRE colonisation or infection continues to be very low due to enhanced IPC measures including use of Deprox for environmental decontamination in selected situations.

VRE Overview 2019 YTD

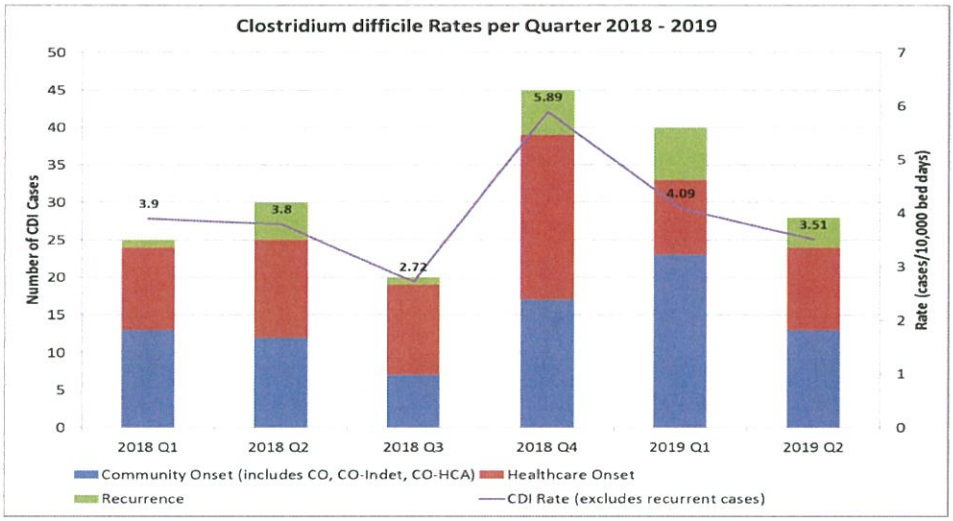
- Only **two** HA VRE were identified in 2019 YTD, **one** in Ward 5 (March) and **one** in ward 8 (May); contact tracing of patients sharing rooms did not find in evidence of cross transmission at NSH
- **One** community acquired VRE isolated from high risk patients

- No VRE infections were seen over a prolonged period and the burden of VRE has also reduced slightly

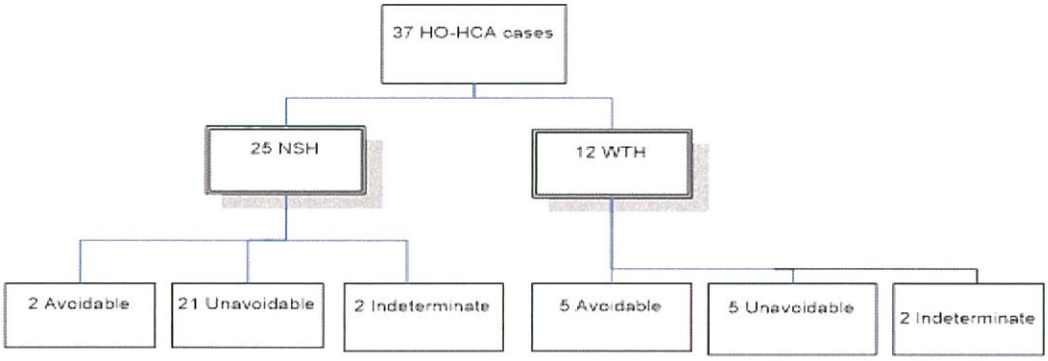
6. Clostridium Difficile (now called Clostridioides difficile)

A total of **57** cases of CDI (excluding recurrence) were noted in first half of 2019 (compared to **49** cases during a similar period, and **107** cases in the entire year in 2018) – (Graph)

- This includes **33** new cases in Q1 and **24** cases in Q2
- The proportion of HO-HCA infections was **38%** in Q1 and **45%** in Q2



Approximately **20%** (**seven** of 37 cases) of HO-HCA CDI that were reviewed by antimicrobial stewardship team as part of an ongoing active feedback process were considered avoidable as shown in flow chart below. This proportion is similar to 2018.



7. Seasonal Influenza

Waitematā DHB has a yearly seasonal Influenza surveillance program which usually commences in March every year. In addition, hospital acquired (HA-Inf) is a unique designation used in our surveillance since 2017. It identifies inpatients admitted initially for other medical reasons but developed Influenza during their hospital stay, likely through acquisition from either other patients, staff, visitors or environment. Therefore, confirmation of Influenza after 72 hrs of admission is defined as HA-Inf.

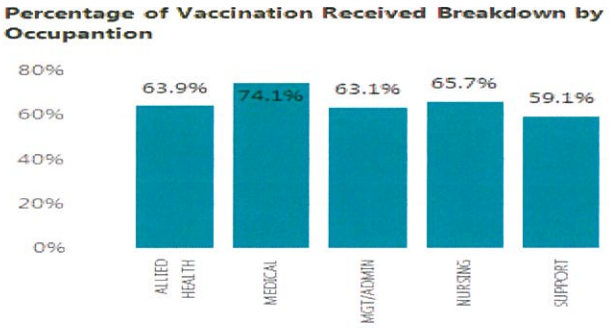
- The 2019 season so far has been characterised by earlier onset (high number of confirmed CA-influenza cases at Waitematā DHB in Jan/Feb mostly acquired from Northern Hemisphere travel), and higher than seasonal baseline of ILI presentations with **959** confirmed Influenza cases at NSH/WTH
- Waitakere Hospital proportionately has a higher number of confirmed Influenza cases
- Majority of confirmed influenza is H3N2 followed by Influenza B; both strains are included in the 2019 quadrivalent vaccine

- In 2019 a concerning trend in HA-Inf cases is noted with 80 cases (46 NSH, 25 WTH and 9 Mental Health WTH) diagnosed till 12th July. This includes **two** outbreaks of seasonal Influenza A- Muriwai ward in June involving **10** patients, and Ward 14 with **eight** cases between 4 - 9 July (see section10).
- Staff illness has been reported during both these outbreaks and in clusters in other patient care areas but it is difficult to establish an epidemiological link.
- In 2017, during a high influenza season, HA-Inf cases were unacceptably high (**100**) but this reduced significantly to **34** in 2018.

