

# THE LANCET

## Microbe

### Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Okomo U, Senghore M, Darboe S, et al. Investigation of sequential outbreaks of *Burkholderia cepacia* and multidrug-resistant extended spectrum  $\beta$ -lactamase producing *Klebsiella* species in a West African tertiary hospital neonatal unit: a retrospective genomic analysis. *Lancet Microbe* 2020; **1**: e119–29.

## Web extra material

### Contents

Supplementary Table 1: OVID combined search strategy for Global Health, Embase and MEDLINE .....	2
Supplementary Table 2: PubMed search strategy .....	3
Supplementary Table 3: Antibiotic dosing for treatment of neonatal sepsis at EFSTH, Banjul, The Gambia .....	4
Supplementary Table 4: Clinical case definition for suspected sepsis.....	5
Supplementary Table 5: Pathogens isolated from newborn blood cultures on the neonatal ward, EFSTH, between March and December 2016 .....	6
Supplementary Table 6: Characteristics and outcomes of neonates with <i>Burkholderia cepacia</i> bloodstream infection during an outbreak at the neonatal ward, EFSTH, between March and August 2016 .....	7
Supplementary Table 7: List of environmental samples cultured during the investigation of an outbreak of neonatal <i>Burkholderia cepacia</i> bloodstream infection at the neonatal ward, EFSTH .....	8
Supplementary Table 8: Pathogens isolated from randomly selected sponges used by mothers to bath babies admitted during the investigation of an outbreak of neonatal <i>Burkholderia cepacia</i> bloodstream infection at the neonatal ward, EFSTH .....	9
Supplementary Table 9: Antibiotic susceptibility profile for <i>Burkholderia cepacia</i> isolates .....	10
Supplementary Table 10: Characteristics and outcomes of neonates with <i>Klebsiella</i> bloodstream infection during an outbreak at the neonatal ward, EFSTH, between October and December 2016 .....	11
Supplementary Table 11: Accession numbers of genome sequence data for <i>Burkholderia cepacia</i> isolates.....	12
Supplementary Table 12: Accession numbers of genome sequence data for <i>Klebsiella</i> isolates. ....	13

## Supplementary Table 1: OVID combined search strategy for Global Health, Embase and MEDLINE

<b>last run via:</b>	<b>OVID</b>
<b>Search Screen:</b>	<b>Advanced Search</b>
<b>Databases:</b>	<b>Journals@Ovid Full Text February 03, 2020, Embase [1980 to 2020 Week 4], Embase Classic + Embase 1947 to 2020 February 03 Global Health [1910 to 2020 Week 4], Ovid MEDLINE(R) Epub Ahead of Print, In-Process &amp; Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) [1946 to February 03, 2020]</b>
<b>Date of last search:</b>	<b>6<sup>th</sup> June 2018</b>
1	((infant* or newborn* or neonat*) adj9 sepsi) 87
2	((infant* or newborn* or neonat*) adj9 meningitis) 21908
3	((infant* or newborn* or neonat*) adj9 sepsis) 46996
4	((infant* or newborn* or neonat*) adj9 pneumonia) 21669
5	((infant* or newborn* or neonat*) adj9 bacteri* adj9 infect*) 12352
6	(nosocomial adj9 infect*) 113139
7	(hospital adj9 acquired adj9 infect*). 62804
8	(health adj9 care adj9 associated adj9 infect*) 13782
9	(outbreak or epidemic or cluster). 1382519
10	(nursery or nurseries or ward or NICU or unit). 2527228
11	(whole adj9 genome adj9 sequencing) 67852
12	1 or 2 or 3 or 4 or 5 88627
13	6 or 7 or 8 or 9 1510178
14	11 and 12 and 13 175
15	Remove duplicates from 14 154

**Supplementary Table 2: PubMed search strategy**

<b>last run via:</b>	<b>US National Library of Medicine</b>
<b>Search Screen:</b>	<b>Advanced Search</b>
<b>Database:</b>	<b>PubMed</b>
<b>Date of last search:</b>	<b>6<sup>th</sup> February 2020</b>
<b>Filters</b>	<b>None</b>

Search	Query	Items found
#6	Search (((((((neonat*) OR newborn) OR infant) OR babies)) AND (((((infection) OR sepsis) OR septic) OR nosocomial infection) OR hospital-acquired infection) OR health-care associated infection)) AND (((outbreak) OR epidemic) OR cluster)) AND ((((((center(s)) OR unit(s)) OR nursery) OR nurseries) OR hospital(s)) OR NICU) OR ward)) AND whole-genome sequencing	95
#5	Search whole-genome sequencing	26483
#4	Search ((((((center(s)) OR unit(s)) OR nursery) OR nurseries) OR hospital(s)) OR NICU) OR ward	2863931
#3	Search ((outbreak) OR epidemic) OR cluster	428270
#2	Search (((((infection) OR sepsis) OR septic) OR nosocomial infection) OR hospital-acquired infection) OR health-care associated infection	3132153
#1	Search ((neonat*) OR newborn) OR infant) OR babies	1420357

