WGS Quality Control Report

Batch Name: 2024-07-23

Experiment Name: 24ARS_SATSCAN_SALM_LG77Y

Isolate No.	Sample ID	Description	ARSRL	WGS
1	22ARS_BGH0179	NGO19	Haemophilus influenzae	Neisseria gonorrhoeae
2	22ARS_VSM0456	NGO18	Neisseria gonorrhoeae	Neisseria gonorrhoeae
3	23ARS_BRH0005	NGO20	Neisseria gonorrhoeae	Neisseria gonorrhoeae
4	23ARS_CVM0029	NGO21	Neisseria gonorrhoeae	Neisseria gonorrhoeae
5	23ARS_CVM0039	NGO22	Neisseria gonorrhoeae	Neisseria gonorrhoeae
6	24ARS_BGH0040	SAL75	Salmonella species	Salmonella enterica
7	24ARS_BGH0041	SAL76	Salmonella species	Salmonella enterica subsp. enterica serovar Anatum
8	24ARS_BGH0042	SAL77	Salmonella species	Salmonella enterica subsp. enterica serovar Saintpaul
9	24ARS_BGH0043	SAL78	Salmonella species	Salmonella enterica subsp. enterica serovar Infantis
10	24ARS_BGH0044	SAL79	Salmonella species	Salmonella enterica
11	24ARS_BGH0045	SAL80	Salmonella Typhi	Salmonella enterica subsp. enterica serovar Typhi
12	24ARS_BGH0071	SAL81	Salmonella species	Salmonella enterica subsp. enterica serovar Infantis
13	24ARS_BGH0072	SAL82	Salmonella species	Salmonella enterica subsp. enterica serovar Newport
14	24ARS_STC_CVM0010	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
15	24ARS_STC_CVM0011	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
16	24ARS_STC_CVM0012	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
17	24ARS_STC_CVM0013	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
18	24ARS_STC_CVM0014	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
19	24ARS_STC_CVM0015	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
20	24ARS_STC_CVM0016	satscan	Pseudomonas aeruginosa	Pseudomonas aeruginosa
21	24ARS_ZMC0002	EMR156_2	Pseudomonas aeruginosa	Pseudomonas aeruginosa

Legend:

PASS	WARNING	FAILURE	EXCEEDS THRESHOLD METRIC/S	NON-CONCORDANT

Sample excluded in the analysis

Sample ID	Description	Index reads	Remarks
24ARS_NKI0054	EMR160_2	1.0832	low read count

Isolate No.	Sample ID	Contamination	Contigs	GC Percent	N50	Total Length
1	22ARS_BGH0179	0	85	52.65	48631	2071467
2	22ARS_VSM0456	0	543	50.33	53055	2234632
3	23ARS_BRH0005	0	80	52.31	52897	2180777
4	23ARS_CVM0029	0	79	52.57	58956	2118978
5	23ARS_CVM0039	0	88	52.37	57741	2140058
6	24ARS_BGH0040	0	62	52.09	301434	4987437
7	24ARS_BGH0041	0	25	52.11	742565	4766742
8	* 24ARS_BGH0042	0	26	52.16	728119	4760732
9	24ARS_BGH0043	0	58	52.13	217729	4963591
10	* 24ARS_BGH0044	0	23	52.03	490148	4773509
11	24ARS_BGH0045	0	52	52.09	172613	4703271
12	24ARS_BGH0071	0	56	52.13	299734	4975275
13	24ARS_BGH0072	0	35	51.93	466584	5056128
14	24ARS_STC_CVM0010	0	82	66.37	214091	6392720
15	24ARS_STC_CVM0011	0	117	66.36	123460	6394288
16	24ARS_STC_CVM0012	0	90	66.36	178858	6400798
17	24ARS_STC_CVM0013	0	88	66.36	214074	6404538
18	24ARS_STC_CVM0014	0	95	66.37	187092	6393505
19	24ARS_STC_CVM0015	0	51	66.42	436622	6353608
20	24ARS_STC_CVM0016	0	51	66.35	467470	6409137

21	24ARS_ZMC0002	0	43	66.46	430238	6331823

Legend:

PASS	WARNING	FAILURE	EXCEEDS THRESHOLD METRIC/S	*Isolates were tagged with warning due to uncertain results of species identification using bactinspector.	

