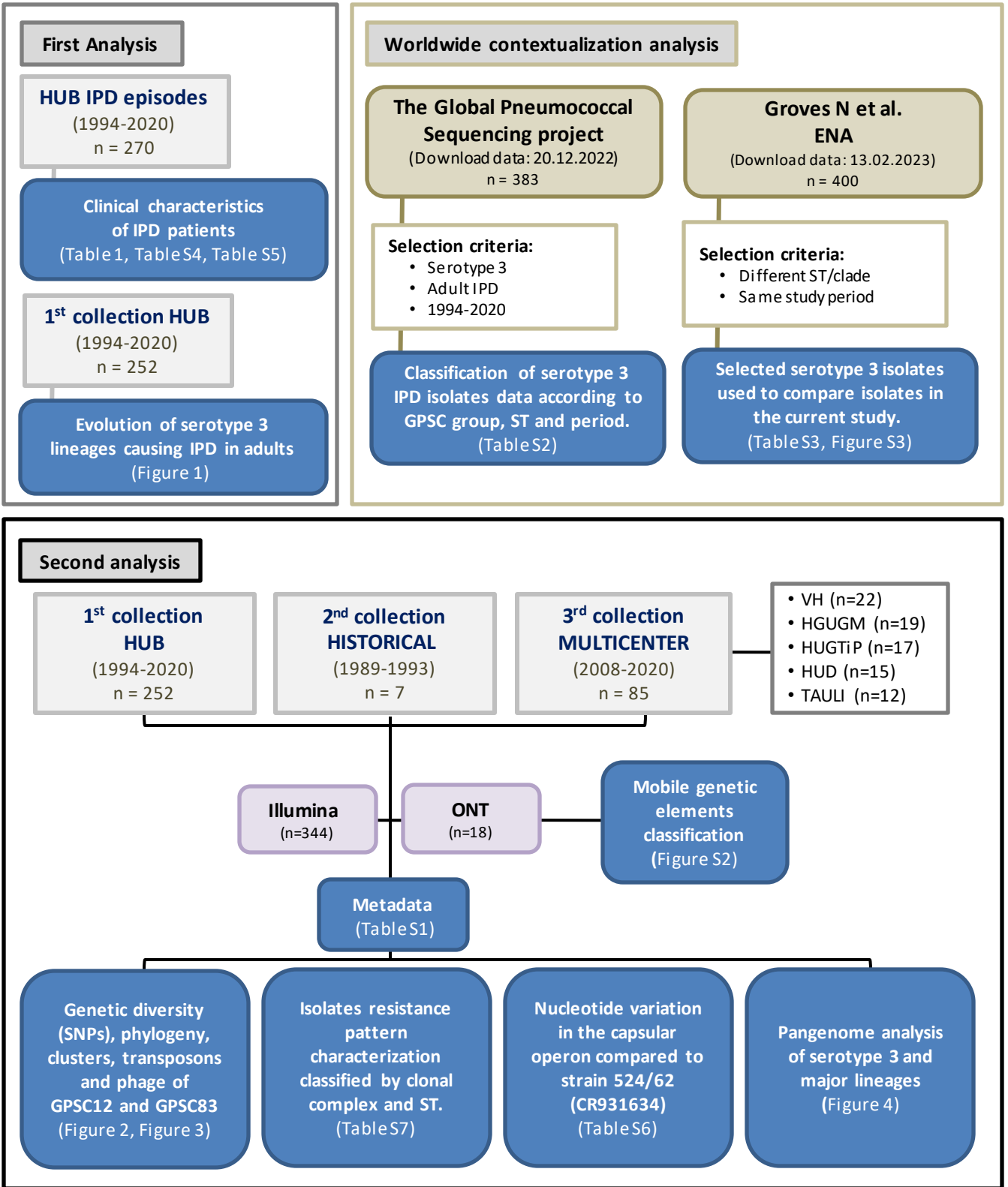


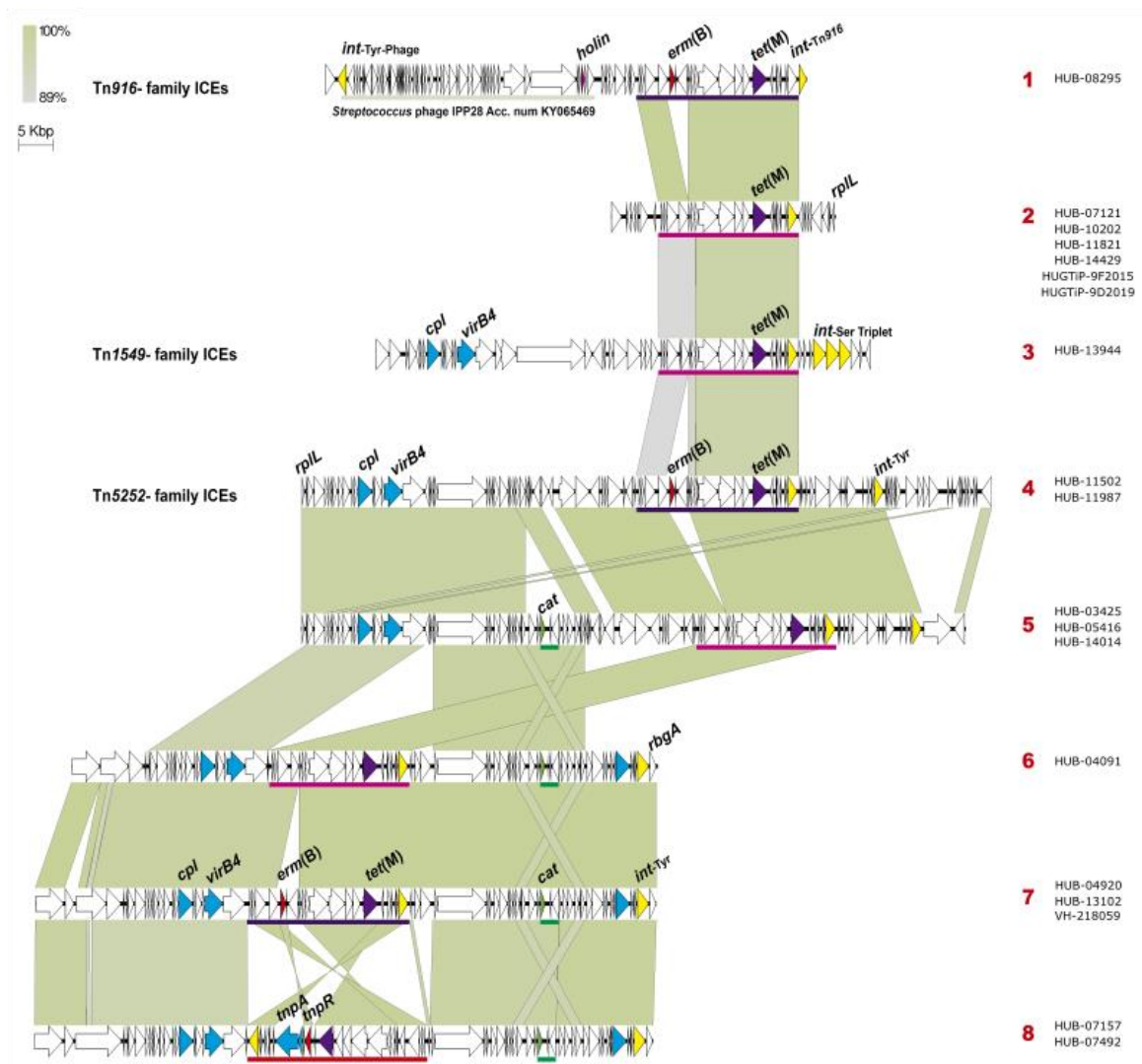
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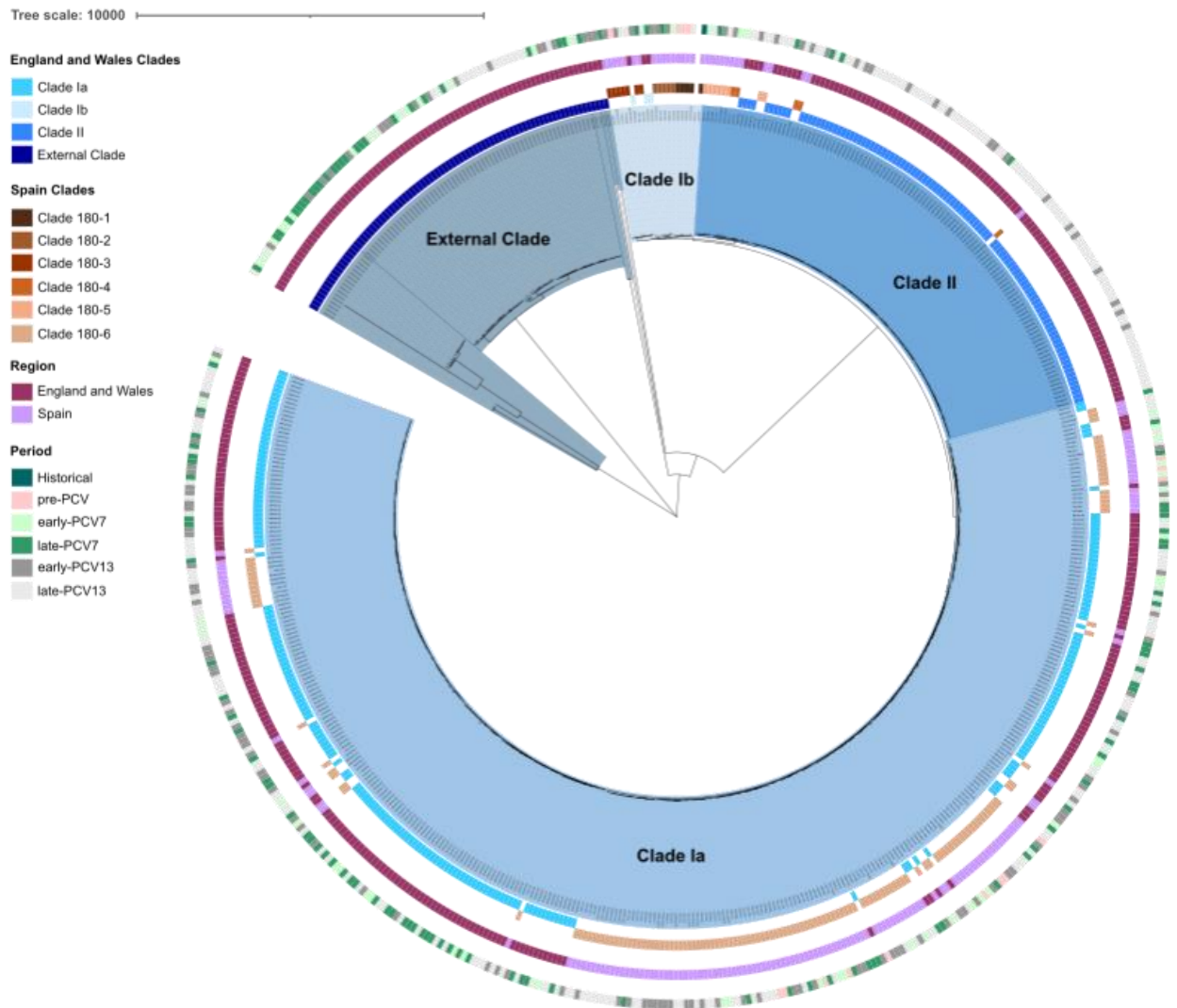
Supplementary Figure S1. Flowchart representing the design of this study.



Supplementary Figure S2. Relation among mobile genetic elements. Comparison of the genetic elements containing acquired resistance genes found in Serotype 3 *S. pneumoniae*. The yellow-to-grey-shaded areas connect regions based on similarity (identity from 89 to 100%). The number of the structure containing the acquired resistance genes is specified right sided in red. Structure one is a Tn6002 with a *Streptococcus* phage IPP28 (Acc. num. KY065469) located upstream. The second one is a Tn916 inserted in *rplL*. Structure 3 is a Tn1549 conjugation family ICE and structures 4 to 8 belong to Tn5252 conjugation family ICEs. Genes likely to be implied in mobilization (T4SS genes; *cpl*, *virB4* and *rlx*) are coloured in blue and integrases are coloured in yellow. Antibiotic resistance genes are coloured in purple *tet(M)*, in green *cat*, in red *erm(B)* and phage *holin* in pink. Tn916 inside structures 2, 3, 5 and 6 is underlined in pink; Tn6002 inside structures 1, 4 and 7 is underlined in purple; Tn3872 inside structure 8 is underlined in red; and *Streptococcus* phage IPP28 is underlined in grey.