**Translations**

newborn	"infant, newborn"[MeSH Terms] OR ("infant"[All Fields] AND "newborn"[All Fields]) OR "newborn infant"[All Fields] OR "newborn"[All Fields]
infant	"infant"[MeSH Terms] OR "infant"[All Fields]
babies	"infant"[MeSH Terms] OR "infant"[All Fields] OR "babies"[All Fields]
infection	"infections"[MeSH Terms] OR "infections"[All Fields] OR "infection"[All Fields]
sepsis	"sepsis"[MeSH Terms] OR "sepsis"[All Fields]
nosocomial infection	"cross infection"[MeSH Terms] OR ("cross"[All Fields] AND "infection"[All Fields]) OR "cross infection"[All Fields] OR ("nosocomial"[All Fields] AND "infection"[All Fields]) OR "nosocomial infection"[All Fields]
hospital-acquired infection	"cross infection"[MeSH Terms] OR ("cross"[All Fields] AND "infection"[All Fields]) OR "cross infection"[All Fields] OR ("hospital"[All Fields] AND "acquired"[All Fields] AND "infection"[All Fields]) OR "hospital acquired infection"[All Fields]
health-care associated infection	"cross infection"[MeSH Terms] OR ("cross"[All Fields] AND "infection"[All Fields]) OR "cross infection"[All Fields] OR ("health"[All Fields] AND "care"[All Fields] AND "associated"[All Fields] AND "infection"[All Fields]) OR "health care associated infection"[All Fields]
outbreak	"disease outbreaks"[MeSH Terms] OR ("disease"[All Fields] AND "outbreaks"[All Fields]) OR "disease outbreaks"[All Fields] OR "outbreak"[All Fields]
epidemic	"epidemics"[MeSH Terms] OR "epidemics"[All Fields] OR "epidemic"[All Fields]
cluster	"Proc IEEE Int Conf Clust Comput"[Journal] OR "cluster"[All Fields]
nursery	"nurseries, infant"[MeSH Terms] OR ("nurseries"[All Fields] AND "infant"[All Fields]) OR "infant nurseries"[All Fields] OR "nursery"[All Fields]
nurseries	"nurseries, infant"[MeSH Terms] OR ("nurseries"[All Fields] AND "infant"[All Fields]) OR "infant nurseries"[All Fields] OR "nurseries"[All Fields]
hospital	"hospitals"[MeSH Terms] OR "hospitals"[All Fields] OR "hospital"[All Fields]
NICU	"intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR "nicu"[All Fields]
whole-genome sequencing	"whole genome sequencing"[MeSH Terms] OR ("whole"[All Fields] AND "genome"[All Fields] AND "sequencing"[All Fields]) OR "whole genome sequencing"[All Fields]

**Supplementary Table 3: Antibiotic dosing for treatment of neonatal sepsis at EFSTH, Banjul, The Gambia**

Antibiotic	Dose	Frequency		Route	Duration
		< 7 days of age	≥ 7 days of age		
<b>1<sup>st</sup> Line</b>					
Ampicillin	50mg/kg/dose	12 hourly	8 hourly	IV or IM	7 – 10 days
Cloxacillin	50mg/kg/dose	12 hourly	8 hourly	IV	7 – 10 days
Gentamicin sulphate	2.5mg/kg/dose	12 hourly	8 hourly	IV or IM	7 – 10 days
<b>2<sup>nd</sup> Line</b>					
Ceftriaxone	100mg/kg/dose	daily	daily	IV	21 days

IV= intravenous; IM=intramuscular

**Supplementary Table 4: Clinical case definition for suspected sepsis**

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History of convulsion
Fast breathing (respiratory rate $\geq 60$ /min)
Severe chest in-drawing
Axillary temperature $>37.5^{\circ}\text{C}$
Axillary temperature $<35.5^{\circ}\text{C}$
Lethargic or less than normal movement
History of feeding problems

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**Supplementary Table 5: Pathogens isolated from newborn blood cultures on the neonatal ward, EFSTH, between March and December 2016**