With Warning/s

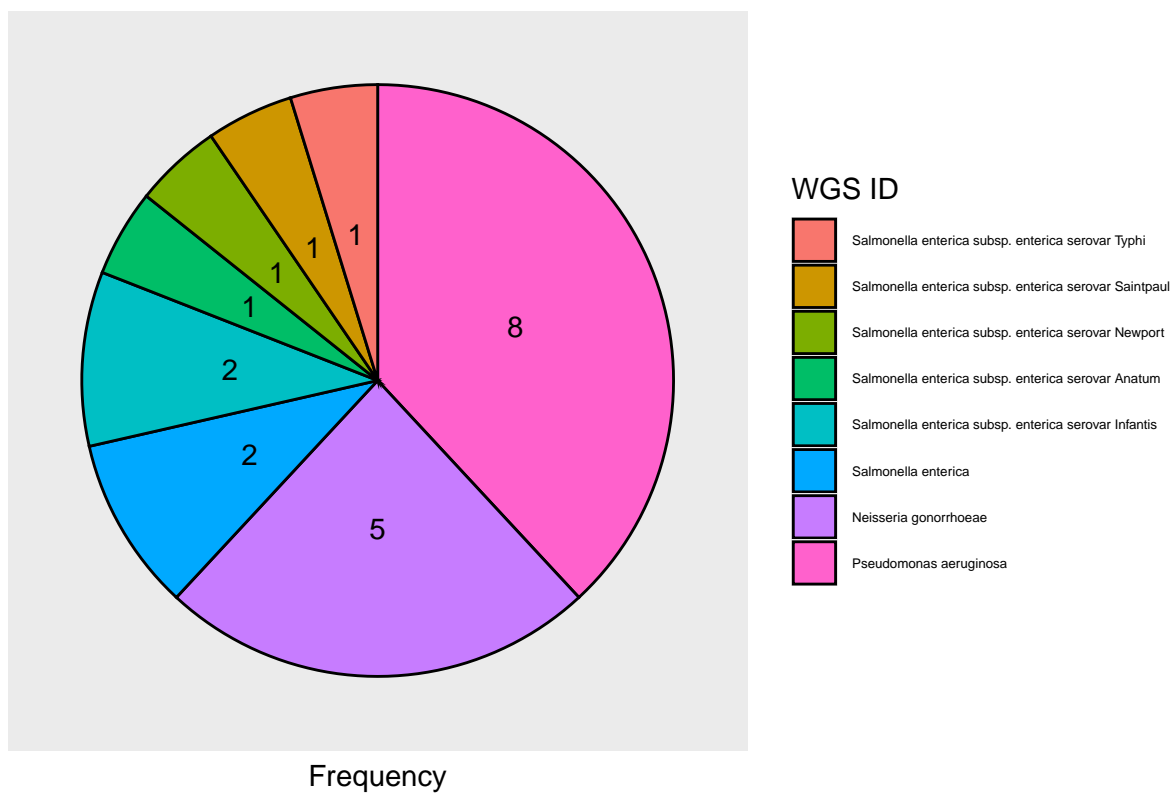| Isolate No.	Sample ID	Value with warning/s
1	22ARS_BGH0179	fastqc.1.Per.sequence.GC.content.metric_value, fastqc.1.Sequence.Length.Distribution.metric_value, fastqc.2.Per.sequence.GC.content.metric_value, fastqc.2.Sequence.Length.Distribution.metric_value
8	24ARS_BGH0042	fastqc.1.Per.sequence.GC.content.metric_value, fastqc.1.Sequence.Length.Distribution.metric_value, fastqc.2.Per.sequence.GC.content.metric_value, fastqc.2.Sequence.Length.Distribution.metric_value
10	24ARS_BGH0044	fastqc.1.Per.sequence.GC.content.metric_value, fastqc.1.Sequence.Length.Distribution.metric_value, fastqc.2.Per.sequence.GC.content.metric_value, fastqc.2.Sequence.Length.Distribution.metric_value