NSH	Feb	March	April	May	June	July till 12th	TOTAL
CA- INF	27	30	35	75	178	**78**	**423**
HA- INF	1	0	1	3	20	**21**	**46**

WTH	Feb	March	April	May	June	July till 12th	TOTAL
CA- INF	9	30	22	121	201	**73**	**456**
HA- INF	**1**	**0**	**3**	**1**	**27**	**2**	**34**

- The impact of influenza illness in the elderly patient population remains under-appreciated. To date we have identified **five** patients who have died in hospital with HA-Inf A diagnosed within 10 days prior to death. While influenza may not be the only contributor to their demise, it likely contributed in a significant manner towards deterioration of their health.
- Waitematā DHB staff flu vaccine uptake for 2019 has increased to **65.5%** compared to **59%** uptake in 2018 as shown below



8. Surgical Site Infections (SSI) for knee and hip arthroplasties

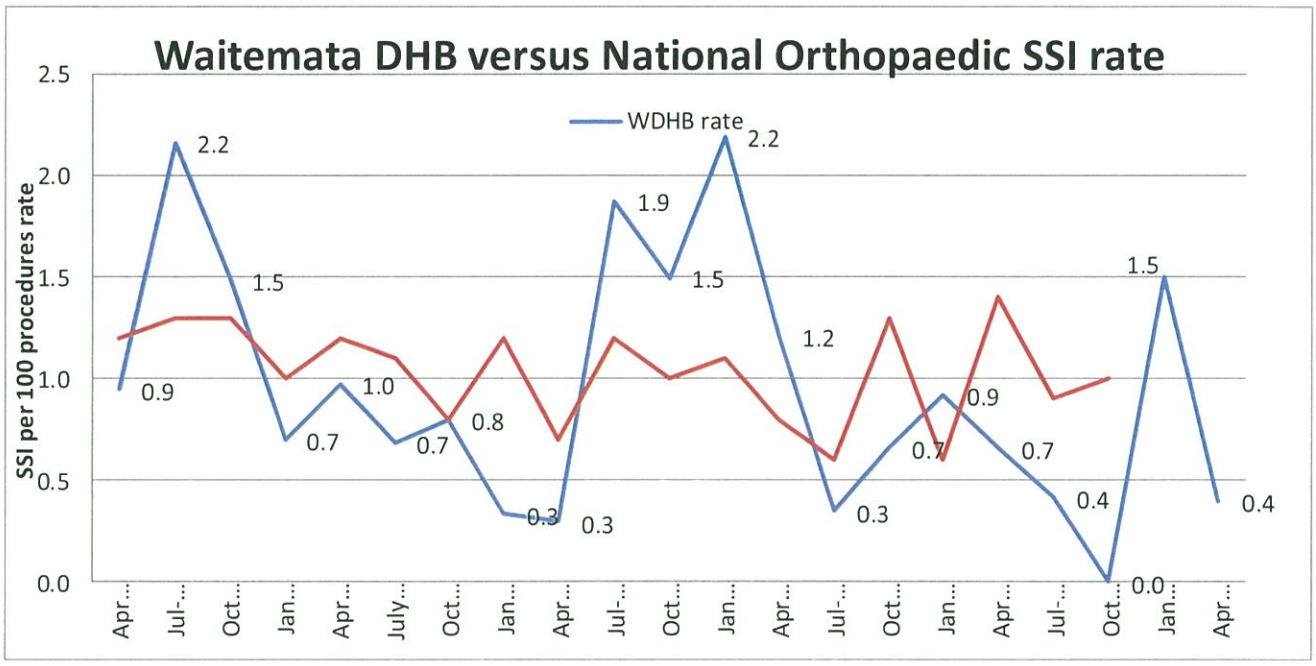
In scope procedures for SSI surveillance are primary and revision hip/knee arthroplasty performed at either NSH or elective surgical centre (ESC) in accordance with National Surgical Infection Improvement (SSII) program. The surveillance criteria 90 days post-operatively for deep and 30 days for superficial infection.

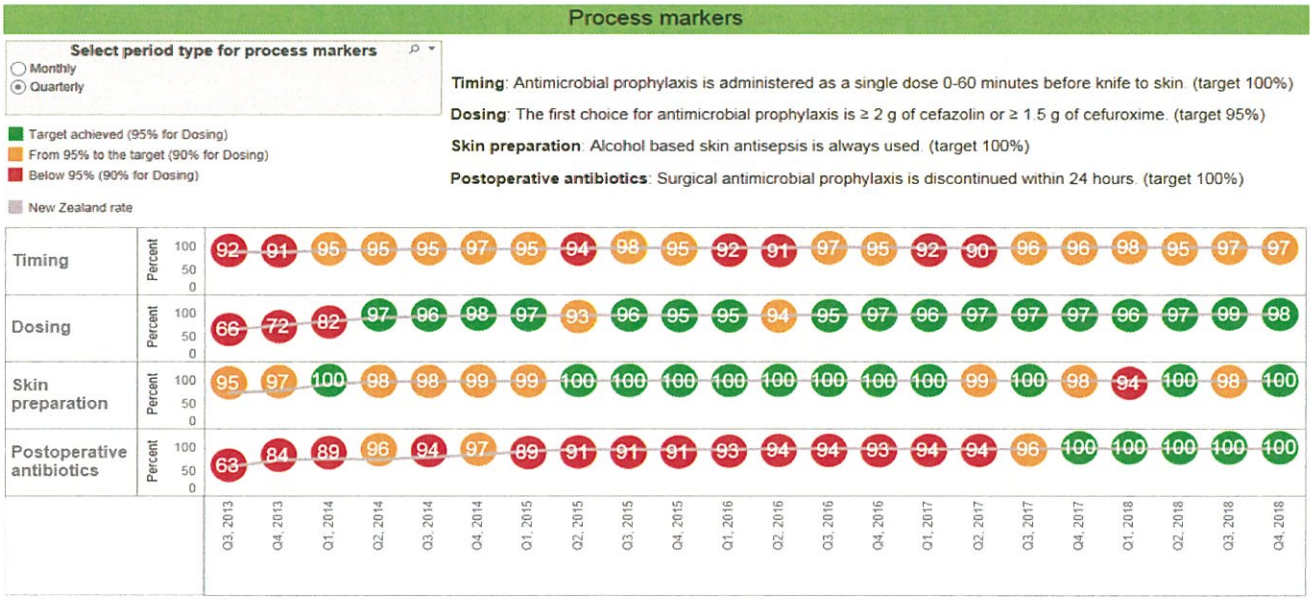
- SSI rate for Jan-June 2019 was high in the Q1 2019 with **four** SSI's (rate **1.6**/100 Procedures)
- **One** SSI has been identified to date in Q2
- Of the 5 SSI's in **two** deep (**one** NSH and **one** ESC) and three superficial SSI's (**two** ESC) were noted
- A deep hip SSI from S.aureus occurred in March 2019 which was the first S.aureus SSI since introduction of
- *Staph* decolonisation bundle in Nov 2017
- Cultures were negative in all other SSI's