2016	Number of blood cultures performed	Number of negative cultures	Number of positive cultures with a clinically significant isolate	Number of positive cultures with a clinically non-significant isolate	clinically non-significant isolates
January & February					No blood cultures performed
March	15	7	5	3	CoNS 1, <i>Micrococcus</i> 1, <i>Pseudomonas luteola</i> 1
April	14	6	5	3	CoNS 1, <i>Viridans Streptococci</i> 2
May	19	7	8	4	CoNS 2, <i>Bacillus</i> spp 2
June	35	9	17	9	CoNS 8, <i>Micrococcus</i> 1
July	28	5	20	3	CoNS 3
August	46	5	33	8	CoNS 8
September	16	3	10	3	CoNS 3
October	44	18	19	7	CoNS 6, <i>Micrococcus</i> 1
November	60	16	33	11	CoNS 7, <i>Micrococcus</i> 1, <i>Viridans Streptococci</i> 2, <i>Diphtheroids</i> 1
December	44	10	28	6	CoNS 4, <i>Bacillus</i> spp 2
<b>Total</b>	<b>321</b>	<b>86</b>	<b>178</b>	<b>57</b>	

**Supplementary Table 6: Characteristics and outcomes of neonates with *Burkholderia cepacia* bloodstream infection during an outbreak at the neonatal ward, EFSTH, between March and August 2016**

ID	Sex	Birth weight	Referral type	Admission date	Date of collection of <i>B. cepacia</i> positive blood culture sample	Age at culture (days)	Outcome
Patient B1	M	3.5	Private clinic	07/03/16	08/03/16	17	Discharged
Patient B2	M	3.9	Government facility	08/03/16	09/03/16	2	Died
Patient B3	F	3.0	Government facility	09/03/16	10/03/16	1	Died
Patient B4	F	3.7	Private clinic	14/04/16	15/04/16	3	Discharged
Patient B5	F	2.7	Government facility	16/05/16	16/05/16	2	Died
Patient B6	F	3.2	Private clinic	06/06/16	07/06/16	5	Discharged
Patient B7	M	..	EFSTH (inborn)	09/06/16	16/06/16	7	Discharged
Patient B8	F	3.0	Government facility	14/06/16	16/06/16	4	Died
Patient B9	F	..	..	14/06/16	16/06/16	2	Discharged
Patient B10	M	..	EFSTH (inborn)	05/06/16	16/06/16	11	Discharged
Patient B11	F	2.0	Government facility	14/06/16	20/06/16	8	Died
Patient B12	M	2.0	Inborn	17/06/16	20/06/16	3	Discharged
Patient B13	M	3.5	Government facility	21/06/16	22/06/16	2	Died
Patient B14	M	..	..	22/06/16	23/06/16	1	..
Patient B15	M	..	..	..	23/06/16	7	..
Patient B16	M	..	..	..	23/06/16	7	..
Patient B17	F	..	..	..	24/06/16	8	..
Patient B18	F	..	..	..	29/06/16	4	..
Patient B19 <sup>a</sup>	M	2.1	Government facility	27/06/16	07/07/16	11	Discharged
Patient B20	M	..	..	..	30/06/16	2	..
Patient B21	F	3.1	Government facility	04/07/16	09/07/16	5	Died
Patient B22	M	3.0	Government facility	30/06/16	11/07/16	12	Discharged
Patient B23	M	2.0	Government facility	10/07/16	13/07/16	5	Discharged
Patient B24	M	3.0	Government facility	13/07/16	13/07/16	1	Died
Patient B25	F	..	Private clinic	13/07/16	14/07/16	1	Died
Patient B26	M	2.1	Government facility	24/07/16	27/07/16	3	Died
Patient B27	F	1.1	Government facility	25/07/16	27/07/16	4	Died
Patient B28	M	4.0	Government facility	28/07/16	02/08/16	6	Died
Patient B29	F	..	..	03/08/16	03/08/16	5	Discharged
Patient B30	F	1.1	Government facility	28/07/16	03/08/16	6	Discharged
Patient B31 <sup>b</sup>	F	3.0	Government facility	01/08/16	03/08/16	2	Died
Patient B32 <sup>c</sup>	F	..	..	02/08/16	03/08/16	2	Alive
Patient B33 <sup>d</sup>	M	3.0	Government facility	03/08/16	04/08/16	1	Died
Patient B34 <sup>c</sup>	F	..	..	02/08/16	08/08/16	7	Alive
Patient B35	F	1.0	Government facility	04/08/16	08/08/16	5	Died
Patient B36	F	2.1	Government facility	05/08/16	08/08/16	3	Discharged
Patient B37 <sup>e</sup>	F	3.0	Government facility	08/08/16	09/08/16	1	Discharged
Patient B38	M	..	..	..	09/08/16	6	..
Patient B39	M	..	..	..	09/08/16	15	..
Patient B40	F	..	..	..	11/08/16	8	Discharged
Patient B41	F	1.1	Government facility	05/08/16	12/08/16	7	Discharged
Patient B42	M	1.6	Home	06/08/16	12/08/16	6	Died
Patient B43	M	..	..	16/08/16	16/08/16	2	..
Patient B44 <sup>f</sup>	M	3.0	Government facility	18/08/16	22/08/16	12	Discharged
Patient B45	F	..	..	..	22/08/16	2	..
Patient B46	F	..	..	..	22/08/16	13	..
Patient B47 <sup>c</sup>	F	..	..	02/08/16	23/08/16	22	Died
Patient B48	M	..	..	..	23/08/16	6	Died
Patient B49 <sup>g</sup>	F	..	..	..	29/08/16	14	Discharged