List of samples above/below QC threshold metrics

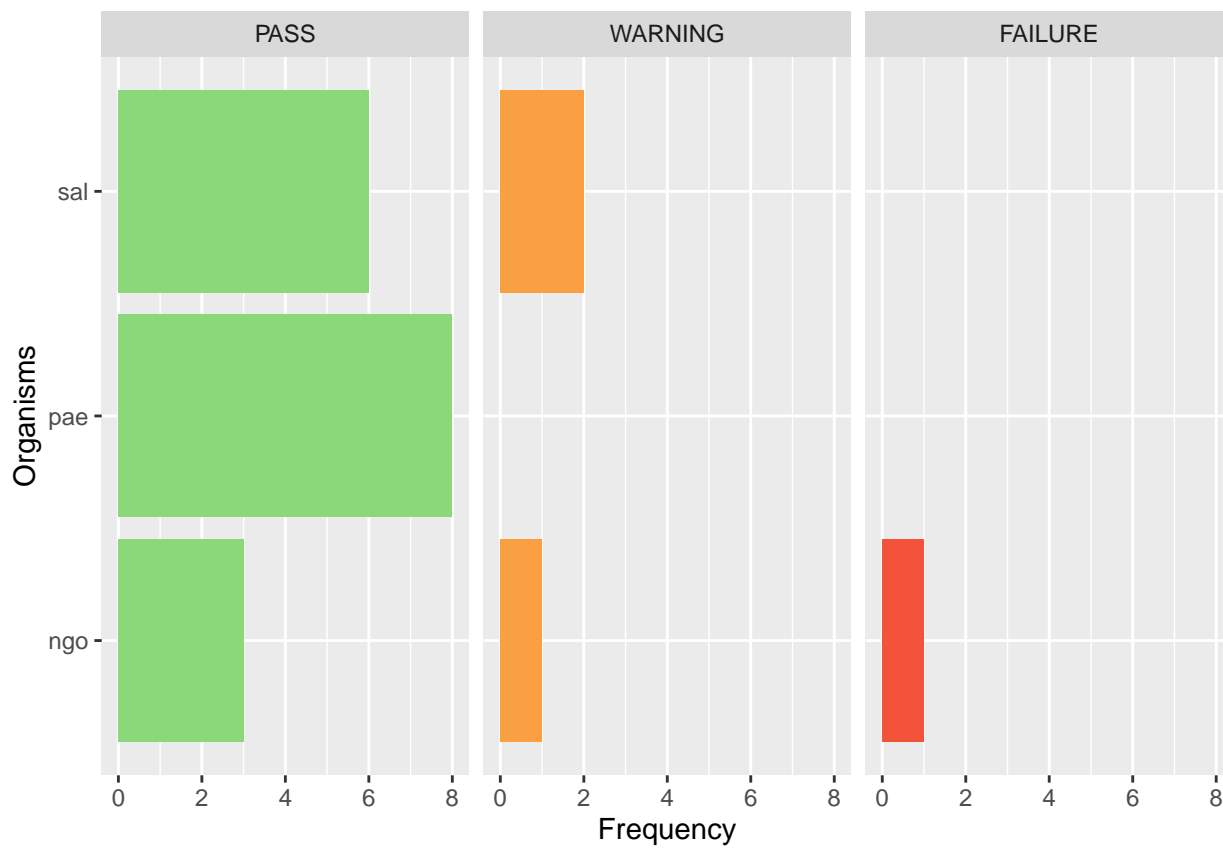| Sample ID	Result	Contamination	Contigs	N50	Total Length
22ARS_VSM0456	FAILURE	PASS	543	53055	2234632

WGS_ID	Number
Pseudomonas aeruginosa	8
Neisseria gonorrhoeae	5
Salmonella enterica	2
Salmonella enterica subsp. enterica serovar Infantis	2
Salmonella enterica subsp. enterica serovar Anatum	1
Salmonella enterica subsp. enterica serovar Newport	1
Salmonella enterica subsp. enterica serovar Saintpaul	1
Salmonella enterica subsp. enterica serovar Typhi	1

- 8 distinct species were identified among 21 isolates.