Table: SSI number and rates 2016 till July 2019 at WDHB

Year	2016		2017		2018		2019	
Quarter			Q1	Q2	Q3	Q4	Q1	Q2
WDHB total procedures	1217	1191	217	304	240	229	261	250
SSI's (n)	12	13	2	2	1	0	4	1
Rate	1%		1.1%		0.5% (5/990)		1.6%	0.4%

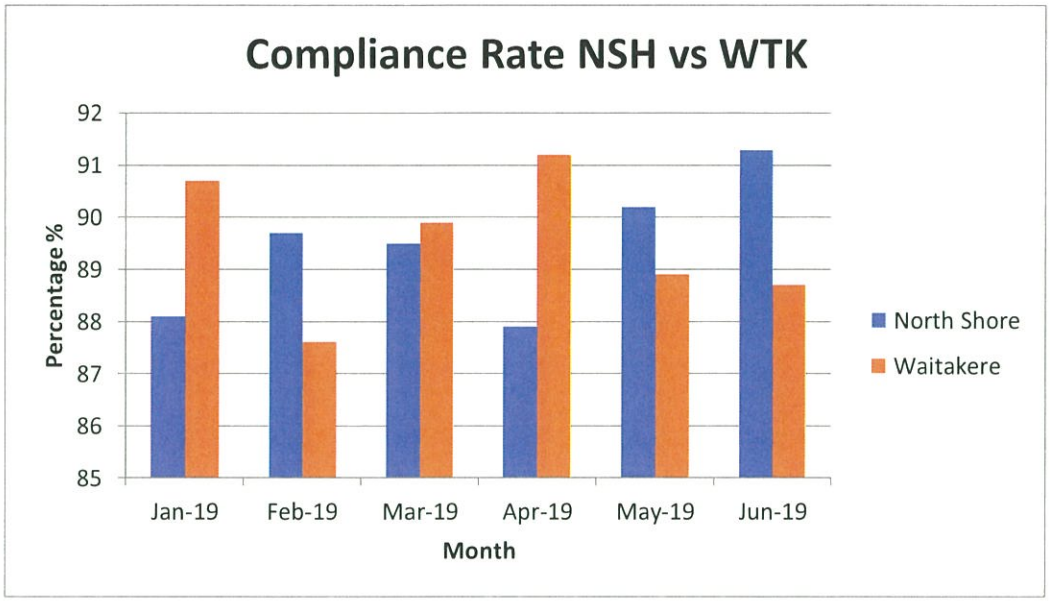
- Our overall SSI rate (with exception of Q1 2019) remains comparable (2016-17) or lower (2018) to the national rate with ongoing regular compliance with QSM's (Graph and table)

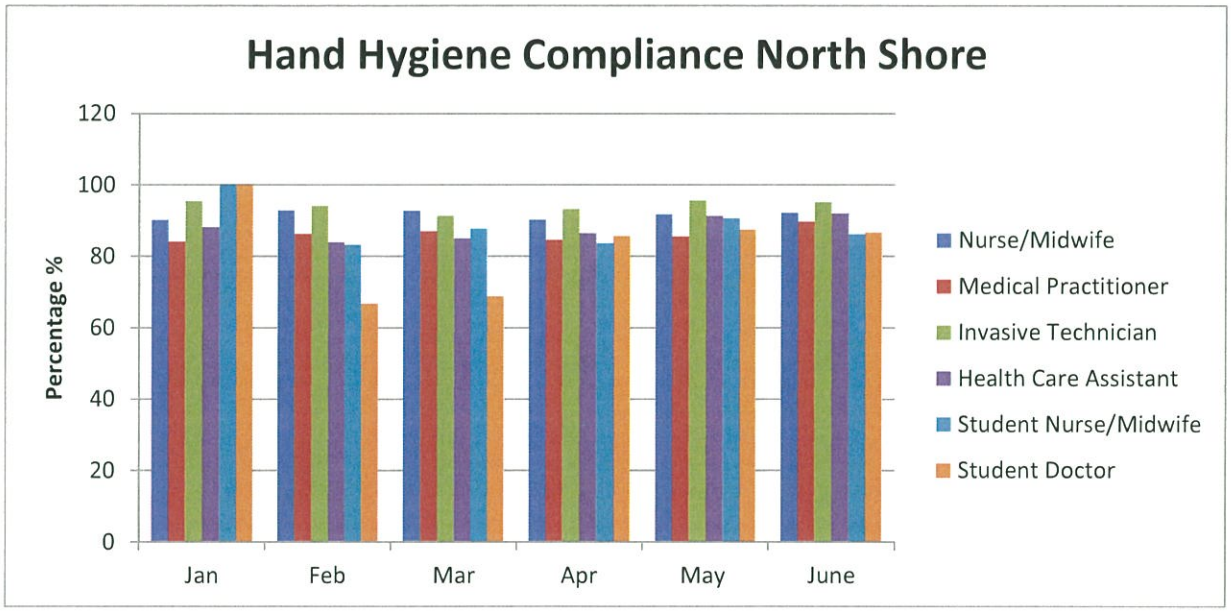


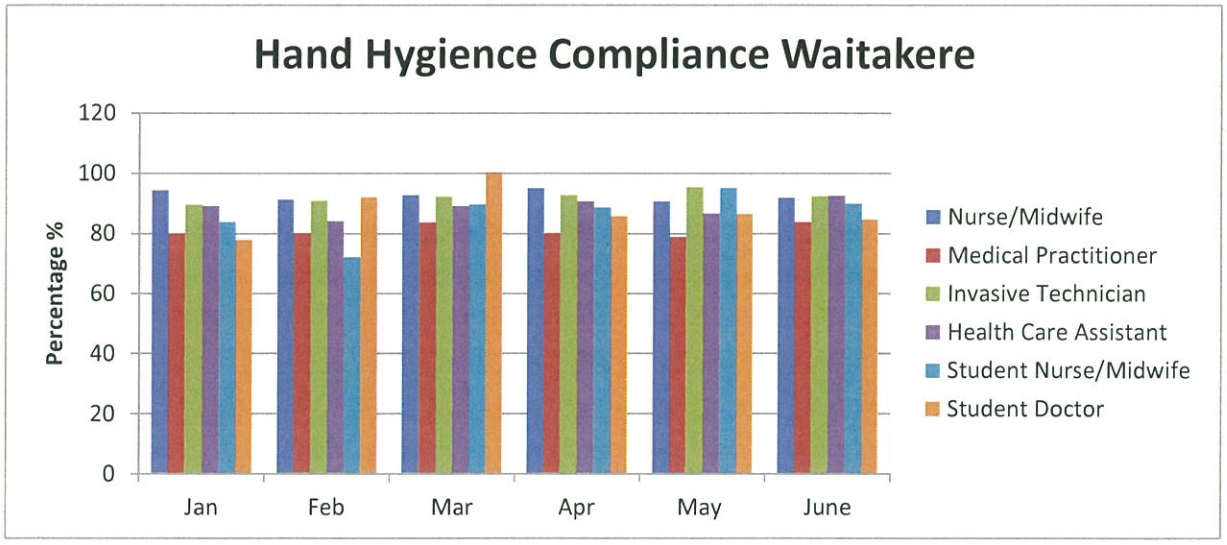


9. Hand Hygiene

- Overall, Waitematā DHB hand hygiene compliance rate was consistently at **87%** or higher for each month in 2019
- Hand hygiene compliance has reached an all-time high of **90%** for Waitemata DHB in June 2019
- Key achievements in the hand hygiene program were a successful World Hand Hygiene Day celebration at Waitakere and North Shore Hospitals on 7 May 2019
- Waitematā DHB has the largest commitment to the national hand hygiene program, with our moments of auditing double second placed ADHB