<sup>a</sup> This baby had a previous (admission) blood culture positive for *Pseudomonas*

<sup>b</sup> This baby had mixed infection with *Acinetobacter baumannii*.

<sup>c</sup> This baby remained critically ill throughout admission until her eventual death, with 3 consecutive blood cultures positive for *Burkholderia cepacia*

<sup>d</sup> This baby had mixed infection with *Acinetobacter baumannii*.

<sup>e</sup> This baby had a previous (admission) blood culture positive for *Acinetobacter baumannii*

<sup>f</sup> This baby had a previous (admission) blood culture positive for *Staphylococcus aureus*

<sup>g</sup> This baby had mixed infection with *Staphylococcus aureus*.

.. information not available



**Supplementary Table 7: List of environmental samples cultured during the investigation of an outbreak of neonatal *Burkholderia cepacia* bloodstream infection at the neonatal ward, EFSTH**

Samples (number of sources/samples collected)	Type of sample	Date of collection	Culture result
IV fluid – 10% Dextrose with/without NaCl and KCl [In use]	Fluid	05/09/2016	<i>B. cepacia</i> isolated
Injection - Gentamicin - diluted with Normal saline [In use]	Fluid	05/09/2016	<i>B. cepacia</i> isolated
IV fluid – 10% Dextrose with/without NaCl and KCl [In use]	Fluid	08/09/2016	<i>B. cepacia</i> isolated
IV fluid – 10% Dextrose with/without NaCl and KCl [In use]	Fluid	08/09/2016	<i>B. cepacia</i> isolated
Injection - Metronidazole [In use]	Fluid	08/09/2016	<i>B. cepacia</i> isolated
IV fluid – Normal saline [In use]	Fluid	08/09/2016	<i>B. cepacia</i> isolated
Water from O <sub>2</sub> humidifier (1)	Fluid	05/09/2016	No growth
Hand sanitizer (2)	Fluid	05/09/2016	No growth
Tap water from main ward (1)	Fluid	05/09/2016	No growth
Tap water from critical care ward (1)	Fluid	08/09/2016	No growth
Water from O <sub>2</sub> humidifier (2)	Fluid	08/09/2016	No growth
IV fluid – Ringer lactate [In use] (1)	Fluid	08/09/2016	No growth
IV fluid – 10% dextrose [Stock] (2)	Fluid	08/09/2016	No growth
IV fluid – Normal saline [In use] (1)	Fluid	08/09/2016	No growth
IV fluid – Norman saline [Stock] (1)	Fluid	08/09/2016	No growth
IV fluid – Ringer lactate [Stock] (2)	Fluid	08/09/2016	No growth
Injection - Gentamicin [In use] (1)	Fluid	08/09/2016	No growth
Injection - Ciprofloxacin [In use] (2)	Fluid	08/09/2016	No growth
Injection - Ceftriaxone [In use] (1)	Fluid	08/09/2016	No growth
Injection - Metronidazole [In use] (1)	Fluid	08/09/2016	No growth
Injection - Ceftazidime [In use] (1)	Fluid	08/09/2016	No growth
Injection - Gentamicin [Stock] (2)	Fluid	08/09/2016	No growth
Injection - Vitamin K (1)	Fluid	08/09/2016	No growth
Injection - 5 % glucose [Stock] (2)	Fluid	08/09/2016	No growth
Injection - Metronidazole [Stock] (1)	Fluid	08/09/2016	No growth
Water for injection (1)	Fluid	08/09/2016	No growth
Povidone iodine (1)	Fluid	08/09/2016	No growth
Clean magic [Cleaning fluid; concentrated & diluted] (1)	Fluid	08/09/2016	No growth
Feeding pot (2)	Swab	05/09/2016	No growth
Incubator surface (1)	Swab	05/09/2016	No growth
Kidney dish (2)	Swab	05/09/2016	No growth
Sink surface (2)	Swab	05/09/2016	No growth
Bed surface (4 beds)	Swab	05/09/2016	No growth
BACTEC 9050 Instrument surface (1)	Swab	05/09/2016	No growth
Umbilicus (3 babies)	Swab	05/09/2016	No growth
Nasal prong [In use] (4)	Swab	05/09/2016	No growth
Stethoscope (2)	Swab	05/09/2016	No growth
Radiant heater (3)	Swab	05/09/2016	No growth
IV cannula (3)	Swab	05/09/2016	No growth
Suction tube (1)	Swab	05/09/2016	No growth
Thermometer (1)	Swab	05/09/2016	No growth
Weighing scale (1)	Swab	05/09/2016	No growth
Staff hands (2 staff)	Swab	05/09/2016	No growth