Supplementary Figure S3. Phylogenetic tree from Groves et al. Phylogenetic tree showing the selection of genomes from Groves et al. and the genomes sequenced in this article. Moving from the inner to the outer part of the circle, are represented clades from England and Wales and Spain, followed by region and period of genomes.



Supplementary Table S1A. Metadata of sequenced genomes; Demographics and strain characterization (part 1/5).

ID	Collection	Hospital	Illumina Accession	MinION Accession	DEMOGRAPHIC							IN SILICO MLST											
					Serotype	Age	Sex	Year	Source	Diagnostic	Serotype	%GPSC	MLST <i>in silico</i>	%CC	%Clade	<i>araE</i>	<i>gdh</i>	<i>gki</i>	<i>recP</i>	<i>spi</i>	<i>zpt</i>	<i>ddl</i>	
HGU/GM-000198	3 st	HGU/GM	ERR12030982		3	77	Male	2020	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-000349	3 st	HGU/GM	ERR12030983		3	78	Male	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-000501	3 st	HGU/GM	ERR12030984		3	62	Female	2020	Blood	Pneumonia	3	12	8561	180	180-6	7	15	372	10	6	1	22	
HGU/GM-000519	3 st	HGU/GM	ERR12030985		3	87	Male	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-000919	3 st	HGU/GM	ERR12030986		3	45	Male	2020	Cerebrospinal fluid	Meningitis	3	12	505	180	180-3	46	8	2	10	6	1	22	
HGU/GM-0003167	3 st	HGU/GM	ERR12030987		3	86	Male	2019	Blood	Pneumonia	3	12	180	180	180-4	7	15	2	10	6	1	22	
HGU/GM-0024015	3 st	HGU/GM	ERR12030988		3	75	Male	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-0432015	3 st	HGU/GM	ERR12030989		3	80	Female	2015	Blood	Primary bacteremia	3	83	260	260	260-3	26	9	15	14	9	16	19	
HGU/GM-0564015	3 st	HGU/GM	ERR12030990		3	58	Male	2015	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19	
HGU/GM-0911016	3 st	HGU/GM	ERR12030991		3	87	Female	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-1047015	3 st	HGU/GM	ERR12030992		3	77	Male	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-1805016	3 st	HGU/GM	ERR12030993		3	78	Male	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-2530016	3 st	HGU/GM	ERR12030994		3	73	Male	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-2556015	3 st	HGU/GM	ERR12030995		3	94	Female	2015	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HGU/GM-2800016	3 st	HGU/GM	ERR12030996		3	55	Male	2016	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-3030016	3 st	HGU/GM	ERR12030997		3	71	Male	2016	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HGU/GM-3837015	3 st	HGU/GM	ERR12030998		3	86	Male	2015	Blood	Pneumonia	3	12	180	180	180-4	7	15	2	10	6	1	22	
HGU/GM-3966015	3 st	HGU/GM	ERR12030999		3	82	Female	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HGU/GM-4474015	3 st	HGU/GM	ERR12031000		3	82	Male	2015	Blood	Pneumonia	3	12	505	180	180-3	46	8	2	10	6	1	22	
HUB-01001	2 nd	HUB	ERR12031001	ERR12031449	3	27	Male	1989	Cerebrospinal fluid	Meningitis	3	12	180	180	180-1	7	15	2	10	6	1	22	
HUB-01990	2 nd	HUB	ERR12031002	ERR12031450	3	No data	Female	1991	Blood	Pneumonia	3	83	260	260	260-1	26	9	15	14	9	16	19	
HUB-02624	2 nd	HUB	ERR12031003		3	46	Male	1993	Others	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-02629	2 nd	HUB	ERR12031004		3	63	Female	1993	Cerebrospinal fluid	Meningitis	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-02635	2 nd	HUB	ERR12031005		3	No data	No data	1993	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-02778	2 nd	HUB	ERR12031006		3	70	Male	1993	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-02812	2 nd	HUB	ERR12031007		3	88	Male	1993	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-02943	1 st	HUB	ERR12031008		3	76	Male	1994	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-02947	1 st	HUB	ERR12031009		3	90	Female	1994	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03003	1 st	HUB	ERR12031010		3	67	Female	1994	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUB-03013	1 st	HUB	ERR12031011		3	54	Female	1994	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03089	1 st	HUB	ERR12031012		3	61	Female	1994	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19	
HUB-03145	1 st	HUB	ERR12031013		3	83	Male	1994	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03227	1 st	HUB	ERR12031014		3	73	Male	1994	Pleural fluid	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19	
HUB-03237	1 st	HUB	ERR12031015		3	61	Male	1994	Pleural fluid	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03324	1 st	HUB	ERR12031016		3	32	Male	1995	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19	
HUB-03362	1 st	HUB	ERR12031017		3	19	Female	1995	Others	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-03367	1 st	HUB	ERR12031018		3	68	Male	1995	Others	Pneumonia	3	12	18057	180	180-6	7	15	2	10	6	1	1166	
HUB-03372	1 st	HUB	ERR12031019		3	65	Male	1995	Others	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03374	1 st	HUB	ERR12031020		3	62	Male	1995	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03425	1 st	HUB	ERR12031021	ERR12031451	3	73	Male	1995	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03628	1 st	HUB	ERR12031022		3	83	Female	1995	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03655	1 st	HUB	ERR12031023		3	67	Male	1995	Others	Pneumonia	3	83	260	260	260-1	26	9	15	14	9	16	19	
HUB-03657	1 st	HUB	ERR12031024		3	75	Male	1995	Others	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03673	1 st	HUB	ERR12031025		3	33	Male	1995	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03679	1 st	HUB	ERR12031026		3	42	Female	1995	Others	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03684	1 st	HUB	ERR12031027		3	81	Male	1995	Blood	Pneumonia	3	12	180	180	180-1	7	15	2	10	6	1	22	
HUB-03755	1 st	HUB	ERR12031028		3	58	Male	1996	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-03769	1 st	HUB	ERR12031029		3	69	Male	1996	Others	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03802	1 st	HUB	ERR12031030		3	78	Male	1996	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-03936	1 st	HUB	ERR12031031		3	62	Female	1996	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-03964	1 st	HUB	ERR12031032		3	87	Male	1996	Others	Pneumonia	3	12	180	180	180-1	7	15	2	10	6	1	22	
HUB-04010	1 st	HUB	ERR12031033		3	71	Female	1996	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-04029	1 st	HUB	ERR12031034		3	92	Female	1996	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-04066	1 st	HUB	ERR12031035		3	22	Female	1996	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUB-04073	1 st	HUB	ERR12031036		3	75	Female	1996	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
HUB-04074	1 st	HUB	ERR12031037		3	79	Female	1996	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-04091	1 st	HUB	ERR12031038	ERR12031452	3	29	Female	1997	Blood	Pneumonia	3	Not assigned	18058	Other	13	9	1	14	10	16	1167		
HUB-04107	1 st	HUB	ERR12031039		3	79	Female	1997	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-04249	1 st	HUB	ERR12031040		3	49	Male	1997	Others	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19	
HUB-04382	1 st	HUB	ERR12031041		3	80	Male	1997	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-04393	1 st	HUB	ERR12031042		3	85	Female	1997	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUB-04438	1 st	HUB	ERR12031043		3	83	Female	1997	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUB-04520	1 st	HUB	ERR12031044		3	60	Female	1998	Blood	Pneumonia	3	83	260	260	260-1	26	9	15	14	9	16	19	
HUB-04532	1 st	HUB	ERR12031045		3	78	Male	1998	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUB-04555	1 st	HUB	ERR12031046		3	71	Male	1998	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-04606	1 st	HUB	ERR12031047		3	78	Male	1998	Pleural fluid	Pneumonia	3	83	260										

Supplementary Table S1A. Metadata of sequenced genomes; Demographics and strain characterization (part 2/5).

ID	Collection	Hospital	Illumina Accession	MinION Accession	DEMOGRAPHIC						IN SILICO MLST											
					Serotype	Age	Sex	Year	Source	Diagnostic	Serotype	%Gpsc	MLST in silico	%CC	%Clade	aroE	gdh	gli	recP	spi	xpi	ddl
HUB-04889	1 st	HUB	ERR12031048		3	60	Male	1998	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-04920	1 st	HUB	ERR12031049	ERR12031453	3	19	Male	1999	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-04936	1 st	HUB	ERR12031050		3	79	Male	1999	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-05079	1 st	HUB	ERR12031051		3	81	Female	1999	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-05107	1 st	HUB	ERR12031052	ERR12031454	3	70	Female	1999	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-05147	1 st	HUB	ERR12031053		3	78	Male	1999	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-05215	1 st	HUB	ERR12031054		3	70	Male	1999	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-05269	1 st	HUB	ERR12031055		3	86	Female	1999	Blood	Pneumonia	3	83	18059	260	260-2	26	9	15	567	9	16	19
HUB-05370	1 st	HUB	ERR12031056		3	61	Female	1999	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-05395	1 st	HUB	ERR12031057		3	73	Male	2000	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-05396	1 st	HUB	ERR12031058		3	56	Male	2000	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-05416	1 st	HUB	ERR12031059	ERR12031455	3	65	Male	2000	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-05438	1 st	HUB	ERR12031060		3	82	Female	2000	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-05473	1 st	HUB	ERR12031061		3	81	Female	2000	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-05507	1 st	HUB	ERR12031062		3	75	Female	2000	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-05542	1 st	HUB	ERR12031063		3	69	Male	2000	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-05550	1 st	HUB	ERR12031064		3	82	Female	2000	Pleural fluid	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-05561	1 st	HUB	ERR12031065		3	78	Male	2000	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-05626	1 st	HUB	ERR12031066		3	22	Male	2000	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-05629	1 st	HUB	ERR12031067		3	82	Male	2000	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-05649	1 st	HUB	ERR12031068		3	79	Female	2000	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-05696	1 st	HUB	ERR12031069		3	76	Male	2000	Blood	Pneumonia	3	12	180	180	180-1	7	15	2	10	6	1	22
HUB-05788	1 st	HUB	ERR12031070		3	67	Male	2000	Cerebrospinal fluid	Meningitis	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-05897	1 st	HUB	ERR12031071		3	46	Male	2001	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06048	1 st	HUB	ERR12031072		3	70	Male	2001	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06113	1 st	HUB	ERR12031073	ERR12031456	3	58	Male	2001	Blood	Pneumonia	3	12	505	180	180-3	46	8	2	10	6	1	22
HUB-06137	1 st	HUB	ERR12031074		3	57	Male	2001	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-06216	1 st	HUB	ERR12031075		3	77	Male	2002	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06230	1 st	HUB	ERR12031076		3	64	Male	2002	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-06249	1 st	HUB	ERR12031077		3	62	Female	2002	Blood	Primary bacteremia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-06251	1 st	HUB	ERR12031078		3	53	Male	2002	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-06267	1 st	HUB	ERR12031079		3	67	Male	2002	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-06335	1 st	HUB	ERR12031080		3	88	Female	2002	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-06357	1 st	HUB	ERR12031081		3	70	Female	2002	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06411	1 st	HUB	ERR12031082		3	57	Male	2002	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06585	1 st	HUB	ERR12031083		3	64	Male	2003	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06596	1 st	HUB	ERR12031084		3	59	Female	2003	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06612	1 st	HUB	ERR12031085		3	53	Male	2003	Pleural fluid	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-06623	1 st	HUB	ERR12031086		3	68	Male	2003	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06651	1 st	HUB	ERR12031087		3	69	Male	2003	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-06675	1 st	HUB	ERR12031088		3	71	Male	2003	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-06709	1 st	HUB	ERR12031089		3	42	Male	2003	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-06714	1 st	HUB	ERR12031090		3	42	Male	2003	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-06814	1 st	HUB	ERR12031091		3	85	Male	2003	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-06881	1 st	HUB	ERR12031092		3	71	Male	2003	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06917	1 st	HUB	ERR12031093		3	70	Male	2003	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-06952	1 st	HUB	ERR12031094		3	56	Male	2003	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-06954	1 st	HUB	ERR12031095		3	63	Male	2003	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06986	1 st	HUB	ERR12031096		3	66	Male	2003	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-06987	1 st	HUB	ERR12031097		3	65	Male	2003	Blood	Pneumonia	3	83	260	260	260-1	26	9	15	14	9	16	19
HUB-07103	1 st	HUB	ERR12031098		3	80	Male	2004	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07121	1 st	HUB	ERR12031099		3	65	Male	2004	Cerebrospinal fluid	Meningitis	3	12	180	180	180-5	7	15	2	10	6	1	22
HUB-07132	1 st	HUB	ERR12031100		3	74	Male	2004	Pleural fluid	Pneumonia	3	12	180	180	180-1	7	15	2	10	6	1	22
HUB-07147	1 st	HUB	ERR12031101		3	73	Female	2004	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07151	1 st	HUB	ERR12031102		3	81	Male	2004	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07157	1 st	HUB	ERR12031103	ERR12031457	3	75	Female	2004	Blood	Pneumonia	3	12	180	180	180-4	7	15	2	10	6	1	22
HUB-07161	1 st	HUB	ERR12031104		3	46	Male	2004	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-07207	1 st	HUB	ERR12031105		3	78	Male	2004	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-07225	1 st	HUB	ERR12031106		3	41	Female	2004	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-07300	1 st	HUB	ERR12031107		3	76	Female	2004	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-07311	1 st	HUB	ERR12031108		3	47	Female	2004	Blood	Pneumonia	3	83	1377	^b 260-related	13	84	15	14	10	16	19	
HUB-07374	1 st	HUB	ERR12031109		3	74	Male	2004	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07386	1 st	HUB	ERR12031110		3	73	Male	2004	Pleural fluid	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-07405	1 st	HUB	ERR12031111		3	77	Female	2005	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-07492	1 st	HUB	ERR12031112	ERR12031458	3	53	Male	2005	Blood	Pneumonia	3	12	180	180	180-4	7	15	2	10	6	1	22
HUB-07542	1 st	HUB	ERR12031113		3	56	Female	2005	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22