Compliance Rate NSH vs WTK
92
91
90
89
88
87
86
85
Percentage %
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Month
North Shore
Waitakere


Hand Hygiene Compliance North Shore
120
100
80
60
40
20
0
Percentage %
Jan
Feb
Mar
Apr
May
June
Nurse/Midwife
Medical Practitioner
Invasive Technician
Health Care Assistant
Student Nurse/Midwife
Student Doctor


Hand Hygience Compliance Waitakere
120
100
80
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20
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Percentage %
Jan
Feb
Mar
Apr
May
June
Nurse/Midwife
Medical Practitioner
Invasive Technician
Health Care Assistant
Student Nurse/Midwife
Student Doctor

10. Communicable Diseases, Clusters and Outbreaks

Disease	Confirmed cases	Ward	Staff contacts	Patient contacts	Comments
HA- Influenza	22	Muriwai , Ward 14, Rata Unit – Mason	8	29	• Muriwai B wing had prolonged Influenza A outbreak in June across several rooms involving **10** patients and wing closure for **eight** days. • Ward 14 had outbreak **eight** patients in July with HA influenza spread across **two** rooms • Both Rooms 1 and 2 was closed to admission • Confirmed cases and their contacts were treated with Tamiflu in both outbreaks • Unable to identify source of cross transmission. There was two staff with influenza like illness (ILI) symptoms at the time • Rata Unit - **four** patients with confirmed Influenza A • Restrictions placed on patient movement and visitors
Measles Epidemic	60	ED WTH /Rangitira	586	395	• West Auckland has had the highest number of measles cases in the Auckland region • **60** of the suspected **183** cases tested positive for measles • **Three** staff also had confirmed measles which accounted for the majority of the staff and patient contact tracing required • To date **three** measles cross-transmissions have been attributed to the ED WTH waiting room
Norovirus	3	Ward 10	3	7	• Ward 10 had **eight** patients and seven staff reported symptoms of diarrhoea and/or vomiting • Index case was admitted with diarrhoea but not isolated in enteric precautions on admission • Two rooms (L and M) were closed from the 15-18 April 2019 • With heightened infection control measures and increased environmental cleaning the norovirus did not spread to rest of the ward

Other communicable diseases- clusters and contact tracing

Disease	Total cases	Ward	No of pt. contacts	No of staff contacts	Comments
Pertussis	18	NSH & WTH Ed	6	22	• Majority of cases were from paediatrics at Waitakere ED who had not been placed in droplet precautions on admission
Mycobacterium TB	8	NSH ED , ward 10, Huia, Ward 6 , Muriwai	4	52	• Staff member with Laryngeal TB which resulted in contact tracing of staff and patients • Patients were not isolated in airborne precautions as TB was not the diagnosis on admission

N Meningitis	12	ED NSH & WTH, wards 3,5, 6,	4	8	• Front line staff involved with resuscitation and intubation without appropriate standard precautions when performing aerosol generating procedures • Confusion around administering post-exposure prophylaxis (PEP) to staff • Issues with differentiating staff exposure between high and low risk • Occupational Health and Safety Team are working on clarifying the process so that there is clear case definition, visibility of the policy and management of the PEP • Staff education provided on adherence to standard precautions i.e. use of appropriate personal protective equipment

Infection Control involvement in DHB, Community, National Projects

- Review furniture, furnishings and fittings for Waitemata DHB projects
- Health Benefits PPE project in progress Pressure care devices
- Health Benefits – Mattress and pressure relieving devices project –in progress
- Updated policies and procedures
- Gold Auditors training
- Link Reps Study Day
- Influenza and measles in-service for DHB staff
- Providing IP&C support during outbreaks for Providers
- Assisting Health Alliance in sourcing substitute products
- Reviewing new products -Product Management Committee
- Welcome to Waitemata Orientation Programme

13. Building, Renovations and other issues

- CT Scanning refurbishment NSH and WTH
- IP&C input for ECIB
- IP&C input SCBU refurbishment WTH
- IP&C input Diagnostic Breast Screening
- IP&C input Habitat Café
- IP&C input NSH –Kitchen Renovation
- IP&C input Primary Birthing Unit

Appendix –Waitemata DHB IPC Surveillance Definitions

ESBL Definitions	
HA-ESBL (Hospital acquired) ESBL defination was changed in August 2018. HA ESBL includes both Definite, probable and possible	HA-ESBL is defined as Isolation of ESBL producing Enterobacteriaceae (e.g. E.coli or Klebsiella sp.) from a clinical or screening specimen > 72 hrs post admission (not 48 hrs. as per old definition), in a pt. with previously negative or unknown ESBL status
Community Acquired (CA)	Isolation of ESBL from clinical or screening specimen within 48 hours of admission in a low risk patient with no exposure to acute or long term care facilities in last 6 months
Other Healthcare Facility onset ESBL (OHCF-E)	Isolation of ESBL on admission screen or clinical isolate within 48 hours admission in patients not previously ESBL colonised, admitted to WDHB acute care from rest home, private hospital, or other non WDHB acute care facilities
MRSA definitions	