**Supplementary Table 8: Pathogens isolated from randomly selected sponges used by mothers to bath babies admitted during the investigation of an outbreak of neonatal *Burkholderia cepacia* bloodstream infection at the neonatal ward, EFSTH**

Sample	Location	Date of collection	Culture result
Sponge 1	Critical care ward	05/09/2016	<i>Acinetobacter baumannii</i> , <i>Escherichia coli</i> , <i>Rhizobium radiobacter</i>
Sponge 2	Critical care ward	05/09/2016	<i>Klebsiella pneumoniae</i> , <i>Pseudomonas aeruginosa</i> , <i>Acinetobacter baumannii</i>
Sponge 3	Critical care ward	05/09/2016	<i>Acinetobacter baumannii</i> , <i>Vibrio metselinlavii</i> , <i>Chryseobacterium intogenes</i>
Sponge 4	Critical care ward	05/09/2016	<i>Klebsiella pneumoniae</i> , <i>Acinetobacter baumannii</i>
Sponge 5	Stable ward	05/09/2016	<i>Acinetobacter baumannii</i> , <i>Chryseobacterium intogenes</i>
Sponge 6	Stable ward	05/09/2016	<i>Chryseobacterium intogenes</i> , <i>Klebsiella pneumoniae</i> , CoNS
Sponge 7	Stable ward	05/09/2016	<i>Pseudomonas luteola</i> , <i>Acinetobacter baumannii</i>
Sponge 8	Stable ward	05/09/2016	<i>Acinetobacter baumannii</i> , CoNS
Sponge 9	Sepsis ward	05/09/2016	<i>Klebsiella pneumoniae</i> , <i>Pseudomonas luteola</i>
Sponge 10	Sepsis ward	05/09/2016	<i>Acinetobacter haematolyticus</i> , <i>Escherichia coli</i> ,