Supplementary Table S1A. Metadata of sequenced genomes; Demographics and strain characterization (part 3/5).

ID	Collection	Hospital	Illumina Accession	MfnION Accession	DEMOGRAPHIC						IN SILICO MLST											
					Serotype	Age	Sex	Year	Source	Diagnostic	Serotype	%GPGC	MLST <i>in silico</i>	%CC	%Clade	<i>aroE</i>	<i>gdh</i>	<i>gli</i>	<i>recP</i>	<i>spi</i>	<i>zpt</i>	<i>ddl</i>
HUB-0764	1 st	HUB	ERR12031114		3	77	Male	2005	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07715	1 st	HUB	ERR12031115		3	70	Male	2005	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-07774	1 st	HUB	ERR12031116		3	79	Female	2005	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07826	1 st	HUB	ERR12031117		3	73	Male	2005	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-07827	1 st	HUB	ERR12031118		3	73	Female	2005	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-07845	1 st	HUB	ERR12031119		3	74	Male	2005	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-07881	1 st	HUB	ERR12031120		3	69	Male	2005	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08008	1 st	HUB	ERR12031121		3	73	Male	2006	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-08057	1 st	HUB	ERR12031122		3	79	Male	2006	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08081	1 st	HUB	ERR12031123		3	31	Male	2006	Cerebrospinal fluid	Meningitis	3	12	505	180	180-3	46	8	2	10	6	1	22
HUB-08114	1 st	HUB	ERR12031124		3	78	Female	2006	Blood	Pneumonia	3	83	18060	260	260-7	26	1	15	14	9	16	1168
HUB-08173	1 st	HUB	ERR12031125		3	61	Male	2006	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-08199	1 st	HUB	ERR12031126		3	57	Male	2006	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08205	1 st	HUB	ERR12031127		3	41	Male	2006	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-08223	1 st	HUB	ERR12031128		3	86	Male	2006	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08240	1 st	HUB	ERR12031129		3	79	Female	2006	Blood	Primary bacteremia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-08278	1 st	HUB	ERR12031130		3	37	Male	2006	Cerebrospinal fluid	Meningitis	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-08295	1 st	HUB	ERR12031131	ERR12031459	3	70	Female	2006	Blood	Pneumonia	3	3	717	Other	5	35	29	1	45	39	18	
HUB-08328	1 st	HUB	ERR12031132		3	85	Male	2006	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08342	1 st	HUB	ERR12031133		3	81	Female	2006	Blood	Pneumonia	3	83	1377	^b 260-related	13	84	15	14	10	16	19	
HUB-08391	1 st	HUB	ERR12031134		3	74	Female	2007	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08456	1 st	HUB	ERR12031135		3	44	Male	2007	Pleural fluid	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-08474	1 st	HUB	ERR12031136		3	84	Female	2007	Cerebrospinal fluid	Meningitis	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-08564	1 st	HUB	ERR12031137		3	55	Male	2007	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08653	1 st	HUB	ERR12031138		3	62	Male	2007	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-08797	1 st	HUB	ERR12031139		3	49	Male	2007	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08845	1 st	HUB	ERR12031140		3	84	Female	2007	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-08899	1 st	HUB	ERR12031141		3	63	Male	2008	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-08941	1 st	HUB	ERR12031142		3	79	Male	2008	Joint fluid	Primary bacteremia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-08955	1 st	HUB	ERR12031143		3	35	Male	2008	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-09061	1 st	HUB	ERR12031144		3	68	Male	2008	Blood	Pneumonia	3	83	1377	^b 260-related	13	84	15	14	10	16	19	
HUB-09104	1 st	HUB	ERR12031145		3	77	Male	2008	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-09144	1 st	HUB	ERR12031146		3	47	Female	2008	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-09321	1 st	HUB	ERR12031147		3	63	Male	2008	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-09409	1 st	HUB	ERR12031148		3	73	Female	2008	Others	Endophthalmitis	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-09418	1 st	HUB	ERR12031149		3	56	Female	2008	Cerebrospinal fluid	Meningitis	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-09439	1 st	HUB	ERR12031150		3	61	Male	2008	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-09512	1 st	HUB	ERR12031151		3	31	Female	2009	Pleural fluid	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-09513	1 st	HUB	ERR12031152		3	58	Male	2009	Blood	Pneumonia	3	83	1377	^b 260-related	13	84	15	14	10	16	19	
HUB-09653	1 st	HUB	ERR12031153		3	73	Male	2009	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-09704	1 st	HUB	ERR12031154		3	84	Female	2009	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19
HUB-09766	1 st	HUB	ERR12031155		3	69	Male	2009	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-09876	1 st	HUB	ERR12031156		3	84	Male	2009	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-09895	1 st	HUB	ERR12031157		3	60	Female	2009	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-09962	1 st	HUB	ERR12031158		3	83	Male	2009	Pleural fluid	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19
HUB-09989	1 st	HUB	ERR12031159		3	64	Female	2009	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10105	1 st	HUB	ERR12031160		3	67	Male	2010	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-10135	1 st	HUB	ERR12031161		3	83	Female	2010	Pleural fluid	Pneumonia	3	83	260	260	260-1	26	9	15	14	9	16	19
HUB-10149	1 st	HUB	ERR12031162		3	59	Male	2010	Cerebrospinal fluid	Meningitis	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-10171	1 st	HUB	ERR12031163		3	66	Male	2010	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10202	1 st	HUB	ERR12031164		3	83	Male	2010	Blood	Pneumonia	3	12	180	180	180-5	7	15	2	10	6	1	22
HUB-10207	1 st	HUB	ERR12031165		3	59	Male	2010	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10212	1 st	HUB	ERR12031166	ERR12031460	3	64	Male	2010	Blood	Primary bacteremia	3	51	458	Other	2	32	9	47	6	21	17	
HUB-10244	1 st	HUB	ERR12031167		3	89	Female	2010	Cerebrospinal fluid	Meningitis	3	12	505	180	180-3	46	8	2	10	6	1	22
HUB-10246	1 st	HUB	ERR12031168		3	89	Female	2010	Cerebrospinal fluid	Meningitis	3	83	260	260	260-7	26	1	15	14	9	16	19
HUB-10283	1 st	HUB	ERR12031169		3	68	Female	2010	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10365	1 st	HUB	ERR12031170		3	71	Male	2010	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-10461	1 st	HUB	ERR12031171		3	88	Male	2010	Blood	Pneumonia	3	12	180	180	180-2	7	15	2	10	6	1	22
HUB-10498	1 st	HUB	ERR12031172		3	82	Male	2011	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10501	1 st	HUB	ERR12031173		3	57	Male	2011	Cerebrospinal fluid	Meningitis	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-10505	1 st	HUB	ERR12031174		3	64	Female	2011	Blood	Pneumonia	3	83	260	260	260-1	26	9	15	14	9	16	19
HUB-10614	1 st	HUB	ERR12031175		3	54	Male	2011	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19
HUB-10630	1 st	HUB	ERR12031176		3	45	Male	2011	Pleural fluid	Pneumonia	3	83	1377	^b 260-related	13	84	15	14	10	16	19	
HUB-10702	1 st	HUB	ERR12031177		3	67	Female	2011	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-10776	1 st	HUB	ERR12031178		3	71	Male	2011	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10819	1 st	HUB	ERR12031179		3	52	Female	2011	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22

Supplementary Table S1A. Metadata of sequenced genomes; Demographics and strain characterization (part 4/5).