Community onset MRSA (CA)	New MRSA identified from either clinical isolate or screening within 48 hrs. of admission in a patient with no contact with acute healthcare or contact >30 days prior to identification
A) Hospital Acquired (HA)	New MRSA identified after 72 hours of hospital stay
B) Healthcare associated (HCA)	Previous WDHB admissions and NEW MRSA identified in a patient admitted for <72 hours but had prior contact in the last 30 days with NSH/WTH
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D) Hospital acquired in known (HA in known)	MRSA identified in known patients after 72 hours of admission
VRE definitions	
VRE Burden	Total number of new and previously known VRE colonised/infected patients seen at NSH/WTK hospital during a month
VRE Incidence	Newly identified VRE colonised or infected pts during particular month.
A: Definite hospital acquired (HA)	If admission screen was negative and subsequent screening cultures >48 hrs. after admission confirm VRE
B: Probable hospital acquired (HA-Prob)	If admission screen not performed and subsequent screening cultures >72 hrs. after confirm VRE.
C: Other (CA)	If VRE is isolated on admission screen or within 72 hrs. Of admission to NSH/WTK.
VRE infection (HA inf in known)	Any infection diagnosed either on admission to or during hospital stay. Includes infections in previously colonised
CPE /CPO NSH defination and Alerts	
NSH PCR positive	CPE = carbapenemase-producing Enterobacteriaceae CPO = carbapenemase-producing organism i.e. Acinetobacter, pseudomonas
NSH PCR negative, ESR PCR pending	Possible CPO, awaiting confirmation
ESR PCR comes back negative	Non-CP CRO = non-carbapenemase producing, carbapenem resistant organism (R to carbapenems due to mechanisms other than carbapenemase production).This is confirmed by Clinical Microbiologist
Hospital Acquired (HA)	New CPE/CPO identified after 72 hours of hospital stay
Community onset (CA)	New CPE/CPO isolated on admission screen or within 72 hr.'s admission
Bacteraemia	
Hospital Acquired BSI (HABSI)	Positive blood culture greater than 48hours after admission, procedure in last 48 hours, previous admission in last 48 hours.
Healthcare Associated BSI (HCA)	Occurred with 48 hours of admission from patients that had procedure in last 30 days from WDHB or not admitted, outpatient receiving treatment from WDHB, include dialysis and home dialysis patients.
Community Associated BSI (CA)	Positive blood culture less than 48 hours after admission.
HABSI category	Other - caused by UTI, wounds, pneumonia etc
	Unknown -Source of bacteraemia unknown
	Surgical /procedure - ERCP , Nephrostomy, TURP, TRUS, SSI
	CLAB - CVL, Tunnel line, Groshong, PICC etc.
	IVL - Peripheral venous catheter
	CAUTI - IDC , SPC
Clostridium Difficile	
Healthcare Facility Onset - HO-HCA	CDI symptom onset more than 48hours after admission (3rd calendar day).
Community Onset health care facility associated - CO-HCA	Discharged from a healthcare facility within previous 4 weeks.
Community Onset Community Associated - CO	No admission in the last 12 weeks.

Indeterminate	Discharged from a healthcare facility within the previous 4 to 12 weeks.
Recurrent	Episode of CDI that occurs 8 weeks or less after the onset of a previous episode provided the symptoms from the prior episode resolved.
Influenza	
Community associated CA	positive result less than 72 hours after admission, admitted with coryzal symptoms and febrile > 38.0 degrees
Hospital acquired HA	positive result after 72 hours from admission, not admitted with coryzal symptoms and not febrile >38.0 degrees

Waitematā
District Health Board

Best Care for Everyone

HOSPITAL ADVISORY COMMITTEE (HAC) MEETING

Wednesday 31 July 2019
2.00pm

AGENDA

VENUE
Waitematā District Health Board
Boardroom
Level 1, Shea Tce
Takapuna

6.2 Surveillance

6.2.1 Extended Spectrum Beta Lactamase (ESBL)

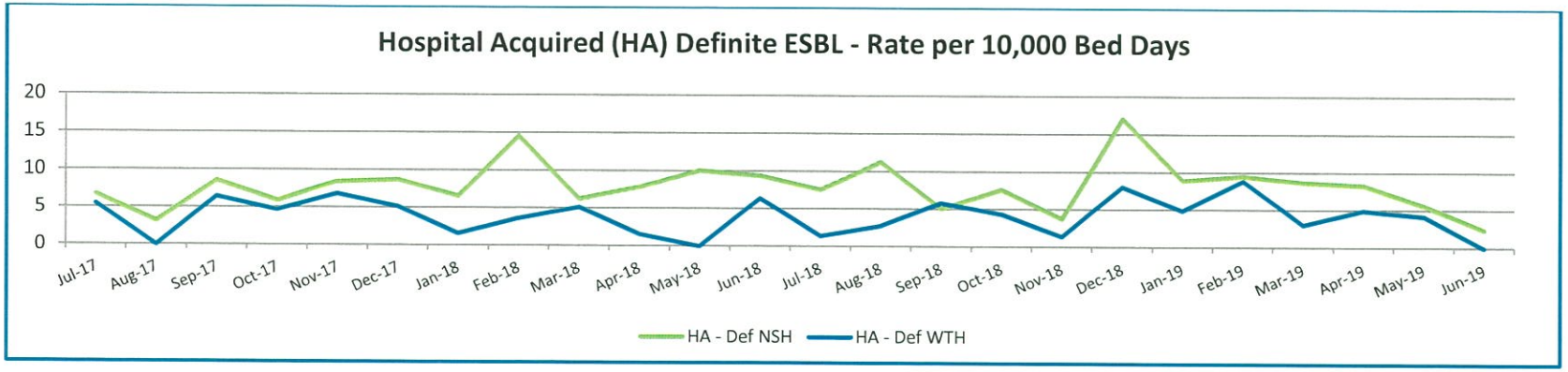
HA-ESBL is now defined as Isolation of ESBL producing Enterobacteriaceae (e.g. E.Coli or Klebsiella sp.) from a clinical or screening specimen >72 hours post admission (not 48 hours as per the old definition), in a patient with previously negative or unknown ESBL status. This new definition now aligns with ICNET and CDC Surveillance Definition

ESBL Overview 2019 YTD

- An overall reduction in HA-ESBL was seen both at NSH and WTH in the first half of 2019 (table below).

HA –ESBL	NSH		WTH	
	Counts	Rates	Counts	Rates
Jan 2019	14	8.9	3	4.8
Feb 2019	13	9.5	5	8.8
Mar 2019	14	8.7	2	3.0
Apr 2019	12	8.3	3	4.9
May 2019	9	5.6	3	4.2
June 2019	4	2.4	0	0.0

- A total of 82 HA-ESBL patients (66 at NSH) with either new colonisation or infection were identified compared to 157 for a similar period in 2018.



- There has been a significant reduction in ESBL cross-transmission despite the disestablishment of Ward 11 as a Multi-drug resistant organisms (MDRO) ward and relaxation in cohorting rules for ESBL E coli. This reduction also follows a change in our HA-ESBL definitions from August 2018; the old definitions were likely to over attribute ESBL acquisition to healthcare.