- 80.95 % (n=17) of the isolates passed the QC, while 14.29 % (n=3) were tagged with warning.

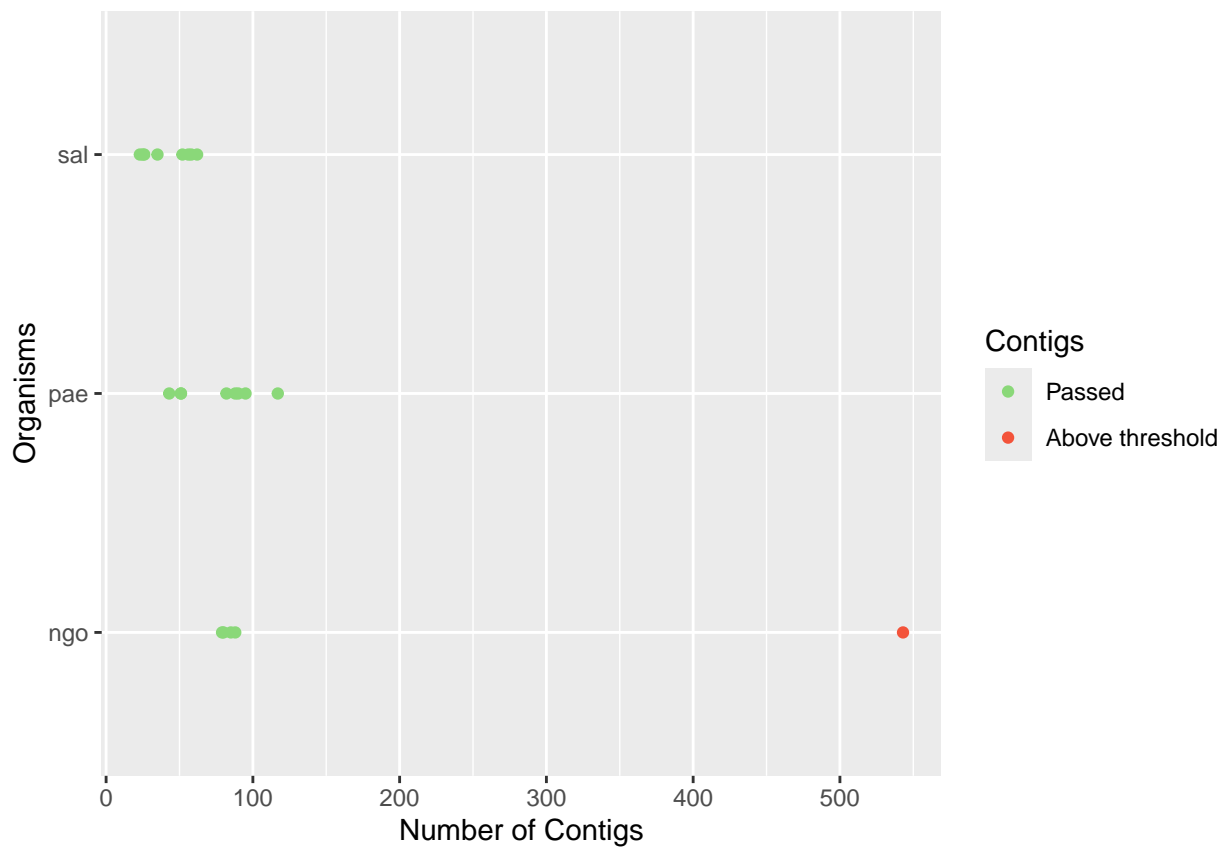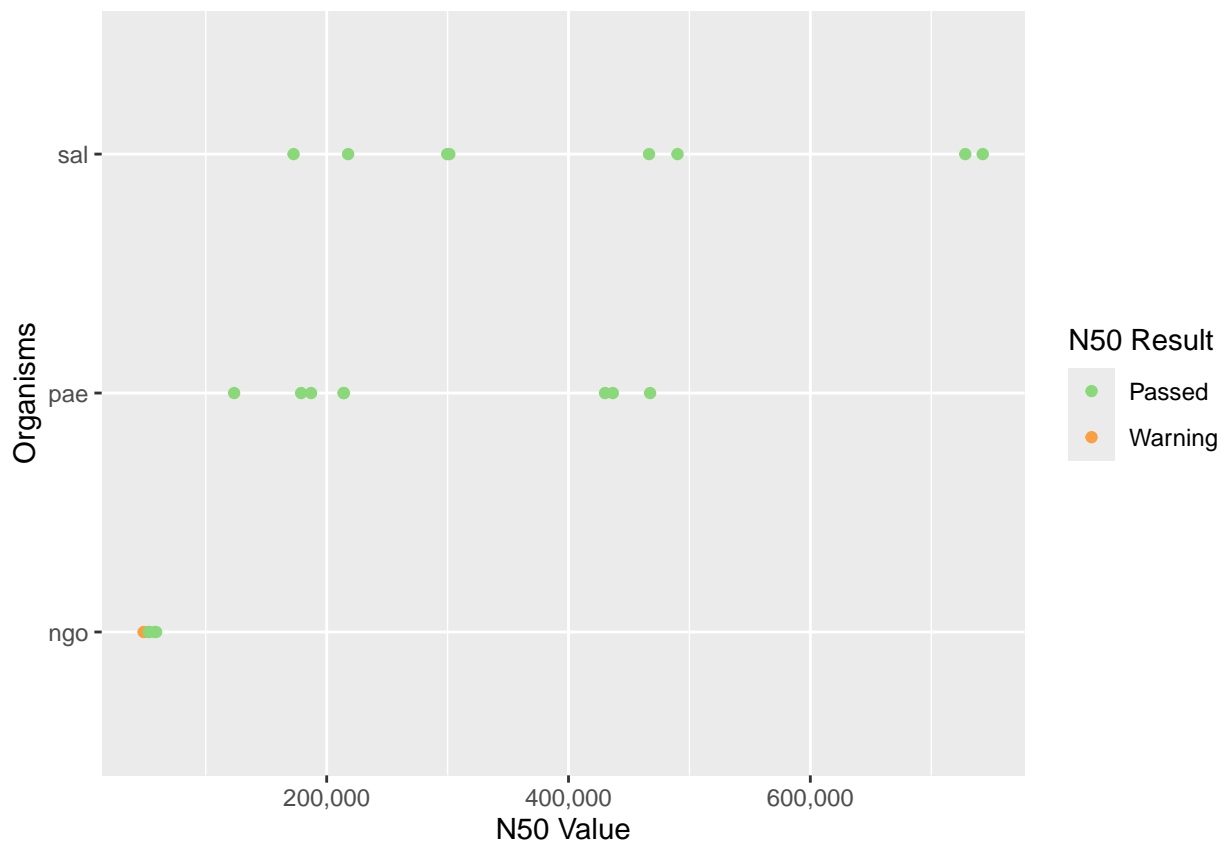