ID	Collection	Hospital	Illumina Accession	MinION Accession	DEMOGRAPHIC						Diagnosis	IN SILICO MLST										
					Serotype	Age	Sex	Year	Source	Serotype		%GPS	MLST <i>in silico</i>	%CC	%Indel	araE	gdh	gfi	recP	spi	spi	ddl
HUB-10823	1 st	HUB	ERR12031180		3	79	Male	2011	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10824	1 st	HUB	ERR12031181		3	89	Male	2011	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10826	1 st	HUB	ERR12031182		3	79	Male	2011	Blood	Pneumonia	3	12	180	180	180-2	7	15	2	10	6	1	22
HUB-10837	1 st	HUB	ERR12031183		3	80	Female	2012	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10843	1 st	HUB	ERR12031184		3	60	Male	2012	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10871	1 st	HUB	ERR12031185		3	75	Male	2012	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-10945	1 st	HUB	ERR12031186		3	74	Female	2012	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-11111	1 st	HUB	ERR12031187		3	78	Female	2012	Blood	Pneumonia	3	50	113	Other	7	2	1	1	10	1	21	17
HUB-11205	1 st	HUB	ERR12031188		3	53	Female	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11224	1 st	HUB	ERR12031189		3	70	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11225	1 st	HUB	ERR12031190		3	77	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11244	1 st	HUB	ERR12031191		3	38	Male	2013	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-11252	1 st	HUB	ERR12031192		3	88	Male	2013	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-11300	1 st	HUB	ERR12031193		3	75	Female	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11369	1 st	HUB	ERR12031194		3	71	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11399	1 st	HUB	ERR12031195		3	45	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11502	1 st	HUB	ERR12031196	ERR12031461	3	68	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11555	1 st	HUB	ERR12031197		3	68	Female	2014	Blood	Pneumonia	3	51	458	Other	2	32	9	47	6	21	17	17
HUB-11601	1 st	HUB	ERR12031198		3	31	Female	2014	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11608	1 st	HUB	ERR12031199		3	46	Female	2014	Blood	Pneumonia	3	51	458	Other	2	32	9	47	6	21	17	17
HUB-11650	1 st	HUB	ERR12031200		3	68	Male	2014	Blood	Pneumonia	3	309	6193	Other	2	32	165	5	6	112	145	145
HUB-11675	1 st	HUB	ERR12031201		3	42	Female	2014	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11821	1 st	HUB	ERR12031202		3	85	Male	2014	Blood	Primary bacteremia	3	12	180	180	180-5	7	15	2	10	6	1	22
HUB-11862	1 st	HUB	ERR12031203		3	64	Female	2014	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-11864	1 st	HUB	ERR12031204		3	77	Male	2014	Blood	Pneumonia	3	12	505	180	180-3	46	8	2	10	6	1	22
HUB-11957	1 st	HUB	ERR12031205		3	71	Male	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-11987	1 st	HUB	ERR12031206	ERR12031462	3	65	Male	2015	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12017	1 st	HUB	ERR12031207		3	26	Female	2015	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19
HUB-12027	1 st	HUB	ERR12031208		3	69	Female	2015	Others	Pneumonia	3	51	458	Other	2	32	9	47	6	21	17	17
HUB-12060	1 st	HUB	ERR12031209		3	76	Female	2015	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-12069	1 st	HUB	ERR12031210		3	60	Male	2015	Blood	Pneumonia	3	83	1377	^{260-related}	13	84	15	14	10	16	19	19
HUB-12120	1 st	HUB	ERR12031211		3	66	Male	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12129	1 st	HUB	ERR12031212		3	37	Male	2015	Blood	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12177	1 st	HUB	ERR12031213		3	56	Female	2015	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-12187	1 st	HUB	ERR12031214		3	34	Male	2015	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12197	1 st	HUB	ERR12031215		3	39	Male	2015	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-12229	1 st	HUB	ERR12031216		3	80	Female	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12262	1 st	HUB	ERR12031217		3	58	Male	2015	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-12307	1 st	HUB	ERR12031218		3	79	Male	2016	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-12395	1 st	HUB	ERR12031219		3	76	Male	2016	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19
HUB-12397	1 st	HUB	ERR12031220		3	87	Male	2016	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19
HUB-12408	1 st	HUB	ERR12031221		3	68	Female	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12444	1 st	HUB	ERR12031222		3	73	Female	2016	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12469	1 st	HUB	ERR12031223		3	63	Male	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12495	1 st	HUB	ERR12031224		3	68	Male	2016	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12529	1 st	HUB	ERR12031225		3	79	Male	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12693	1 st	HUB	ERR12031226		3	56	Male	2016	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-12701	1 st	HUB	ERR12031227		3	71	Male	2016	Cerebrospinal fluid	Meningitis	3	83	260	260	260-1	26	9	15	14	9	16	19
HUB-12708	1 st	HUB	ERR12031228		3	80	Male	2017	Blood	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12759	1 st	HUB	ERR12031229		3	68	Female	2017	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12834	1 st	HUB	ERR12031230		3	72	Male	2017	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-12923	1 st	HUB	ERR12031231		3	88	Male	2017	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-12967	1 st	HUB	ERR12031232		3	63	Male	2017	Others	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-13081	1 st	HUB	ERR12031233		3	82	Female	2017	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-13082	1 st	HUB	ERR12031234		3	85	Male	2017	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-13097	1 st	HUB	ERR12031235		3	62	Female	2017	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19
HUB-13102	1 st	HUB	ERR12031236	ERR12031463	3	78	Male	2017	Blood	Pneumonia	3	12	180	180	180-5	7	15	2	10	6	1	22
HUB-13120	1 st	HUB	ERR12031237		3	73	Male	2018	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-13142	1 st	HUB	ERR12031238		3	58	Female	2018	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-13181	1 st	HUB	ERR12031239		3	74	Female	2018	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19
HUB-13294	1 st	HUB	ERR12031240		3	82	Female	2018	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19
HUB-13359	1 st	HUB	ERR12031241		3	36	Male	2018	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-13529	1 st	HUB	ERR12031242		3	52	Female	2018	Cerebrospinal fluid	Meningitis	3	51	458	Other	2	32	9	47	6	21	17	17
HUB-13594	1 st	HUB	ERR12031243		3	78	Male	2019	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19
HUB-13638	1 st	HUB	ERR12031244		3	57	Male	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22
HUB-13657	1 st	HUB	ERR12031245		3	79	Male	2019	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19
HUB-13665	1 st	HUB	ERR12031246		3	69	Male	2019	Blood	Pneumonia	3	12	180	180	180-6	7						

Supplementary Table S1A. Metadata of sequenced genomes; Demographics and strain characterization (part 5/5).

ID	Collection	Hospital	Illumina Accession	MinION Accession	DEMOGRAPHIC					IN SILICO MLST													
					Serotype	Age	Sex	Year	Source	Diagnostic	Serotype	%GSPC	MLST in silico	%CC	%Chae	aroA	gdh	gki	recP	spi	xpi	ddl	
HUB-13808	1 st	HUB	ERR12031251		3	80	Male	2019	Blood	Pneumonia	3	12	180	180	180-4	7	15	2	10	6	1	22	
HUB-13911	1 st	HUB	ERR12031252		3	54	Male	2019	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUB-13944	1 st	HUB	ERR12031253	ERR12031464	3	93	Male	2019	Blood	Primary bacteremia	3	51	458	Other		2	32	9	47	6	21	17	
HUB-14014	1 st	HUB	ERR12031254	ERR12031465	3	98	Female	2019	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
HUB-14063	1 st	HUB	ERR12031255		3	80	Female	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUB-14101	1 st	HUB	ERR12031256		3	77	Male	2020	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUB-14116	1 st	HUB	ERR12031257		3	70	Male	2020	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUB-14429	1 st	HUB	ERR12031258		3	76	Male	2020	Blood	Pneumonia	3	12	180	180	180-5	7	15	2	10	6	1	22	
HUB-NC44	1 st	HUB	ERR12031259		3	58	Male	2020	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-0728447	3 rd	HUD	ERR12031260		3	66	Female	2016	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUD-70001510	3 rd	HUD	ERR12031261		3	82	Female	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-70004787	3 rd	HUD	ERR12031262		3	74	Male	2016	Blood	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-70005196	3 rd	HUD	ERR12031263		3	81	Female	2016	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-70026364	3 rd	HUD	ERR12031264		3	51	Male	2016	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-70032622	3 rd	HUD	ERR12031265		3	92	Male	2019	Blood	Peritonitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-70054372	3 rd	HUD	ERR12031266		3	73	Male	2020	Blood	Primary bacteremia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUD-70060164	3 rd	HUD	ERR12031267		3	69	Male	2020	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-70089044	3 rd	HUD	ERR12031268		3	83	Male	2020	Blood	Primary bacteremia	3	12	9420	180	180-6	7	15	2	228	6	1	22	
HUD-70104327	3 rd	HUD	ERR12031269		3	21	Male	2016	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-71191502	3 rd	HUD	ERR12031270		3	87	Male	2019	Blood	Primary bacteremia	3	12	9420	180	180-6	7	15	2	228	6	1	22	
HUD-72444129	3 rd	HUD	ERR12031271		3	57	Male	2019	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUD-73353050	3 rd	HUD	ERR12031272		3	62	Female	2016	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUD-7412209	3 rd	HUD	ERR12031273		3	86	Male	2016	Blood	Pneumonia	3	12	9420	180	180-6	7	15	2	228	6	1	22	
HUD-76620713	3 rd	HUD	ERR12031274		3	64	Male	2016	Blood	Primary bacteremia	3	12	8561	180	180-6	7	15	372	10	6	1	22	
HUGTIP-1G2013	3 rd	HUGTIP	ERR12031275		3	63	Female	2013	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-2A2013	3 rd	HUGTIP	ERR12031276		3	65	Female	2013	Blood	Pneumonia	3	83	New	260	260-3	26	9	15	14	9	Novel	19	
HUGTIP-2E2016	3 rd	HUGTIP	ERR12031277		3	75	Male	2016	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
HUGTIP-2G2016	3 rd	HUGTIP	ERR12031278		3	81	Male	2016	Blood	Pneumonia	3	12	180	180	180-1	7	15	2	10	6	1	22	
HUGTIP-3B2012	3 rd	HUGTIP	ERR12031279		3	55	Male	2012	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-4E2012	3 rd	HUGTIP	ERR12031280		3	79	Female	2012	Blood	Pneumonia	3	12	180	180	180-2	7	15	2	10	6	1	22	
HUGTIP-5B2019	3 rd	HUGTIP	ERR12031281		3	50	Male	2019	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-6B2013	3 rd	HUGTIP	ERR12031282		3	56	Male	2013	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUGTIP-6B2016	3 rd	HUGTIP	ERR12031283		3	94	Male	2016	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUGTIP-6I2020	3 rd	HUGTIP	ERR12031284		3	76	Male	2020	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-8A2013	3 rd	HUGTIP	ERR12031285		3	85	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-8B2016	3 rd	HUGTIP	ERR12031286		3	36	Female	2016	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-8D2013	3 rd	HUGTIP	ERR12031287		3	78	Female	2013	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
HUGTIP-8E2013	3 rd	HUGTIP	ERR12031288		3	54	Male	2013	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUGTIP-9A2015	3 rd	HUGTIP	ERR12031289		3	77	Male	2015	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
HUGTIP-9D2019	3 rd	HUGTIP	ERR12031290		3	40	Male	2019	Blood	Pneumonia	3	12	180	180	180-5	7	15	2	10	6	1	22	
HUGTIP-9F2015	3 rd	HUGTIP	ERR12031291		3	81	Female	2015	Pleural fluid	Pneumonia	3	12	180	180	180-5	7	15	2	10	6	1	22	
TAULL-1210799	3 rd	TAULL	ERR12031292		3	50	Female	2012	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-1300384	3 rd	TAULL	ERR12031293		3	59	Female	2013	Blood	Pneumonia	3	83	260	260	260-2	26	9	15	14	9	16	19	
TAULL-1303154	3 rd	TAULL	ERR12031294		3	83	Female	2013	Blood	Pneumonia	3	83	260	260	260-5	26	9	15	14	9	16	19	
TAULL-1305812	3 rd	TAULL	ERR12031295		3	89	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-1339079	3 rd	TAULL	ERR12031296		3	68	Male	2013	Blood	Primary bacteremia	3	83	260	260	260-3	26	9	15	14	9	16	19	
TAULL-1524014	3 rd	TAULL	ERR12031297		3	93	Male	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-1900427	3 rd	TAULL	ERR12031298		3	81	Female	2019	Blood	Pneumonia	3	83	260	260	260-3	26	9	15	14	9	16	19	
TAULL-1915307	3 rd	TAULL	ERR12031299		3	86	Female	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-1924843	3 rd	TAULL	ERR12031300		3	64	Male	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-1927688	3 rd	TAULL	ERR12031301		3	58	Female	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-1954024	3 rd	TAULL	ERR12031302		3	94	Female	2019	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
TAULL-2001878	3 rd	TAULL	ERR12031303		3	62	Male	2020	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
VH-0158584	3 rd	VH	ERR12031304		3	86	Female	2012	Cerebrospinal fluid	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0205728	3 rd	VH	ERR12031305		3	82	Female	2012	Blood	Pneumonia	3	83	18059	260	260-2	26	9	15	657	9	16	19	
VH-0220555	3 rd	VH	ERR12031306		3	93	Female	2013	Blood	Pneumonia	3	83	260	260	260-4	26	9	15	14	9	16	19	
VH-0220861	3 rd	VH	ERR12031307		3	50	Male	2013	Blood	Meningitis	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0221761	3 rd	VH	ERR12031308		3	91	Female	2013	Pleural fluid	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0223411	3 rd	VH	ERR12031309		3	79	Male	2013	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0229051	3 rd	VH	ERR12031310		3	59	Female	2012	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0248546	3 rd	VH	ERR12031311		3	84	Female	2013	Blood	Pneumonia	3	83	1220	260	260-7	26	1	15	14	9	16	19	
VH-0274842	3 rd	VH	ERR12031312		3	67	Male	2013	Blood	Pneumonia	3	83	260	260	260-6	26	9	15	14	9	16	19	
VH-0301091	3 rd	VH	ERR12031313		3	53	Male	2015	Blood	Pneumonia	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0337881	3 rd	VH	ERR12031314		3	66	Male	2012	Blood	Primary bacteremia	3	12	180	180	180-6	7	15	2	10	6	1	22	
VH-0343290	3 rd	VH	ERR12031315		3	42	Female	2012	Blood	Primary bacteremia	3	12	505	180	180-3	46	8	2	10	6	1	22	
VH-075522	3 rd	VH	ERR12031316		3	36	Male	2012	Cerebrospinal fluid	Meningitis	3	12	180										

Supplementary Table S1B. Metadata of sequenced genomes; Antimicrobial susceptibility, phages and genetic determinants related to antimicrobial resistance (part 2/5).