- A continued focus on prevention strategies will assist in further reduction of ESBL transmission

- ESBL E coli (EC) is more likely to be community acquired (88%) in comparison to ESBL Klebsiella Pneumoniae (KP), which was 66%

- Despite a high prevalence of ESBL in Waitematā DHB patients, the number of clinical isolates with ESBL in hospitalised patients remained relatively low with only **seven** hospital acquired (HA) ESBL E coli (EC); **six** HA ESBL Klebsiella Pneumoniae (KP), and **one** HA ESBL (other); in comparison to community acquired (CA), **58** CA ESBL EC, **10** CAESBL KP and **seven** CA ESBL (other)

- ESBL EC still contributes to 50% (41/82) of total HA ESBL

Place of Acquisition	ESBL KP	ESBL EC	Other
HA	26	41	15
CA	51	319	27
Total	**77**	**360**	**42**

- **90%** of these patients have urinary tract infections

- **29%** HA ESBL isolates were from blood cultures

- HA-ESBL were distributed throughout the NSH wards predominantly with the number of cases attributable to wards ranging from:
  - **nine** on Ward 7
  - **seven** on Ward 4
  - **seven** on Ward 8
  - **six** on Ward 5
  - **four** each for Wards 2, 3, 9, 10 and Titirangi Ward (WTH)
  - the four surgical wards contributed to 33% (n=27) of HA-ESBL cases

6.2.2 Carbapenem resistant Enterobacterales and Pseudomonas (CRE/O)

Nationally, since 2015, concern has been raised about emergence and spread of carbapenemase producing Enterobacterales (CPE's), a subset of CRE/O bacteria. These are the 'next generation' of antimicrobial resistant bacteria with minimal or no effective antibiotics that can be used for treatment of infections caused by them. In addition, CPE's have important IPC implications. Different types of Carbapenemase genes (NDM, OXA-48, and KPC's) confer resistance detected by molecular testing.

Waitematā DHB has undertaken CRE screening as part of active MDRO screening for high risk patients since 2017. Any patient suspicious of CRE/CRO on initial testing is placed in contact isolation pending further confirmation.

CRE/O Overview 2019 YTD

- In 2019 to date, **seven** of **17** isolates flagged by the Waitematā DHB lab were confirmed as CPE by molecular testing performed by the reference lab.
- **Five** patients were deemed high risk and hospitalised or travelled overseas
- None of the CPE was attributed to NSH or WTH
- No clusters or outbreaks have been identified at Waitematā DHB to date

6.2.3 Methicillin Resistant Staphylococcus Aureus (MRSA)

MRSA Overview 2019 YTD

- Waitematā DHB continues to have low MRSA infection rates based on information primarily collected from laboratory antibiotic susceptibility data
- **99%** of MRSA are community acquired

MRSA isolates in 2018-2019

	2018 NSH/WTH (TOTAL)	2019 NSH/WTH (TOTAL)
MRSA isolates	157/105(262)	96/75 (171)
Community MRSA and other HCF (new cases)	117/82 (199)	62/48 (110)
Community MRSA (known on admission) *IC-NET not collecting data from July onwards*	10/13 (23)	31/27(58)
New healthcare onset (hospital acquired)	24/14 (38)	3/0 (3)
Health care onset (known on admission)	6/1	0

6.2.4 Vancomycin Resistant Enterococci (VRE)

Active VRE surveillance, similar to ESBL since 2007 and CPE since 2017, is performed at WDHB since May'15 after an outbreak at NSH in 2014. Identification of new VRE colonisation or infection continues to be very low due to enhanced IPC measures including use of Deprox for environmental decontamination in selected situations.

VRE Overview 2019 YTD

- Only **two** HA VRE were identified in 2019 YTD, **one** in Ward 5 (March) and **one** in ward 8 (May); contact tracing of patients sharing rooms did not find in evidence of cross transmission at NSH
- **One** community acquired VRE isolated from high risk patients. No VRE infections were seen over a prolonged period and the burden of VRE has also reduced slightly.

6.2.5 Clostridium Difficile (now called Clostridioides difficile)

Waitematā DHB Surveillance Definitions for CDI

Healthcare facility Onset (HO-HCA) *- CDI symptom onset is more than 48 hours after admission (third calendar day).*
Community Onset healthcare facility associated (CO-HCA) *-Discharged from a healthcare facility within previous four weeks.*
Community Onset Community Associated (CO) *-No admission in the last 12 months.*
Indeterminte *-Discharged from a healthcare facility within the previous 4-12 weeks.*
Recurrent *-Episode of CDI that occurs eight weeks or less after the onset of a previous episode provided the symptoms from the prior episode have resolved.*

Clostridium difficile (C.difficile) infection (CDI) Summary

Clostridium difficile infection (CDI) typically results from the use of antibiotics that affect the normal gut flora, promoting the growth of gut flora. Prevention, therefore, is dependent on appropriate antibiotic use. C.difficile has the potential to spread in healthcare facilities due to its persistence in the environment and contamination of healthcare workers' hands. There is no national data on the rate of CDI in NZ hospitals, but it is thought to be lower than European countries and the USA, with hyper virulent strains being very rare in NZ. The MoH is considering a hospital-based CDI surveillance strategy with an initial focus on standardisation of testing and definitions.

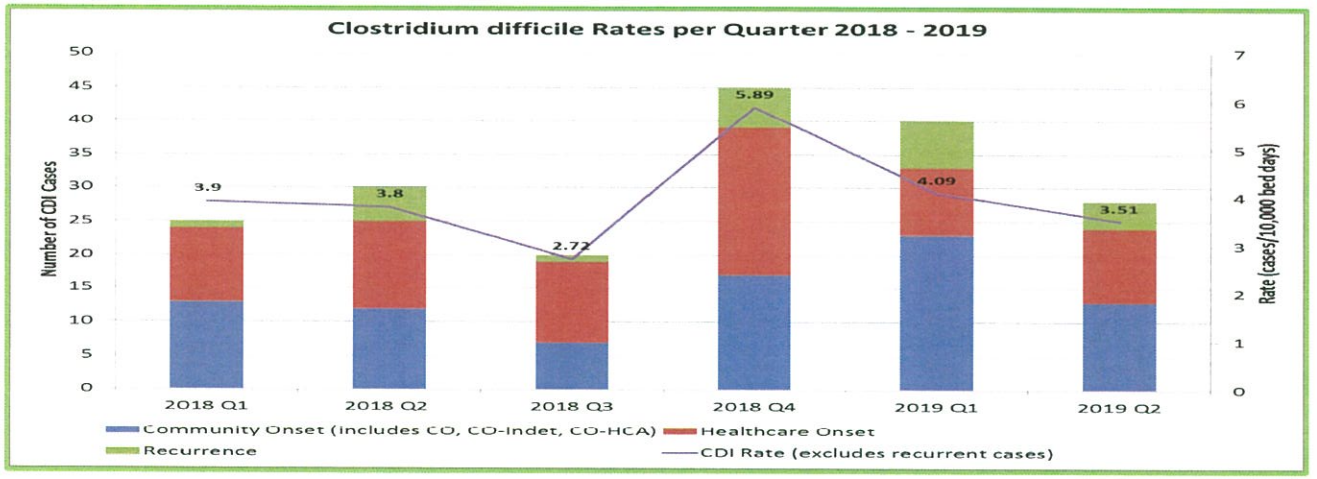
Waitematā DHB commenced quarterly surveillance of CDI in mid-2013 using standard definitions from the US (Society of Healthcare Epidemiology and Centre for Disease Control). The surveillance strategy has been updated to include real-time notification, feedback, and prevention strategies to reduce hospital-acquired CDI.