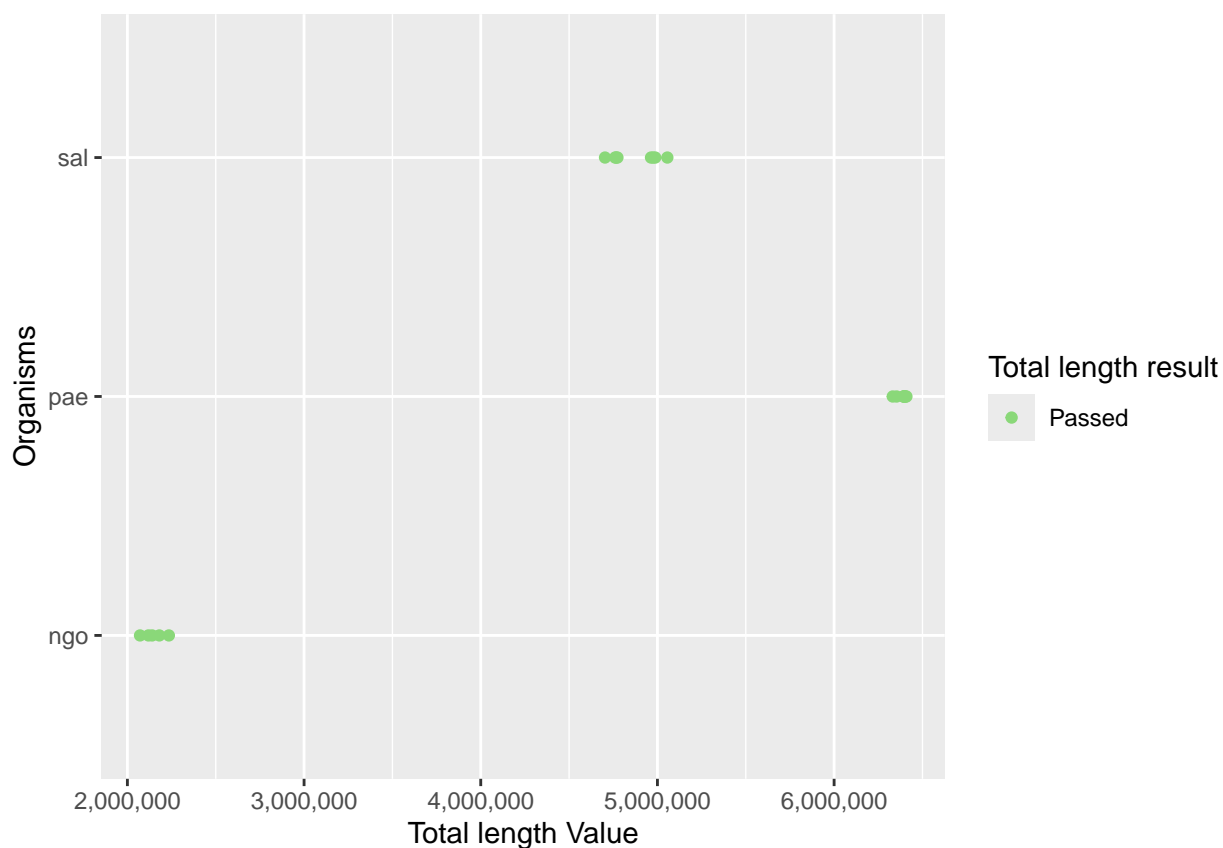- Concordance between ARSRL and WGS species report was 95.24 %.