ID	Collection	Hospital	Illumina Accession	MinION Accession	β-LACTAMS					TETRACYCLINES		CHLORAMPHENICOL		MACROLIDES		TRIMETHOPRIM-SULFAMETHOXAZOLE			QUINOLONES				TMGEs		PHAGE											
					⁶ PEN	⁴ AMOX	³ CTX	PBP1a	PBP2b	PBP2x	⁴ TET	tet(M)	⁶ CHL	cat	¹⁴ ERY	erm(B)	⁸ SXT	DHFR	DHPS	⁶ Cip	ParC	ParE	GyrA	Transposon family	Structure	PHAGE CLUSTER										
HUB-04889	1 st	HUB	ERR12031048		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-04920	1 st	HUB	ERR12031049	ERR12031453	≤0.03	≤0.03	≤0.06	62	0	0	32	+	>16	+	>256	+	<0.5/9.5					Tn5252	7													
HUB-04936	1 st	HUB	ERR12031050		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05079	1 st	HUB	ERR12031051		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05107	1 st	HUB	ERR12031052	ERR12031454	≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05147	1 st	HUB	ERR12031053		≤0.03	<0.03	<0.06	62	0	61	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05215	1 st	HUB	ERR12031054		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05269	1 st	HUB	ERR12031055		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05370	1 st	HUB	ERR12031056		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05395	1 st	HUB	ERR12031057		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05396	1 st	HUB	ERR12031058		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05416	1 st	HUB	ERR12031059	ERR12031455	≤0.03	≤0.03	≤0.06	62	0	0	>4	+	>16	+	<0.25				<1				Tn5252	5												
HUB-05438	1 st	HUB	ERR12031060		≤0.03	≤0.03	≤0.06	62	0	0	32	+	<2		<0.25				<1				Unresolved													
HUB-05473	1 st	HUB	ERR12031061		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05507	1 st	HUB	ERR12031062		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05542	1 st	HUB	ERR12031063		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05550	1 st	HUB	ERR12031064		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05561	1 st	HUB	ERR12031065		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05626	1 st	HUB	ERR12031066		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05629	1 st	HUB	ERR12031067		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				>32			D435N	S81Y													
HUB-05649	1 st	HUB	ERR12031068		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05696	1 st	HUB	ERR12031069		≤0.03	≤0.03	≤0.06	2	0	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05788	1 st	HUB	ERR12031070		≤0.03	≤0.03	≤0.06	62	0	283	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-05897	1 st	HUB	ERR12031071		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06048	1 st	HUB	ERR12031072		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06113	1 st	HUB	ERR12031073	ERR12031456	≤0.03	≤0.03	≤0.06	2	0	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06137	1 st	HUB	ERR12031074		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06216	1 st	HUB	ERR12031075		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06230	1 st	HUB	ERR12031076		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06249	1 st	HUB	ERR12031077		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06251	1 st	HUB	ERR12031078		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06267	1 st	HUB	ERR12031079		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06335	1 st	HUB	ERR12031080		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06357	1 st	HUB	ERR12031081		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06411	1 st	HUB	ERR12031082		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06585	1 st	HUB	ERR12031083		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06596	1 st	HUB	ERR12031084		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06612	1 st	HUB	ERR12031085		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06623	1 st	HUB	ERR12031086		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06651	1 st	HUB	ERR12031087		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06675	1 st	HUB	ERR12031088		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06709	1 st	HUB	ERR12031089		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06714	1 st	HUB	ERR12031090		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06814	1 st	HUB	ERR12031091		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5				<1																	
HUB-06881	1 st	HUB	ERR12031092		≤0.03																															

Supplementary Table S1B. Metadata of sequenced genomes; Antimicrobial susceptibility, phages and genetic determinants related to antimicrobial resistance (part 3/5).

ID	Collection	Hospital	Illumina Accession	MiniON Accession	β-LACTAMS					TETRACYCLINES		CHLORAMPHENICOL		MACROLIDES		TRIMETHOPRIM-SULFAMETHOXAZOLE			QUINOLONES				TnCB		PHAGE	
					⁴ PEN	⁴ AMOX	³ CTX	PBP1a	PBP2b	PBP2x	⁴ TET	tet(M)	⁴ CHL	cat	⁴ ERY	erm(B)	⁴ SXT	DHFR	DHPS	⁴ Cip	ParC	ParE	GyrA	Transposon family	Structure	PHAGE CLUSTER
HUB-07644	1 st	HUB	ERR12031114		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-07715	1 st	HUB	ERR12031115		≤0.03	≤0.03	≤0.06	New	0	New	<1	<2	<0.25		<0.5/9.5	<1										
HUB-07774	1 st	HUB	ERR12031116		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-07826	1 st	HUB	ERR12031117		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-07827	1 st	HUB	ERR12031118		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-07845	1 st	HUB	ERR12031119		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-07881	1 st	HUB	ERR12031120		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08008	1 st	HUB	ERR12031121		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08057	1 st	HUB	ERR12031122		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	8	S79F								IPP57 / φOXC141 / PPH010_14	
HUB-08081	1 st	HUB	ERR12031123		≤0.03	≤0.03	≤0.06	2	0	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08114	1 st	HUB	ERR12031124		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08173	1 st	HUB	ERR12031125		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08199	1 st	HUB	ERR12031126		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08205	1 st	HUB	ERR12031127		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08223	1 st	HUB	ERR12031128		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08240	1 st	HUB	ERR12031129		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08278	1 st	HUB	ERR12031130		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08328	1 st	HUB	ERR12031132		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08342	1 st	HUB	ERR12031133		≤0.03	≤0.03	≤0.06	62	0	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08391	1 st	HUB	ERR12031134		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08456	1 st	HUB	ERR12031135		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08474	1 st	HUB	ERR12031136		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08564	1 st	HUB	ERR12031137		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08653	1 st	HUB	ERR12031138		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08797	1 st	HUB	ERR12031139		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08845	1 st	HUB	ERR12031140		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08899	1 st	HUB	ERR12031141		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08941	1 st	HUB	ERR12031142		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-08955	1 st	HUB	ERR12031143		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09061	1 st	HUB	ERR12031144		≤0.03	≤0.03	≤0.06	62	0	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09104	1 st	HUB	ERR12031145		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-09144	1 st	HUB	ERR12031146		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-09321	1 st	HUB	ERR12031147		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09409	1 st	HUB	ERR12031148		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09418	1 st	HUB	ERR12031149		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09439	1 st	HUB	ERR12031150		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-09512	1 st	HUB	ERR12031151		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09513	1 st	HUB	ERR12031152		≤0.03	≤0.03	≤0.06	62	0	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09653	1 st	HUB	ERR12031153		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-09704	1 st	HUB	ERR12031154		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09766	1 st	HUB	ERR12031155		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09876	1 st	HUB	ERR12031156		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09895	1 st	HUB	ERR12031157		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-09962	1 st	HUB	ERR12031158		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-09989	1 st	HUB	ERR12031159		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-10105	1 st	HUB	ERR12031160		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10135	1 st	HUB	ERR12031161		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10149	1 st	HUB	ERR12031162		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10171	1 st	HUB	ERR12031163		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-08295	1 st	HUB	ERR12031131	ERR12031459	≤0.03	≤0.03	≤0.06	2	0	6	>4	+	>256	+	<0.5/9.5	<1					Tn916	1		IPP28		
HUB-10202	1 st	HUB	ERR12031164		≤0.03	≤0.03	≤0.06	2	0	2	32	+	<0.25		<0.5/9.5	<1					Tn916	2		IPP19		
HUB-10207	1 st	HUB	ERR12031165		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC141 / PPH010_14	
HUB-10212	1 st	HUB	ERR12031166	ERR12031460	≤0.03	≤0.03	≤0.06	0	26	2	<1	<2	<0.25		<0.5/9.5	<1									PPH060	
HUB-10244	1 st	HUB	ERR12031167		≤0.03	≤0.03	≤0.06	2	0	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10246	1 st	HUB	ERR12031168		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10283	1 st	HUB	ERR12031169		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10365	1 st	HUB	ERR12031170		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10461	1 st	HUB	ERR12031171		≤0.03	≤0.03	≤0.06	2	177	2	<1	<2	<0.25		<0.5/9.5	<1									PPH115_1	
HUB-10498	1 st	HUB	ERR12031172		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<0.25		<0.5/9.5	<1										
HUB-10501	1 st	HUB	ERR12031173		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<0.25		<0.5/9.5	<1									IPP57 / φOXC	

Supplementary Table S1B. Metadata of sequenced genomes; Antimicrobial susceptibility, phages and genetic determinants related to antimicrobial resistance (part 4/5).

ID	Collection	Hospital	Illumina Accession	MiniON Accession	β-LACTAMS						TETRACYCLINES		CHLORAMPHENICOL		MACROLIDES		TRIMETHOPRIM-SULFAMETHOXAZOLE			QUINOLONES				TnCBS		PHAGE
					⁴ Pen	⁴ AMOX	³ CTX	PBP1a	PBP2b	PBP2x	⁴ TET	tet(M)	⁴ CHL	cat	⁴ ERY	erm(B)	⁴ SXT	DHFR	DHPS	⁴ Cip	ParC	ParE	GyrA	Transposon family	Structure	PHAGE CLUSTER
HUB-10823	1 st	HUB	ERR12031180		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						IPP57 / φOXC141 / PPH010_14
HUB-10824	1 st	HUB	ERR12031181		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-10826	1 st	HUB	ERR12031182		≤0.03	≤0.03	≤0.06	2	177	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					PPH115_1	
HUB-10837	1 st	HUB	ERR12031183		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-10843	1 st	HUB	ERR12031184		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-10871	1 st	HUB	ERR12031185		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-10945	1 st	HUB	ERR12031186		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11111	1 st	HUB	ERR12031187		≤0.03	≤0.03	≤0.06	0	4	0	<1	<2	<2	<0.25	>2/8	100L	P59GSS -> P59GSSYS				<1					
HUB-11205	1 st	HUB	ERR12031188		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11224	1 st	HUB	ERR12031189		≤0.03	≤0.03	≤0.06	2	3	New	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-11225	1 st	HUB	ERR12031190		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-11244	1 st	HUB	ERR12031191		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11252	1 st	HUB	ERR12031192		≤0.03	≤0.03	≤0.06	62	0	New	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11300	1 st	HUB	ERR12031193		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11369	1 st	HUB	ERR12031194		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-11399	1 st	HUB	ERR12031195		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-11502	1 st	HUB	ERR12031196	ERR12031461	≤0.03	≤0.03	≤0.06	2	3	2	>4	+	<2	>256	+	<0.5/9.5	<1				Tn5252	4			IPP57 / φOXC141 / PPH010_14	
HUB-11555	1 st	HUB	ERR12031197		≤0.03	≤0.03	≤0.06	0	26	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11601	1 st	HUB	ERR12031198		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-11608	1 st	HUB	ERR12031199		≤0.03	≤0.03	≤0.06	0	26	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11650	1 st	HUB	ERR12031200		≤0.03	≤0.03	≤0.06	0	0	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11675	1 st	HUB	ERR12031201		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11821	1 st	HUB	ERR12031202		≤0.03	≤0.03	≤0.06	2	0	2	>2	+	<2	<0.25	<0.5/9.5	<1				<1			Tn916	2	IPP19	
HUB-11862	1 st	HUB	ERR12031203		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11864	1 st	HUB	ERR12031204		≤0.03	≤0.03	≤0.06	2	0	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11957	1 st	HUB	ERR12031205		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-11987	1 st	HUB	ERR12031206	ERR12031462	≤0.03	≤0.03	≤0.06	2	3	2	>4	+	<2	>256	+	<0.5/9.5	<1				Tn5252	4			IPP57 / φOXC141 / PPH010_14	
HUB-12017	1 st	HUB	ERR12031207		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12027	1 st	HUB	ERR12031208		≤0.03	≤0.03	≤0.06	0	26	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					PPH060	
HUB-12060	1 st	HUB	ERR12031209		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12069	1 st	HUB	ERR12031210		≤0.03	≤0.03	≤0.06	62	0	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12120	1 st	HUB	ERR12031211		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-12129	1 st	HUB	ERR12031212		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-12177	1 st	HUB	ERR12031213		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12187	1 st	HUB	ERR12031214		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12197	1 st	HUB	ERR12031215		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12229	1 st	HUB	ERR12031216		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12262	1 st	HUB	ERR12031217		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12307	1 st	HUB	ERR12031218		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12395	1 st	HUB	ERR12031219		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12397	1 st	HUB	ERR12031220		≤0.03	≤0.03	≤0.06	62	0	New	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12408	1 st	HUB	ERR12031221		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-12444	1 st	HUB	ERR12031222		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12469	1 st	HUB	ERR12031223		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12495	1 st	HUB	ERR12031224		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-12529	1 st	HUB	ERR12031225		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12693	1 st	HUB	ERR12031226		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12701	1 st	HUB	ERR12031227		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12708	1 st	HUB	ERR12031228		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12759	1 st	HUB	ERR12031229		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-12834	1 st	HUB	ERR12031230		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-12923	1 st	HUB	ERR12031231		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-12967	1 st	HUB	ERR12031232		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-13081	1 st	HUB	ERR12031233		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-13082	1 st	HUB	ERR12031234		≤0.03	≤0.03	≤0.06	2	3	2	<1	<2	<2	<0.25	<0.5/9.5	<1				<1					IPP57 / φOXC141 / PPH010_14	
HUB-13097	1 st	HUB	ERR12031235		≤0.03	≤0.03	≤0.06	62	0	0	<1	<2	<2	<0.25	<0.5/9.5	<1				<1						
HUB-13102	1 st	HUB	ERR12031236	ERR12031463	≤0.03	≤0.03	≤0.06	2	0	2	>4	+	<2	>256	+	<0.5/9.5	<1				Tn5252	7				
HUB-13120	1 st	HUB	ERR12031237		≤0.03	≤0.03	≤0.06	62	0	New	<1	<2	<2	<0.25	<											