**Supplementary Table 9: Antibiotic susceptibility profile for *Burkholderia cepacia* isolates**

Isolate ID	Source	SXT	CAZ	C	MER	CN	CIP
B1	Patient (outbreak isolate)	S	S	S	S	S	S
B2	Patient (outbreak isolate)	S	S	S	S	S	S
B3	Patient (outbreak isolate)	S	S	S	S	S	S
B4	Patient (outbreak isolate)	S	S	S	S	S	S
B5	Patient (outbreak isolate)	S	S	S	S	S	S
B6	Patient (outbreak isolate)	S	S	S	S	S	S
B7	Patient (outbreak isolate)	S	S	S	S	S	S
B8	Patient (outbreak isolate)	S	S	S	S	S	S
B9	Patient (outbreak isolate)	S	S	S	S	S	S
B10	Patient (outbreak isolate)	S	S	S	S	S	S
B11	Patient (outbreak isolate)	S	S	S	S	S	S
B12	Patient (outbreak isolate)	S	S	S	S	S	S
B13	Patient (outbreak isolate)	S	S	S	S	S	S
B14	Patient (outbreak isolate)	S	S	S	S	S	S
B15	Patient (outbreak isolate)	S	S	S	S	S	S
B16	Patient (outbreak isolate)	S	S	S	S	S	S
B17	Patient (outbreak isolate)	S	S	S	S	S	S
B18	Patient (outbreak isolate)	S	S	S	S	S	S
B19	Patient (outbreak isolate)	S	S	S	S	S	S
B20	Patient (outbreak isolate)	S	S	S	S	S	S
B21	Patient (outbreak isolate)	S	S	S	S	S	S
B22	Patient (outbreak isolate)	S	S	S	S	S	S
B23	Patient (outbreak isolate)	S	S	S	S	S	S
B24	Patient (outbreak isolate)	S	S	S	S	S	S
B25	Patient (outbreak isolate)	S	S	S	S	S	S
B26	Patient (outbreak isolate)	S	S	S	S	S	S
B27	Patient (outbreak isolate)	S	S	S	S	S	S
B28	Patient (outbreak isolate)	S	S	S	S	S	S
B29	Patient (outbreak isolate)	S	S	S	S	S	S
B30	Patient (outbreak isolate)	S	S	S	S	S	S
B31	Patient (outbreak isolate)	S	S	S	S	S	S
B32	Patient (outbreak isolate)	S	S	S	S	S	S
B33	Patient (outbreak isolate)	S	S	S	S	S	S
B34	Patient (outbreak isolate)	S	S	S	S	S	S
B35	Patient (outbreak isolate)	S	S	S	S	S	S
B36	Patient (outbreak isolate)	S	S	S	S	S	S
B37	Patient (outbreak isolate)	S	S	S	S	S	S
B38	Patient (outbreak isolate)	S	S	S	S	S	S
B39	Patient (outbreak isolate)	S	S	S	S	S	S
B40	Patient (outbreak isolate)	S	S	S	S	S	S
B41	Patient (outbreak isolate)	S	S	S	S	S	S
B42	Patient (outbreak isolate)	S	S	S	S	S	S
B43	Patient (outbreak isolate)	S	S	S	S	S	S
B44	Patient (outbreak isolate)	S	S	S	S	S	S
B45	Patient (outbreak isolate)	S	S	S	S	S	S
B46	Patient (outbreak isolate)	S	S	S	S	S	S
B47	Patient (outbreak isolate)	S	S	S	S	S	S
B48	Patient (outbreak isolate)	S	S	S	S	S	S
B49	Patient (outbreak isolate)	S	S	S	S	S	S
B50	Environment (Diluted antibiotic - Gentamicin)	S	S	S	S	S	S
B51	Environment (IV fluid – 10% Dextrose)	S	S	S	S	S	S
B52	Environment (IV fluid – Normal saline)	S	S	S	S	S	S
B53	Environment (IV fluid – 10% Dextrose)	S	S	S	S	S	S
B54	Environment (Antibiotic infusion - Metronidazole)	S	S	S	S	S	S
B55	Environment (IV fluid – 10% Dextrose)	S	S	S	S	S	S
B56	Patient (Historical isolate)	S	S	S	S	S	S
B57	Patient (Historical isolate)	S	S	S	S	S	S
B58	Patient (Historical isolate)	S	S	S	S	S	S
B59	Patient (Historical isolate)	S	S	S	S	S	S
B60	Patient (Historical isolate)	S	S	S	S	S	S
B61	Patient (Non-outbreak isolate)	S	S	S	S	R	S

**Supplementary Table 10: Characteristics and outcomes of neonates with *Klebsiella* bloodstream infection during an outbreak at the neonatal ward, EFSTH, between October and December 2016**