GRAPHS

Frequency

Result Classification

Number of contigs

N50 Value

Total Length

RECOMMENDATION:

Sample ID	Action	Reason

MLST RESULTS

sample_id	species	MLST	abcZ	adk	aroE	fumC	gdh	pdhC	pgm
22ARS_BGH0179	Neisseria gonorrhoeae	9364	435	39	67	158	148	71	65
22ARS_VSM0456	Neisseria gonorrhoeae	7363	59	39	67	78	148	153	65
23ARS_BRH0005	Neisseria gonorrhoeae	7823	435	39	170	111	148	153	65
23ARS_CVM0029	Neisseria gonorrhoeae	-	59	39	170	78	149	71	65
23ARS_CVM0039	Neisseria gonorrhoeae	10214	435	39	170	78	148	153	65

sample_id	species	MLST	abcZ	adk	aroE	fumC	gdh	pdhC	pgm
24ARS_BGH0040	Salmonella enterica	4431	10	19	12	981	5	9	2
24ARS_BGH0041	Salmonella enterica subsp. enterica serovar Anatum	64	10	14	15	31	25	20	33
24ARS_BGH0042	Salmonella enterica subsp. enterica serovar Saintpaul	684	147	13	15	123	15	19	17
24ARS_BGH0043	Salmonella enterica subsp. enterica serovar Infantis	32	17	18	22	17	5	21	19
24ARS_BGH0044	Salmonella enterica	-	5,638	2	3	7	6	6	11
24ARS_BGH0071	Salmonella enterica subsp. enterica serovar Infantis	32	17	18	22	17	5	21	19
24ARS_BGH0072	Salmonella enterica subsp. enterica serovar Newport	46	10	7	21	12	15	12	12

sample_id	species	MLST	abcZ	adk	aroE	fumC	gdh	pdhC	pgm
24ARS_STC_CVM0010	Pseudomonas aeruginosa	3654	11	20	26	13	4	7	53
24ARS_STC_CVM0011	Pseudomonas aeruginosa	3654	11	20	26	13	4	7	53
24ARS_STC_CVM0012	Pseudomonas aeruginosa	3654	11	20	26	13	4	7	53
24ARS_STC_CVM0013	Pseudomonas aeruginosa	3654	11	20	26	13	4	7	53
24ARS_STC_CVM0014	Pseudomonas aeruginosa	3654	11	20	26	13	4	7	53
24ARS_STC_CVM0015	Pseudomonas aeruginosa	500	11	57	7	3	4	15	1
24ARS_STC_CVM0016	Pseudomonas aeruginosa	-	19	5	~1	61	55	12	3
24ARS_ZMC0002	Pseudomonas aeruginosa	3014	16	5	12	3	3	1	18

MLST RESULTS SUMMARY:

Species	MLST
Neisseria gonorrhoeae	- (n= 1), 10214 (n= 1), 7363 (n= 1), 7823 (n= 1), 9364 (n= 1)
Salmonella enterica	Salmonella enterica subsp. enterica serovar Anatum
Pseudomonas aeruginosa	- (n= 1), 3014 (n= 1), 3654 (n= 5), 500 (n= 1)

AMR PREDICTION RESULTS

Neisseria gonorrhoeae

sample_id	AMR BETA-LACTAM	AMR EFFLUX	AMR TETRACYCLINE	STRESS EFFLUX
22ARS_BGH0179	blaTEM-1	mtrR, norM, farB, mtrC, mtrA	NA	mtrF
22ARS_VSM0456	blaTEM-1	norM, mtrC, mtrR, mtrA, farB	tet(M)	mtrF
23ARS_BRH0005	blaTEM-1	farB, norM, mtrC, mtrR, mtrA	tet(M)	mtrF
23ARS_CVM0029	blaTEM-135	norM, mtrC, mtrR, mtrA, farB	NA	mtrF
23ARS_CVM0039	blaTEM-1	norM, mtrC, mtrR, mtrA, farB	NA	mtrF