Supplementary Table S2. Classification of available serotype 3 IPD isolates data according to GPSC group, ST and period (part 1/2).

GPSC (n)	ST (n)	Allelic profile							Period (n)	Country - Continent (n)
		aroE	gdh	gki	recP	spi	xpt	ddl		
10 (25)	700 (25)	12	11	2	6	6	22	14	PCV7 (9)	Malawi - Africa (4) Kenya - Africa (3) South Africa - Africa (2)
									PCV13 (16)	Malawi - Africa (8) Togo - Africa (4) South Africa - Africa (3) Kenya - Africa (1)
12 (380)	180 (331)	7	15	2	10	6	1	22	pre-PCV (26)	United States - North America (9) China - Asia (7) Spain - Europe (9)* Trinidad and Tobago - South America (1)
									PCV7 (123)	South Africa - Africa (6) The Gambia - Africa (1) China - Asia (1) Thailand - Asia (2) Spain - Europe (47)* Israel - Europe (10) Poland - Europe (5) United States - North America (35) Brazil - South America (14) Argentina - South America (1) New Zealand - Oceania (1)
									PCV13 (182)	South Africa - Africa (6) China - Asia (2) Thailand - Asia (4) Qatar - Asia (2) Cambodia - Asia (1) Spain - Europe (101)* Israel - Europe (10) Poland - Europe (5) Belarus - Europe (1) United States - North America (20) Brazil - South America (12) Argentina - South America (10) Trinidad and Tobago - South America (3) New Zealand - Oceania (5)
									pre-PCV (2)	Lithuania - Europe (1) China - Asia (1)
									PCV7 (6)	China - Asia (1) Spain - Europe (3)* Poland - Europe (1) Turkey - Europe (1)
									PCV13 (10)	China - Asia (1) Spain - Europe (4)* Poland - Europe (2) Russian Federation - Europe (2) Peru - South America (1)
									pre-PCV (8)	China - Asia (8)
									PCV7 (2)	China - Asia (2)
									pre-PCV (1)	China - Asia (1)
									PCV13 (2)	China - Asia (2)
									PCV13 (3)	Spain - Europe (3)*
									PCV13 (2)	Spain - Europe (2)*
2049 (1)	46	8	2	1	6	1	22	PCV13 (1)	Poland - Europe (1)	
3798 (1)	7	15	2	10	6	267	22	PCV7 (1)	Malaysia - Asia (1)	
4735 (1)	1	15	8	10	6	1	22	PCV7 (1)	Poland - Europe (1)	
5616 (1)	7	15	262	10	6	1	22	PCV7 (1)	Peru - South America (1)	
6013 (1)	7	15	275	10	6	1	22	PCV7 (1)	China - Asia (1)	
9060 (1)	7	15	2	10	6	523	22	PCV13 (1)	Peru - South America (1)	
10179 (1)	7	15	2	10	6	1	641	PCV7 (1)	United States - North America (1)	
10768 (1)	7	15	352	10	6	1	22	PCV13 (1)	United States - North America (1)	
11873 (1)	7	15	2	10	6	676	22	PCV7 (1)	United States - North America (1)	
11928 (1)	324	15	40	1	6	1	22	pre-PCV (1)	China - Asia (1)	
12319 (1)	7	15	2	10	6	182	22	PCV13 (1)	Morocco - Africa (1)	
12734 (1)	7	15	2	378	6	1	22	PCV7 (1)	United States - North America (1)	
18057 (1)	7	15	2	10	6	1	1166	pre-PCV (1)	Spain - Europe (1)*	
43 (22)	6011 (19)	7	13	4	16	6	1	17	PCV7 (1)	China - Asia (1)
									PCV13 (18)	China - Asia (18)
									PCV7 (2)	Mozambique - Africa (2)
									PCV7 (1)	China - Asia (1)

^aGPSC - The Global Pneumococcal Sequencing project

*Isolates included in the present study

Supplementary Table S2. Classification of available serotype 3 IPD isolates data according to GPSC group, ST and period (part 2/2).

GPSC (n)	ST (n)	Allelic profile						Period (n)	Country - Continent (n)																																																													
		aroE	gdh	gki	recP	spi	xpt			ddl																																																												
51 (67)	458 (63)	2	32	9	47	6	21	17	pre-PCV (2)	China - Asia (1) Papua New Guinea - Oceania (1)																																																												
									PCV7 (25)	South Africa - Africa (19) The Gambia - Africa (1) Malaysia - Asia (1) Spain - Europe (1)* Israel - Europe (2) Brazil - South America (1)																																																												
										PCV13 (36)	South Africa - Africa (16) The Gambia - Africa (2) Thailand - Asia (3) Pakistan - Asia (1) Spain - Europe (5)* Israel - Europe (2) Brazil - South America (6) Argentina - South America (1)																																																											
											PCV13 (2)	Brazil - South America (2)																																																										
											PCV13 (1)	South Africa - Africa (1)																																																										
PCV13 (1)	South Africa - Africa (1)																																																																					
11332 (2)	2	32	9	47	6	21	699	PCV13 (2)	Brazil - South America (2)																																																													
11128 (1)	2	32	39	47	6	21	17	PCV13 (1)	South Africa - Africa (1)																																																													
12590 (1)	2	545	9	47	532	21	17	PCV13 (1)	South Africa - Africa (1)																																																													
83 (197)	260 (131)	26	9	15	14	9	16	19	pre-PCV (42)	Spain - Europe (42)* The Gambia - Africa (5) Egypt - Africa (1) Spain - Europe (44)* Turkey - Europe (3) Brazil - South America (1)																																																												
									PCV7 (54)	The Gambia - Africa (3) Senegal - Africa (1) Spain - Europe (29)* Israel - Europe (1) Turkey - Europe (1)																																																												
										PCV13 (35)	Spain - Europe (2)* Spain - Europe (14)* Israel - Europe (1) United States - North America (1)																																																											
											PCV7 (16)	South Africa - Africa (2) Spain - Europe (23)* United States - North America (1)																																																										
												PCV13 (26)	Brazil - South America (4)																																																									
	232 (4)	13	9	15	14	10	16	1					PCV7 (4)	Brazil - South America (4)																																																								
		1377 (9)	13	84	15	14	10	16	19				PCV7 (5)	Spain - Europe (4)* Poland - Europe (1)																																																								
										PCV13 (4)			Spain - Europe (2)* Poland - Europe (2)																																																									
											7369 (2)		13	340	15	14	10	16	19	PCV13 (2)	South Africa - Africa (2)																																																	
												18059 (2)	26	9	15	567	9	16	19	pre-PCV (1)	Spain - Europe (1)*																																																	
	PCV13 (1)																			Spain - Europe (1)*																																																		
		378 (1)	13	9	15	14	10	16	19											PCV7 (1)	South Africa - Africa (1)																																																	
			6014 (1)	194	9	15	14	10	16	1										PCV7 (1)	China - Asia (1)																																																	
				11931 (1)	367	9	15	14	10	16	17									pre-PCV (1)	China - Asia (1)																																																	
					18060 (1)	26	1	15	14	9	16	1168	PCV7 (1)	Spain - Europe (1)*																																																								
Other (1)	26					9	15	14	9	Novel	19	PCV13 (1)	Spain - Europe (1)*																																																									
	Other (36)	1 (1)				271 (1)	4	16	19	15	6	20	26	PCV13 (1)	South Africa - Africa (1)																																																							
			3 (8)											1765 (2)	2	32	54	47	114	115	17	PCV7 (2)	South Africa - Africa (2)																																															
				62 (1)																			2	5	29	12	16	3	14	PCV13 (1)	South Africa - Africa (1)																																							
					662 (1)																										5	35	29	12	9	39	18	pre-PCV (1)	Trinidad and Tobago - South America (1)																															
717 (1)																																							5	35	29	1	45	39	18	PCV7 (1)	Spain - Europe (1)*																							
																																															1116 (1)	1	26	28	11	13	1	14	PCV13 (1)	South Africa - Africa (1)														
																																																								6360 (1)	2	5	29	18	42	3	9	PCV13 (1)	Qatar - Asia (1)					
																																																																	11686 (1)	2	5	23	301	42
		172 (1)				7	13	8	6	25	6	8	PCV7 (1)																																																									
			1535 (1)											7	13	8	6	6	1	11	PCV13 (1)	Togo - Africa (1)																																																
				9 (1)																		12738 (1)	2	5	36	6	6	732	269	PCV13 (1)																																								
					11 (1)																										14517 (1)	15	10	2	16	103	1	1																																
50 (1)																																							113 (1)	7	2	1	1	10	1	21																								
																																															92 (1)	7053 (1)	10	65	10	1	15	1	75															
																																																								103 (1)	6847 (1)	16	189	4	12	43	4	74						
	128 (1)																																																																4389 (1)	2	8	9	16	17
		234 (4)				10440 (2)	1	26	28	11	452	1	14																																																									
			2021 (1)											1	5	28	11	13	1	14	PCV7 (1)																																																	
				8964 (1)																		1	5	28	11	13	1	564	PCV7 (1)	Togo - Africa (1)																																								
					253 (2)																									12489 (1)	2	5	54	47	15	27	17	PCV7 (1)																																
12523 (1)																																							2	32	54	47	114	115	784	PCV13 (1)																								
																																															309 (5)	4925 (2)	2	32	165	10	27	112	145															
																																																								6193 (1)	2	32	165	5	6	112	145	PCV13 (1)						
	14483 (1)																																																																2	9	165	47	6	277
		6193 (1)				2	32	165	5	6	112	145	PCV13 (1)																																																									
			334 (1)											6945 (1)	12	32	111	15	13	429	6																																																	
				363 (2)																		10455 (1)	2	12	19	1	6	615	22																																									
					11454 (1)																									404	12	19	226	89	1	22	PCV7 (1)	United States - North America (1)																																
371 (3)																																						12780 (1)	2	32	165	1	6	1	14	PCV13 (1)																								
																																															14072 (1)	467	32	165	1	6	1	14	PCV13 (1)															
																																																								646 (1)	13856 (1)	434	65	95	24	6	807	22						
	791 (1)																																																																14445 (1)	2	32	146	16	6
		Not assigned (1)				18058 (1)	13	9	1	14	10	16	1167																																																									

Supplementary Table S3. Metadata from selected serotype 3 isolates from England and Wales* used to compare them with isolates in the current study (part 1/4).