Patient	Sex	Birth weight (Kg)	Referral type	Admission date	Date of collection of <i>K. pneumoniae</i> positive blood culture sample	Age at culture (days)	Outcome	Final species identification (Kleborate profile)
Case K 1	F	..	..	..	26/10/2016	6	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 2	M	1.5	..	02/11/2016	07/11/2016	5	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 3	M	4.7	..	25/10/2016	07/11/2016	14	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 4	M	1.9	..	01/10/2016	07/11/2016	37	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 5	F	3.6	EFSTH (inborn)	08/11/2016	08/11/2016	5	Discharged	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 6 <sup>a</sup>	M	3	..	07/11/2016	10/11/2016	5	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 7	M	..	..	..	10/11/2016	39	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 8	F	..	..	..	10/11/2016	8	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 9	M	..	..	..	12/11/2016	4	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 10	F	2.5	EFSTH (inborn)	14/11/2016	15/11/2016	1	Died	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 11	M	..	..	..	16/11/2016	5	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 12	F	..	..	..	16/11/2016	6	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 13	F	..	..	..	16/11/2016	15	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 14	M	..	..	..	22/11/2016	13	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 15	F	1.7	..	21/11/2016	25/11/2016	4	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 16	F	1.4	..	29/10/2016	25/11/2016	28	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 17	F	3.5	..	10/11/2016	28/11/2016	19	..	<i>Klebsiella pneumoniae</i>
Case K 18	M	..	..	29/11/2016	30/11/2016	2	..	<i>Klebsiella pneumoniae</i>
Case K 19	M	0.6	..	29/11/2016	30/11/2016	2	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 20	..	..	..	..	30/11/2016	6	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 21	M	4.5	..	26/11/2016	30/11/2016	29	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 22	M	2.4	..	16/11/2016	30/11/2016	26	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 23	M	2.3	..	29/11/2016	05/12/2016	6	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 24	M	2.9	..	30/11/2016	05/12/2016	5	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 25	M	0.6	..	29/11/2016	05/12/2016	7	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 26	M	1.9	..	29/11/2016	07/12/2016	9	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 27 <sup>b</sup>	M	2.79	EFSTH (inborn)	01/12/2016	07/12/2016	10	Discharged	<i>Klebsiella pneumoniae</i>
Case K 28	F	0.8	Private clinic	06/12/2016	08/12/2016	2	Discharged	<i>Klebsiella pneumoniae</i>
Case K 29	M	..	EFSTH (inborn)	..	08/12/2016	13	Died	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 30	M	2.3	Private clinic	05/12/2016	08/12/2016	5	Died	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 31	F	1.8	..	13/12/2016	15/12/2016	3	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 32	F	2.65	..	08/12/2016	15/12/2016	9	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 33	M	..	..	..	19/12/2016	15	..	<i>Klebsiella pneumoniae</i>
Case K 34	M	2	Private clinic	18/12/2016	19/12/2016	1	Died	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 35	M	1.8	..	11/12/2016	19/12/2016	8	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 36	M	2.5	EFSTH (inborn)	17/12/2016	19/12/2016	2	Died	<i>Klebsiella pneumoniae</i>
Case K 37	F	2.5	Private clinic	18/12/2016	19/12/2016	2	Discharged	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 38	F	2.5	..	18/12/2016	21/12/2016	4	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 39	..	..	..	..	22/12/2016	4	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 40	M	2.9	..	13/12/2016	22/12/2016	9	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 41	M	..	..	..	22/12/2016	5	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 42	F	..	..	..	22/12/2016	3	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 43	M	1.62	..	20/12/2016	27/12/2016	7	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 44	F	1.6	..	14/12/2016	28/12/2016	14	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>
Case K 45	F	..	..	..	28/12/2016	1	..	<i>K. quasipneumoniae</i> subsp. <i>similipneumoniae</i>

<sup>a</sup> This baby had a previous (admission) blood culture positive for *Coagulase-negative Staphylococcus*

<sup>b</sup> This baby had a previous (admission) blood culture positive for *Staphylococcus aureus*

.. information not available

**Supplementary Table 11: Accession numbers of genome sequence data for *Burkholderia cepacia* isolates.**Data deposited at the European Nucleotide Archive (<https://www.ebi.ac.uk/ena/browser/view/PRJEB20799>)

Sample ID in paper	Sample accession	Lane accession	Involved in outbreak?	Isolation source
B34	ERS1755800	ERR2693268	Yes	Blood
B38	ERS1755801	ERR2693269	Yes	Blood
B41	ERS1755802	ERR2693270	Yes	Blood
B24	ERS1755803	ERR2693271	Yes	Blood
B47	ERS1755804	ERR2693272	Yes	Blood
B48	ERS1755805	ERR2693273	Yes	Blood
B19	ERS1755806	ERR2693274	Yes	Blood
B42	ERS1755807	ERR2693275	Yes	Blood
B40	ERS1755808	ERR2693276	Yes	Blood
B35	ERS1755809	ERR2693277	Yes	Blood
B45	ERS1755810	ERR2693278	Yes	Blood
B27	ERS1755811	ERR2693279	Yes	Blood
B44	ERS1755812	ERR2693280	Yes	Blood
B46	ERS1755813	ERR2693281	Yes	Blood
B9	ERS1755814	ERR2693282	Yes	Blood
B12	ERS1755815	ERR2693283	Yes	Blood
B21	ERS1755816	ERR2693284	Yes	Blood
B1	ERS1755817	ERR2693285	Yes	Blood
B10	ERS1755818	ERR2693286	Yes	Blood
B11	ERS1755819	ERR2693287	Yes	Blood
B31	ERS1755820	ERR2693288	Yes	Blood
B23	ERS1755821	ERR2693289	Yes	Blood
B20	ERS1755822	ERR2693290	Yes	Blood
B17	ERS1755823	ERR2693291	Yes	Blood
B30	ERS1755824	ERR2693292	Yes	Blood
B39	ERS1755825	ERR2693293	Yes	Blood
B37	ERS1755826	ERR2693294	Yes	Blood
B54	ERS1755827	ERR2693295	No (Environmental)	Antibiotic infusion (Metronidazole)
B53	ERS1755828	ERR2693296	No (Environmental)	IV fluid (10% dextrose)
B55	ERS1755829	ERR2693297	No (Environmental)	IV fluid (10% dextrose)
B51	ERS1755830	ERR2693298	No (Environmental)	IV fluid (10% dextrose)
B28	ERS1755831	ERR2693299	Yes	Blood
B4	ERS1755832	ERR2693300	Yes	Blood
B15	ERS1755859	ERR2693327	Yes	Blood
B5	ERS1755860	ERR2693328	Yes	Blood
B18	ERS1755876	ERR2693344	Yes	Blood
B2	ERS1755877	ERR2693345	Yes	Blood
B33	ERS1755878	ERR2693346	Yes	Blood
B8	ERS1755879	ERR2693347	Yes	Blood
B29	ERS1755880	ERR2693348	Yes	Blood
B26	ERS1755881	ERR2693349	Yes	Blood
B7	ERS1755882	ERR2693350	Yes	Blood
B6	ERS1755883	ERR2693351	Yes	Blood
B3	ERS1755884	ERR2693352	Yes	Blood
B14	ERS1755885	ERR2693353	Yes	Blood
B61	ERS1755886	ERR2693354	No (Contemporaneous paediatric ward isolate)	Blood
B25	ERS1755887	ERR2693355	Yes	Blood
B16	ERS1755888	ERR2693356	Yes	Blood
B50	ERS1755889	ERR2693357	No (Environmental)	Diluted antibiotic (Gentamicin)
B52	ERS1755890	ERR2693358	No (Environmental)	IV fluid (Normal Saline)
B59	ERS1755896	ERR2693364	No (historical isolate)	Blood
B57	ERS1755897	ERR2693365	No (historical isolate)	Blood
B58	ERS1755898	ERR2693366	No (historical isolate)	Blood
B56	ERS1755899	ERR2693367	No (historical isolate)	Blood