Waitematā DHB has an active feedback process for all cases of HO-HCFA (definitions below) where root cause analysis is undertaken by the ID physician/ Microbiologist and Antimicrobial Stewardship (AMS) pharmacist at the time of diagnosis of CDI. A letter outlining the causes and corrective actions are sent to the responsible clinician if the case is considered avoidable.

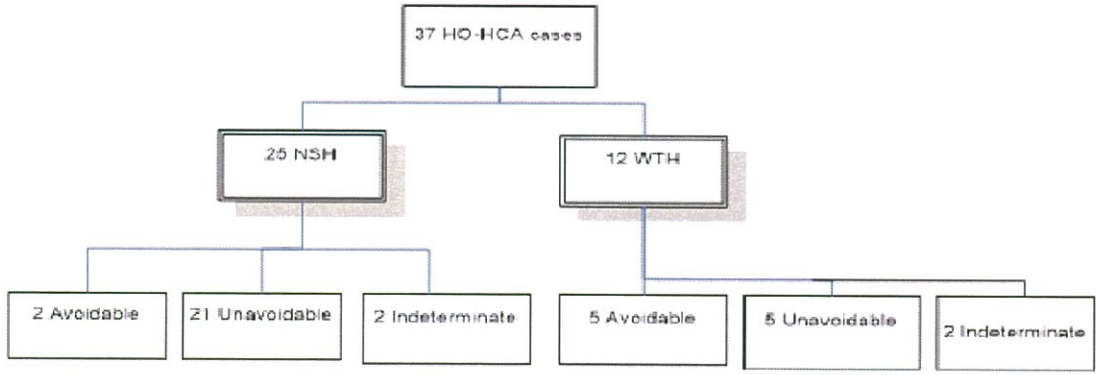
The CDI, working group in conjunction with AMS group /IPC team, will continue to focus on early recognition, improving diagnostic testing requests, isolation practice and antimicrobial stewardship as the key areas.

C-Diff Overview 2019 YTD

- A total of **57** cases of CDI (excluding recurrence) identified 2019 YTD compared to **49** cases during a similar period, and **107** cases in the entire year in 2018)
- This includes **33** new cases in Q1 and **24** cases in Q2
- The proportion of healthcare facility onset (HO-HCA) infections were **38%** in Q1 and **45%** in Q2



- Approximately 20% (7 of 37 cases) of HO-HCA CDI that were reviewed by antimicrobial stewardship team as part of an on-going active feedback process were considered avoidable as shown in flow chart below; this proportion is similar to 2018



6.2.6 Seasonal Influenza Surveillance

Waitematā DHB has a yearly seasonal Influenza surveillance program which usually commences in March every year. In addition, hospital acquired (HA-Inf) is a unique designation used in our surveillance since 2017. It identifies inpatients admitted initially for other medical reasons but developed Influenza during their hospital stay, likely through acquisition from either other patients, staff, visitors or environment. Therefore, confirmation of Influenza after 72 hrs of admission is defined as HA-Inf.

Data includes only confirmed patient cases where influenza like illness (ILI) symptoms developed 48 hours after admission. Source of acquisition variable (healthcare worker, patient, visitors)