ID	Region	Year	ST	clade	ID	Region	Year	ST	clade
ERR3530278	England and Wales	2002	180	Clade_Ia	ERR3601537	England and Wales	2014	180	Clade_Ia
ERR3530319	England and Wales	2002	180	Clade_Ia	ERR3601539	England and Wales	2005	180	Clade_Ia
ERR3530475	England and Wales	2013	180	Clade_Ia	ERR3601540	England and Wales	2005	180	Clade_Ia
ERR3530561	England and Wales	2009	180	Clade_Ia	ERR3601541	England and Wales	2009	180	Clade_Ia
ERR3530628	England and Wales	2002	180	Clade_Ia	ERR3601545	England and Wales	2005	180	Clade_Ia
ERR3530735	England and Wales	2016	180	Clade_II	ERR3601547	England and Wales	2012	180	Clade_Ia
ERR3530755	England and Wales	2018	180	Clade_II	ERR3601549	England and Wales	2003	180	Clade_Ia
ERR3531049	England and Wales	2016	180	Clade_Ia	ERR3601550	England and Wales	2008	180	Clade_Ia
ERR3531053	England and Wales	2016	180	Clade_II	ERR3601551	England and Wales	2014	180	Clade_Ia
ERR3601482	England and Wales	2010	180	Clade_Ia	ERR3601552	England and Wales	2011	180	Clade_Ia
ERR3601484	England and Wales	2011	180	Clade_Ia	ERR3601555	England and Wales	2018	180	Clade_II
ERR3601485	England and Wales	2017	180	Clade_II	ERR3601558	England and Wales	2011	180	Clade_Ia
ERR3601487	England and Wales	2013	180	Clade_II	ERR3601559	England and Wales	2010	180	Clade_Ia
ERR3601489	England and Wales	2016	180	Clade_Ia	ERR3601560	England and Wales	2004	180	Clade_Ia
ERR3601491	England and Wales	2016	1377	External	ERR3601562	England and Wales	2012	180	Clade_Ia
ERR3601492	England and Wales	2012	180	Clade_Ia	ERR3601564	England and Wales	2003	180	Clade_Ia
ERR3601494	England and Wales	2015	180	Clade_Ia	ERR3601565	England and Wales	2008	180	Clade_Ia
ERR3601495	England and Wales	2016	1377	External	ERR3601567	England and Wales	2016	180	Clade_Ia
ERR3601496	England and Wales	2011	180	Clade_II	ERR3601568	England and Wales	2009	180	Clade_Ia
ERR3601499	England and Wales	2015	180	Clade_Ia	ERR3601570	England and Wales	2009	180	Clade_Ia
ERR3601501	England and Wales	2017	180	Clade_Ia	ERR3601571	England and Wales	2017	180	Clade_Ia
ERR3601502	England and Wales	2015	180	Clade_Ia	ERR3601572	England and Wales	2018	180	Clade_Ia
ERR3601503	England and Wales	2018	180	Clade_Ia	ERR3601573	England and Wales	2017	180	Clade_II
ERR3601504	England and Wales	2007	260	External	ERR3601574	England and Wales	2003	180	Clade_Ia
ERR3601505	England and Wales	2008	1220	External	ERR3601575	England and Wales	2017	180	Clade_II
ERR3601506	England and Wales	2017	1377	External	ERR3601576	England and Wales	2018	180	Clade_Ia
ERR3601507	England and Wales	2015	180	Clade_Ia	ERR3601577	England and Wales	2003	1220	External
ERR3601508	England and Wales	2006	180	Clade_Ia	ERR3601578	England and Wales	2005	180	Clade_Ia
ERR3601509	England and Wales	2016	180	Clade_II	ERR3601580	England and Wales	2009	180	Clade_Ia
ERR3601510	England and Wales	2009	180	Clade_Ia	ERR3601581	England and Wales	2016	180	Clade_Ia
ERR3601512	England and Wales	2011	180	Clade_Ia	ERR3601582	England and Wales	2017	180	Clade_II
ERR3601513	England and Wales	2015	180	Clade_Ia	ERR3601587	England and Wales	2013	180	Clade_Ia
ERR3601516	England and Wales	2018	180	Clade_II	ERR3601589	England and Wales	2018	180	Clade_Ia
ERR3601517	England and Wales	2006	233	External	ERR3601590	England and Wales	2006	458	External
ERR3601518	England and Wales	2013	180	Clade_Ia	ERR3601591	England and Wales	2005	458	External
ERR3601519	England and Wales	2018	180	Clade_II	ERR3601592	England and Wales	2008	180	Clade_Ia
ERR3601520	England and Wales	2018	180	Clade_II	ERR3601593	England and Wales	2010	180	Clade_Ia
ERR3601521	England and Wales	2007	233	External	ERR3601594	England and Wales	2016	180	Clade_Ia
ERR3601522	England and Wales	2018	NOVEL allele. Closest ST:180(SLV)	Clade_II	ERR3601595	England and Wales	2011	180	Clade_Ia
ERR3601523	England and Wales	2018	700	External	ERR3601598	England and Wales	2014	180	Clade_Ia
ERR3601524	England and Wales	2018	180	Clade_II	ERR3601599	England and Wales	2017	180	Clade_Ia
ERR3601527	England and Wales	2017	180	Clade_II	ERR3601600	England and Wales	2016	180	Clade_Ia
ERR3601528	England and Wales	2018	1220	External	ERR3601601	England and Wales	2016	180	Clade_II
ERR3601531	England and Wales	2009	180	Clade_Ia	ERR3601602	England and Wales	2018	180	Clade_II
ERR3601532	England and Wales	2011	260	External	ERR3601603	England and Wales	2013	180	Clade_Ia
ERR3601535	England and Wales	2006	180	Clade_Ia	ERR3601604	England and Wales	2016	1377	External
ERR3601536	England and Wales	2014	180	Clade_II	ERR3601606	England and Wales	2017	180	Clade_II
					ERR3601608	England and Wales	2015	180	Clade_Ia
					ERR3601610	England and Wales	2003	233	External

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Supplementary Table S3. Metadata from selected serotype 3 isolates from England and Wales* used to compare them with isolates in the current study (part 2/4).

ID	Region	Year	ST	clade	ID	Region	Year	ST	clade
ERR3601612	England and Wales	2010	180	Clade_Ia	ERR3601693	England and Wales	2008	180	Clade_Ia
ERR3601613	England and Wales	2015	180	Clade_Ia	ERR3601695	England and Wales	2018	180	Clade_II
ERR3601614	England and Wales	2010	180	Clade_Ia	ERR3601698	England and Wales	2016	180	Clade_Ia
ERR3601616	England and Wales	2018	180	Clade_Ia	ERR3601699	England and Wales	2011	62	External
ERR3601617	England and Wales	2016	180	Clade_II	ERR3601703	England and Wales	2018	180	Clade_II
ERR3601618	England and Wales	2009	180	Clade_Ia	ERR3601704	England and Wales	2016	180	Clade_II
ERR3601619	England and Wales	2018	180	Clade_Ia	ERR3601705	England and Wales	2015	1220	External
ERR3601620	England and Wales	2015	180	Clade_Ia	ERR3601711	England and Wales	2008	180	Clade_Ia
ERR3601621	England and Wales	2009	13815	External	ERR3601712	England and Wales	2018	180	Clade_Ia
ERR3601624	England and Wales	2010	180	Clade_Ia	ERR3601713	England and Wales	2013	271	External
ERR3601625	England and Wales	2009	NOVEL allele. Closest ST:271(SLV)	External	ERR3601714	England and Wales	2009	260	External
ERR3601629	England and Wales	2017	180	Clade_Ia	ERR3601715	England and Wales	2006	180	Clade_Ia
ERR3601631	England and Wales	2018	180	Clade_II	ERR3601716	England and Wales	2018	180	Clade_II
ERR3601632	England and Wales	2004	180	Clade_Ia	ERR3601718	England and Wales	2014	180	Clade_Ia
ERR3601633	England and Wales	2016	180	Clade_Ia	ERR3601719	England and Wales	2012	180	Clade_Ia
ERR3601636	England and Wales	2013	180	Clade_Ia	ERR3601720	England and Wales	2008	180	Clade_Ia
ERR3601638	England and Wales	2009	180	Clade_Ia	ERR3601721	England and Wales	2007	180	Clade_Ia
ERR3601640	England and Wales	2017	233	External	ERR3601723	England and Wales	2012	1377	External
ERR3601641	England and Wales	2012	180	Clade_Ia	ERR3601724	England and Wales	2013	180	Clade_Ia
ERR3601642	England and Wales	2004	180	Clade_Ia	ERR3601727	England and Wales	2010	180	Clade_Ia
ERR3601643	England and Wales	2006	NOVEL allele. Closest ST:180(SLV)	Clade_Ia	ERR3601728	England and Wales	2007	505	Clade_Ib
ERR3601644	England and Wales	2011	260	External	ERR3601733	England and Wales	2004	180	Clade_Ia
ERR3601645	England and Wales	2007	1377	External	ERR3601735	England and Wales	2017	180	Clade_II
ERR3601646	England and Wales	2013	180	Clade_Ia	ERR3601736	England and Wales	2014	180	Clade_Ia
ERR3601648	England and Wales	2011	180	Clade_Ia	ERR3601737	England and Wales	2018	180	Clade_II
ERR3601650	England and Wales	2015	180	Clade_II	ERR3601739	England and Wales	2013	180	Clade_Ia
ERR3601651	England and Wales	2018	458	External	ERR3601741	England and Wales	2007	180	Clade_Ia
ERR3601653	England and Wales	2011	1377	External	ERR3601742	England and Wales	2014	180	Clade_Ia
ERR3601654	England and Wales	2012	180	Clade_II	ERR3601743	England and Wales	2010	180	Clade_Ia
ERR3601655	England and Wales	2017	180	Clade_Ia	ERR3601744	England and Wales	2015	458	External
ERR3601657	England and Wales	2011	180	Clade_Ia	ERR3601745	England and Wales	2008	1220	External
ERR3601658	England and Wales	2004	180	Clade_Ia	ERR3601746	England and Wales	2011	233	External
ERR3601659	England and Wales	2008	180	Clade_Ia	ERR3601748	England and Wales	2007	260	External
ERR3601660	England and Wales	2013	180	Clade_Ia	ERR3601750	England and Wales	2005	180	Clade_Ia
ERR3601662	England and Wales	2012	180	Clade_II	ERR3601751	England and Wales	2017	1377	External
ERR3601663	England and Wales	2010	260	External	ERR3601753	England and Wales	2012	180	Clade_Ia
ERR3601667	England and Wales	2017	180	Clade_Ia	ERR3601754	England and Wales	2016	180	Clade_II
ERR3601669	England and Wales	2017	NOVEL allele. Closest ST:180(SLV)	Clade_Ia	ERR3601756	England and Wales	2017	180	Clade_II
ERR3601670	England and Wales	2016	NOVEL allele. Closest ST:1377(SLV)	External	ERR3601761	England and Wales	2010	458	External
ERR3601676	England and Wales	2016	180	Clade_II	ERR3601762	England and Wales	2004	180	Clade_Ia
ERR3601678	England and Wales	2014	180	Clade_II	ERR3601764	England and Wales	2012	180	Clade_Ia
ERR3601681	England and Wales	2007	180	Clade_Ia	ERR3601765	England and Wales	2016	180	Clade_II
ERR3601682	England and Wales	2014	180	Clade_Ia	ERR3601766	England and Wales	2016	180	Clade_II
ERR3601683	England and Wales	2018	180	Clade_II	ERR3601767	England and Wales	2008	180	Clade_Ia
ERR3601684	England and Wales	2015	1220	External	ERR3601769	England and Wales	2015	180	Clade_II
ERR3601686	England and Wales	2014	180	Clade_Ia	ERR3601770	England and Wales	2015	180	Clade_Ia
ERR3601687	England and Wales	2004	180	Clade_Ia	ERR3601773	England and Wales	2010	180	Clade_Ia
ERR3601689	England and Wales	2018	180	Clade_II	ERR3601774	England and Wales	2017	180	Clade_II
ERR3601690	England and Wales	2009	260	External	ERR3601776	England and Wales	2004	233	External
ERR3601692	England and Wales	2017	180	Clade_II	ERR3601777	England and Wales	2018	1377	External

Supplementary Table S3. Metadata from selected serotype 3 isolates from England and Wales* used to compare them with isolates in the current study (part 3/4).