**Supplementary Table 12: Accession numbers of genome sequence data for *Klebsiella* isolates.**Data deposited at the European Nucleotide Archive (<https://www.ebi.ac.uk/ena/browser/view/PRJEB20799>)

Sample ID in paper	Sample accession	Lane accession	Involved in outbreak?	Isolation source
K1	ERS1755833	ERR2693301	Yes	Blood
K4	ERS1755834	ERR2693302	Yes	Blood
K20	ERS1755835	ERR2693303	Yes	Blood
K21	ERS1755836	ERR2693304	Yes	Blood
K9	ERS1755837	ERR2693305	Yes	Blood
K19	ERS1755838	ERR2693306	Yes	Blood
K7	ERS1755839	ERR2693307	Yes	Blood
K8	ERS1755840	ERR2693308	Yes	Blood
K3	ERS1755841	ERR2693309	Yes	Blood
K2	ERS1755842	ERR2693310	Yes	Blood
K11	ERS1755843	ERR2693311	Yes	Blood
K12	ERS1755844	ERR2693312	Yes	Blood
K5	ERS1755845	ERR2693313	Yes	Blood
K6	ERS1755846	ERR2693314	Yes	Blood
K16	ERS1755847	ERR2693315	Yes	Blood
K17	ERS1755848	ERR2693316	Yes	Blood
K46	ERS1755849	ERR2693317	No (Environmental)	IV fluid (Normal Saline)
K13	ERS1755850	ERR2693318	Yes	Blood
K15	ERS1755851	ERR2693319	Yes	Blood
K22	ERS1755852	ERR2693320	Yes	Blood
K23	ERS1755853	ERR2693321	Yes	Blood
K24	ERS1755854	ERR2693322	Yes	Blood
K25	ERS1755855	ERR2693323	Yes	Blood
K26	ERS1755856	ERR2693324	Yes	Blood
K27	ERS1755857	ERR2693325	Yes	Blood
K37	ERS1755862	ERR2693330	Yes	Blood
K38	ERS1755863	ERR2693331	Yes	Blood
K39	ERS1755864	ERR2693332	Yes	Blood
K45	ERS1755865	ERR2693333	Yes	Blood
K44	ERS1755866	ERR2693334	Yes	Blood
K36	ERS1755867	ERR2693335	Yes	Blood
K33	ERS1755868	ERR2693336	Yes	Blood
K34	ERS1755869	ERR2693337	Yes	Blood
K40	ERS1755870	ERR2693338	Yes	Blood
K30	ERS1755871	ERR2693339	Yes	Blood
K43	ERS1755872	ERR2693340	Yes	Blood
K32	ERS1755873	ERR2693341	Yes	Blood
K31	ERS1755874	ERR2693342	Yes	Blood
K18	ERS1755892	ERR2693360	Yes	Blood
K28	ERS1755893	ERR2693361	Yes	Blood
K47	ERS1755894	ERR2693362	No (Environmental)	IV fluid (10% dextrose)