Salmonella enterica

sample_id	AMR APRAMYCIN/ GENTAMICIN/ TOBRAMYCIN	AMR BETA-LACTAM	AMR CEPHALOSPORIN	AMR CHLORAMPHENICOL/ FLORFENICOL	AMR EFFLUX	AMR HYGROMYCIN	AMR KANAMYCIN	AMR LINCOSAMIDE	AMR QUINOLONE	AMR STREPTOMYCIN	AMR SULFONAMIDE	AMR TETRACYCLINE	AMR TRIMETHOPRIM	STRESS ARSENATE	STRESS ARSENIC	STRESS ARSENITE	STRESS COPPER	STRESS COPPER/ GOLD	STRESS COPPER/ SILVER	STRESS GOLD	STRESS MERCURY	STRESS NA	STRESS ORGANOMERCURY	STRESS QUATERNARY AMMONIUM	STRESS SILVER	VIRULENCE NA
24ARS_BGH0040	aac(3)-IVa	blaTEM-1	NA	floR	mdsA, mdsB	NA	NA	NA	NA	aph(6)-Id, aph(3")-Ib	sul2	tet(B)	NA	arsC	arsR	arsB, arsA, arsD	pcoS, pcoR, pcoD, pcoC, pcoA	golT	silB, silF, silC, silR, silS, silA	golS	merP, merT, merR	fieF	merC	NA	silE, silP	iroB, iroC, sinH, sodC1
24ARS_BGH0041	NA	NA	blaDHA-1	floR	mdsA, mdsB	NA	NA	lnu(F)	qnrB4	aph(6)-Id, aph(3")-Ib, aadA2	sul1, sul2	tet(A)	dfrA23	NA	NA	NA	NA	golT	NA	golS	NA	fieF	NA	qacE	NA	sinH, iroB, iroC
24ARS_BGH0042	NA	NA	NA	NA	mdsA, mdsB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	golT	NA	golS	NA	fieF	NA	NA	NA	sinH, sodC1, iroC, iroB
24ARS_BGH0043	aac(3)-IVa	NA	blaCTX-M-65	NA	mdsA, mdsB	aph(4)-Ia	aph(3')-Ia	NA	NA	aadA1	sul1	tet(A)	NA	NA	arsR	NA	NA	golT	NA	golS	merP, merT, merR	fieF	merC	qacEdelta1	NA	sinH, iroB, iroC, ybtP, ybtQ
24ARS_BGH0044	NA	NA	NA	NA	mdsB, mdsA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	golT	NA	golS	NA	fieF	NA	NA	NA	sinH, sodC1, iroC, iroB
24ARS_BGH0071	aac(3)-IVa	NA	blaCTX-M-65	floR	mdsA, mdsB	aph(4)-Ia	NA	NA	NA	aadA1	sul1	tet(A)	dfrA14	NA	arsR	NA	NA	golT	NA	golS	merP, merT, merR	fieF	merC	qacEdelta1	NA	sinH, ybtP, ybtQ, iroB, iroC
24ARS_BGH0072	aac(3)-IVa	blaTEM-1	NA	floR	mdsA, mdsB	NA	NA	lnu(F)	NA	aadA2, aph(6)-Id, aph(3")-Ib	sul1, sul2	tet(D)	NA	NA	NA	NA	NA	golT	NA	golS	NA	fieF	NA	qacE	NA	iroB, iroC, sinH

Pseudomonas aeruginosa

sample_id	AMR BETA-LACTAM	AMR CEPHALOSPORIN	AMR CHLORAM-PHENICOL	AMR EFFLUX	AMR FOSFOMYCIN	AMR KANAMYCIN
24ARS_STC_CVM0010	blaOXA-1127	blaPDC-5	catB7	mexA, mexE, mexX	fosA	aph(3')-IIb
24ARS_STC_CVM0011	blaOXA-1127	blaPDC-5	catB7	mexA, mexX, mexE	fosA	aph(3')-IIb
24ARS_STC_CVM0012	blaOXA-1127	blaPDC-5	catB7	mexA, mexX, mexE	fosA	aph(3')-IIb
24ARS_STC_CVM0013	blaOXA-1127	blaPDC-5	catB7	mexA, mexE, mexX	fosA	aph(3')-IIb
24ARS_STC_CVM0014	blaOXA-1127	blaPDC-5	catB7	mexA, mexE, mexX	fosA	aph(3')-IIb
24ARS_STC_CVM0015	blaOXA-486	blaPDC-1	catB7	mexA, mexE, mexX	fosA	aph(3')-IIb
24ARS_STC_CVM0016	blaOXA-486	blaPDC-5	catB7	mexA, mexE, mexX	fosA	aph(3')-IIb
24ARS_ZMC0002	blaOXA-1023	blaPDC-3	catB7	mexA, mexE, mexX	fosA	aph(3')-IIb