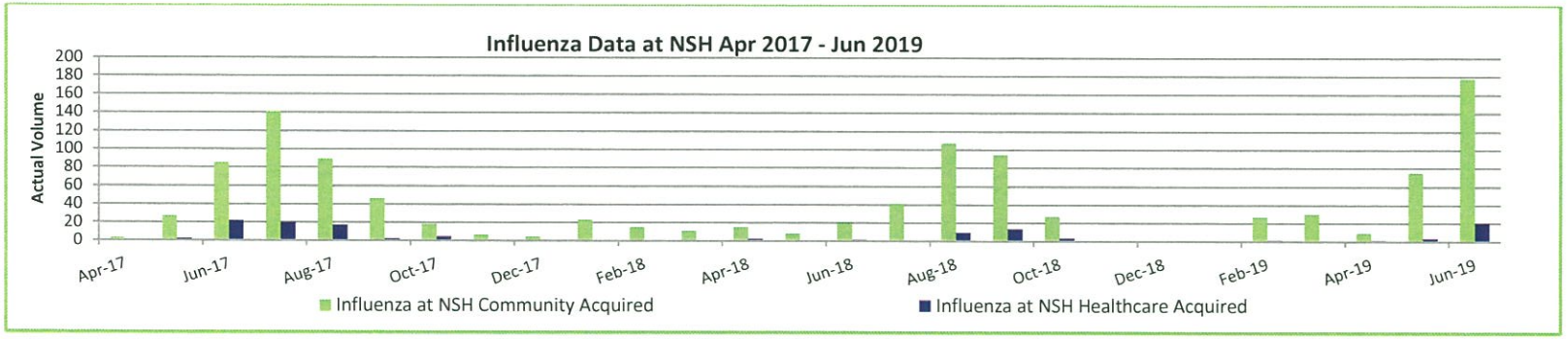
Influenza Overview 2019 YTD

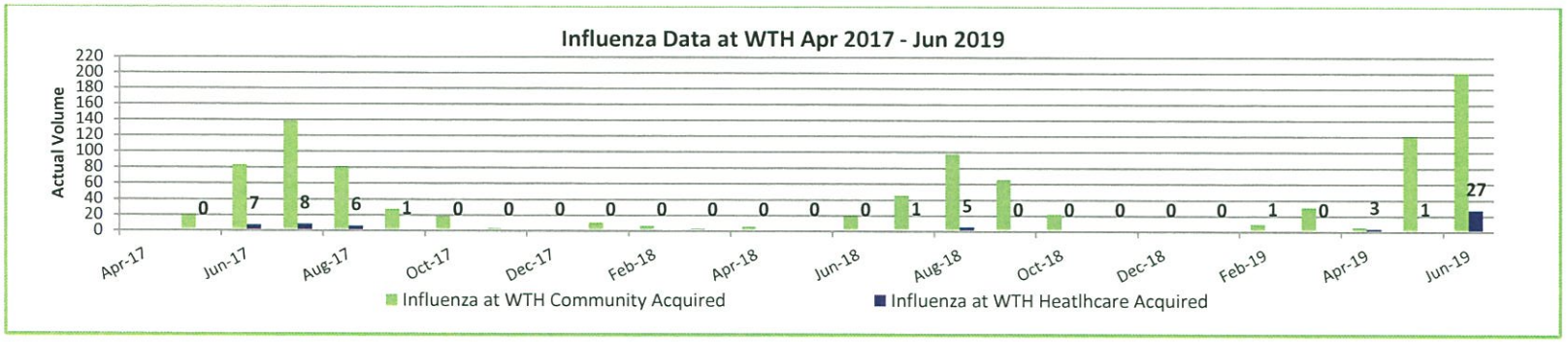
- The 2019 season so far has been characterised by earlier onset (high number of confirmed CA-Influenza cases at Waitematā DHB in Jan/Feb mostly acquired from Northern Hemisphere travel), and higher than seasonal baseline of ILI presentations with **959** confirmed Influenza cases at NSH/WTH.
- Waitakere Hospital proportionately has a higher number of confirmed Influenza cases
- Majority of confirmed influenza is the **H3N2** strain followed by Influenza B; both strains are included in the 2019 quadrivalent vaccine
- In 2019 a concerning trend in HA-Inf cases is noted with 80 cases (46 NSH, 25 WTH and 9 Mental Health WTH) diagnosed to 12 July:
  - this includes **two** outbreaks of seasonal Inf A- Muriwai ward in June involving **10** patients and Ward 14 with eight cases between 4 -9 July
  - Staff illness has been reported during both these outbreaks and in clusters in other patient care areas but it is difficult to establish an epidemiological link

- In 2017, during a high influenza season, HA-Inf cases were unacceptably high (**100**) but this reduced significantly to **34** in 2018

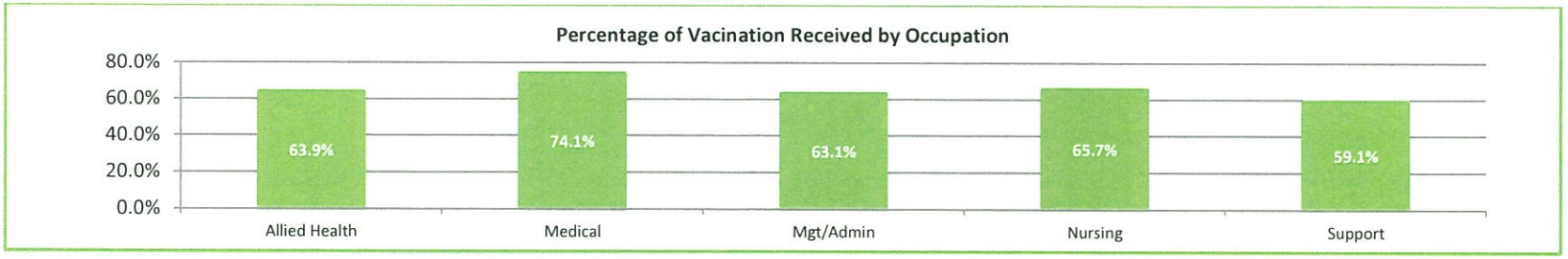
North Shore Hospital (NSH) Influenza 2019	Feb	Mar	Apr	May	Jun19	Jul (up to 12th)	Total YTD
Community Acquired	27	30	35	75	178	78	**423**
Hospital Acquired	1	0	1	3	20	21	**46**
Waitakere Hospital (WTH) Influenza 2019	**Feb**	**Mar**	**Apr**	**May**	**Jun19**	**Jul (up to 12th)**	**Total YTD**
Community Acquired	9	30	22	121	201	73	**456**
Hospital Acquired	1	0	3	1	27	2	**34**

- The impact of influenza illness in the elderly patient population remains under-appreciated; to date we have identified **five** patients who have died in hospital with HA-Infuenza A diagnosed within 10 days prior to death. While influenza may not be the only contributor to their demise, it likely contributed significantly to the deterioration of their health





Waitematā DHB staff flu vaccine uptake for 2019 has increased to 65.5% compared to 59% in 2018 uptake of 59% as shown below:



6.2.3 Communicable Diseases, Clusters and Outbreaks – Update May/June

Disease	Total cases	Ward	No of pt. contacts	No of staff contacts	Comments
HA- Influenza	22	Muriwai Ward, Ward 14 and Rata Unit Mason	8	29	• Muriwai B wing had prolonged Influenza A outbreak in June across several rooms involving **10** patients and wing closure for **eight** days. • Ward 14 had outbreak **eight** patients in July with HA influenza spread across **two** rooms • Both Rooms 1 and 2 was closed to admission • Confirmed cases and their contacts were treated with Tamiflu in both outbreaks • Unable to identify source of cross transmission. There was two staff with influenza like illness (ILI) symptoms at the time • Rata Unit - **four** patients with confirmed Influenza A • Restrictions placed on patient movement and visitors
Measles	60	ED WTH/ Rangitira	586	395	• West Auckland has had the highest number of measles cases in the Auckland region • **60** of the suspected **183** cases tested positive for measles • **Three** staff also had confirmed measles which accounted for the majority of the staff and patient contact tracing required • To date **three** measles cross-transmissions have been attributed to the ED WTH waiting room
Norovirus	3	Ward 10	3	7	• Ward 10 had **eight** patients and seven staff reported symptoms of diarrhoea and/or vomiting • Index case was admitted with diarrhoea but not isolated in enteric precautions on admission • Two rooms (L and M) were closed from the 15-18 April 2019 • With heightened infection control measures and increased environmental cleaning the norovirus did not spread to rest of the ward
N meningitidis (Meningococcus)	5	ED WTH (2) ED NSH (3)	0	18	• Front line staff involved with resuscitation and intubation without appropriate standard precautions when performing aerosol generating procedures • Confusion around administering post-exposure prophylaxis (PEP) to staff • Issues with differentiating staff exposure between high and low risk • Occupational Health and Safety Team are working on clarifying the process so that there is clear case definition, visibility of the policy and management of the PEP • Staff education provided on adherence to standard precautions i.e. use of appropriate personal protective equipment

Pertussis (Whooping Cough)	18	ED NSH ED WTH	6	22	• Majority of cases were from paediatrics at Waitakere ED who had not been placed in droplet precautions on admission
Mycobacterium TB	8	ED NSH Ward 10 Huia Ward Ward 6 Muriwai Ward	4	52	• Staff member with Laryngeal TB which resulted in contact tracing of staff and patients • Patients were not isolated in airborne precautions as TB was not the diagnosis on admission