ID	Region	Year	ST	clade	ID	Region	Year	ST	clade
ERR3601778	England and Wales	2018	180	Clade_II	ERR3601857	England and Wales	2014	180	Clade_II
ERR3601780	England and Wales	2015	180	Clade_II	ERR3601858	England and Wales	2016	180	Clade_Ia
ERR3601781	England and Wales	2018	180	Clade_Ia	ERR3601859	England and Wales	2012	180	Clade_Ia
ERR3601782	England and Wales	2016	180	Clade_II	ERR3601863	England and Wales	2010	180	Clade_Ia
ERR3601783	England and Wales	2011	1220	External	ERR3601864	England and Wales	2018	180	Clade_II
ERR3601784	England and Wales	2011	180	Clade_Ia	ERR3601866	England and Wales	2018	180	Clade_II
ERR3601785	England and Wales	2007	180	Clade_Ia	ERR3601867	England and Wales	2015	180	Clade_Ia
ERR3601786	England and Wales	2018	180	Clade_Ia	ERR3601868	England and Wales	2007	180	Clade_Ia
ERR3601790	England and Wales	2017	6199	External	ERR3601869	England and Wales	2016	180	Clade_II
ERR3601791	England and Wales	2017	180	Clade_II	ERR3601871	England and Wales	2014	180	Clade_Ia
ERR3601794	England and Wales	2009	180	Clade_Ia	ERR3601873	England and Wales	2017	180	Clade_II
ERR3601796	England and Wales	2016	180	Clade_Ia	ERR3601877	England and Wales	2005	458	External
ERR3601797	England and Wales	2017	180	Clade_II	ERR3601878	England and Wales	2018	180	Clade_II
ERR3601798	England and Wales	2018	180	Clade_II	ERR3601879	England and Wales	2017	1377	External
ERR3601799	England and Wales	2017	180	Clade_II	ERR3601880	England and Wales	2009	180	Clade_Ia
ERR3601800	England and Wales	2015	1377	External	ERR3601881	England and Wales	2014	180	Clade_Ia
ERR3601801	England and Wales	2011	138	External	ERR3601882	England and Wales	2012	180	Clade_Ia
ERR3601803	England and Wales	2003	NOVEL allele. Closest ST:180(SLV)	Clade_Ia	ERR3601883	England and Wales	2009	1377	External
ERR3601806	England and Wales	2003	458	External	ERR3601884	England and Wales	2017	180	Clade_Ia
ERR3601808	England and Wales	2018	180	Clade_Ia	ERR3601885	England and Wales	2005	700	External
ERR3601809	England and Wales	2008	180	Clade_Ia	ERR3601886	England and Wales	2016	1377	External
ERR3601810	England and Wales	2016	180	Clade_II	ERR3601887	England and Wales	2018	1377	External
ERR3601813	England and Wales	2005	180	Clade_Ia	ERR3601888	England and Wales	2003	1220	External
ERR3601814	England and Wales	2017	180	Clade_Ia	ERR3601889	England and Wales	2016	180	Clade_Ia
ERR3601817	England and Wales	2008	180	Clade_Ia	ERR3601890	England and Wales	2014	180	Clade_Ia
ERR3601819	England and Wales	2017	180	Clade_Ia	ERR3601891	England and Wales	2013	180	Clade_II
ERR3601820	England and Wales	2018	180	Clade_II	ERR3601897	England and Wales	2014	180	Clade_Ia
ERR3601821	England and Wales	2007	180	Clade_Ia	ERR3601901	England and Wales	2018	180	Clade_II
ERR3601823	England and Wales	2017	180	Clade_II	ERR3601902	England and Wales	2015	180	Clade_Ia
ERR3601825	England and Wales	2008	180	Clade_Ia	ERR3601903	England and Wales	2009	180	Clade_II
ERR3601826	England and Wales	2010	700	External	ERR3601906	England and Wales	2015	180	Clade_Ia
ERR3601827	England and Wales	2017	180	Clade_Ia	ERR3601907	England and Wales	2017	180	Clade_Ia
ERR3601828	England and Wales	2016	180	Clade_II	ERR3601908	England and Wales	2010	260	External
ERR3601829	England and Wales	2018	180	Clade_II	ERR3601910	England and Wales	2016	180	Clade_II
ERR3601831	England and Wales	2005	180	Clade_Ia	ERR3601911	England and Wales	2015	180	Clade_II
ERR3601837	England and Wales	2018	180	Clade_Ia	ERR3601912	England and Wales	2009	260	External
ERR3601838	England and Wales	2007	180	Clade_Ia	ERR3601913	England and Wales	2016	180	Clade_II
ERR3601839	England and Wales	2008	180	Clade_Ia	ERR3601915	England and Wales	2009	180	Clade_Ia
ERR3601840	England and Wales	2012	180	Clade_Ia	ERR3601916	England and Wales	2014	180	Clade_Ia
ERR3601841	England and Wales	2014	180	Clade_Ia	ERR3601917	England and Wales	2017	233	External
ERR3601842	England and Wales	2008	180	Clade_Ia	ERR3601918	England and Wales	2016	180	Clade_II
ERR3601845	England and Wales	2018	180	Clade_II	ERR3601919	England and Wales	2017	180	Clade_Ib
ERR3601846	England and Wales	2018	180	Clade_Ia	ERR3601920	England and Wales	2011	180	Clade_Ia
ERR3601847	England and Wales	2005	12489	External	ERR3601922	England and Wales	2013	180	Clade_Ia
ERR3601848	England and Wales	2017	180	Clade_II	ERR3601923	England and Wales	2017	180	Clade_Ia
ERR3601849	England and Wales	2011	180	Clade_Ia	ERR3601924	England and Wales	2017	180	Clade_II
ERR3601851	England and Wales	2013	180	Clade_Ia	ERR3601925	England and Wales	2011	180	Clade_II
ERR3601853	England and Wales	2008	180	Clade_II	ERR3601926	England and Wales	2018	180	Clade_II
ERR3601855	England and Wales	2013	180	Clade_Ia	ERR3601927	England and Wales	2016	180	Clade_II
ERR3601856	England and Wales	2011	NOVEL allele. Closest ST:180(SLV)	Clade_Ia	ERR3601928	England and Wales	2010	180	Clade_II

Supplementary Table S3. Metadata from selected serotype 3 isolates from England and Wales* used to compare them with isolates in the current study (part 4/4).

ID	Region	Year	ST	clade	ID	Region	Year	ST	clade
ERR3601929	England and Wales	2014	180	Clade_Ia	ERR3602008	England and Wales	2017	180	Clade_II
ERR3601930	England and Wales	2010	180	Clade_Ia	ERR3602009	England and Wales	2016	180	Clade_II
ERR3601931	England and Wales	2016	180	Clade_II	ERR3602011	England and Wales	2009	233	External
ERR3601933	England and Wales	2017	180	Clade_II	ERR3602012	England and Wales	2008	180	Clade_Ia
ERR3601935	England and Wales	2017	1377	External	ERR3602014	England and Wales	2005	1377	External
ERR3601936	England and Wales	2006	180	Clade_Ia	ERR3602015	England and Wales	2013	260	External
ERR3601937	England and Wales	2006	180	Clade_Ia	ERR3602016	England and Wales	2016	180	Clade_Ia
ERR3601938	England and Wales	2015	180	Clade_II	ERR3602017	England and Wales	2006	1220	External
ERR3601939	England and Wales	2015	180	Clade_II	ERR3602018	England and Wales	2006	1220	External
ERR3601940	England and Wales	2015	180	Clade_II	ERR3602019	England and Wales	2012	1377	External
ERR3601942	England and Wales	2015	180	Clade_Ia	ERR3602023	England and Wales	2008	180	Clade_II
ERR3601943	England and Wales	2013	180	Clade_Ia	ERR3602024	England and Wales	2013	180	Clade_II
ERR3601945	England and Wales	2013	1220	External	ERR3602025	England and Wales	2007	1220	External
ERR3601946	England and Wales	2014	180	Clade_Ia	ERR3602026	England and Wales	2007	180	Clade_Ia
ERR3601947	England and Wales	2010	180	Clade_Ia	ERR3602027	England and Wales	2016	180	Clade_II
ERR3601948	England and Wales	2018	232	External	ERR3602031	England and Wales	2006	458	External
ERR3601949	England and Wales	2018	1377	External	ERR3602032	England and Wales	2007	180	Clade_Ia
ERR3601950	England and Wales	2013	180	Clade_Ia	ERR3602033	England and Wales	2015	180	Clade_Ia
ERR3601952	England and Wales	2011	180	Clade_Ia	ERR3602034	England and Wales	2007	180	Clade_Ia
ERR3601953	England and Wales	2018	180	Clade_II	ERR3602035	England and Wales	2008	458	External
ERR3601954	England and Wales	2011	180	Clade_Ia	ERR3602038	England and Wales	2003	180	Clade_Ia
ERR3601955	England and Wales	2010	458	External	ERR3602039	England and Wales	2018	1377	External
ERR3601959	England and Wales	2016	1377	External	ERR3602040	England and Wales	2010	180	Clade_Ia
ERR3601966	England and Wales	2014	180	Clade_II	ERR3602042	England and Wales	2016	180	Clade_Ia
ERR3601967	England and Wales	2016	180	Clade_Ia	ERR3602043	England and Wales	2010	260	External
ERR3601968	England and Wales	2016	180	Clade_Ia	ERR3602044	England and Wales	2015	180	Clade_II
ERR3601969	England and Wales	2010	180	Clade_Ia	ERR3602045	England and Wales	2018	180	Clade_II
ERR3601970	England and Wales	2011	180	Clade_Ia	ERR3602047	England and Wales	2018	180	Clade_II
ERR3601973	England and Wales	2015	180	Clade_Ia	ERR3602048	England and Wales	2018	180	Clade_II
ERR3601974	England and Wales	2008	NOVEL allele. Closest ST:1377(SLV)	External	ERR3602049	England and Wales	2007	180	Clade_Ia
ERR3601975	England and Wales	2003	232	External	ERR3602051	England and Wales	2006	180	Clade_Ia
ERR3601976	England and Wales	2009	180	Clade_Ia	ERR3602052	England and Wales	2017	180	Clade_II
ERR3601979	England and Wales	2008	180	Clade_Ia	ERR3602053	England and Wales	2009	180	Clade_Ib
ERR3601980	England and Wales	2016	180	Clade_II	ERR3602054	England and Wales	2016	180	Clade_Ia
ERR3601983	England and Wales	2005	NOVEL allele. Closest ST:458(SLV)	External	ERR3602057	England and Wales	2014	180	Clade_Ia
ERR3601985	England and Wales	2014	180	Clade_Ia	ERR3602059	England and Wales	2012	1377	External
ERR3601987	England and Wales	2017	1377	External	ERR3602062	England and Wales	2018	180	Clade_II
ERR3601988	England and Wales	2016	180	Clade_Ia	ERR3602063	England and Wales	2014	180	Clade_Ia
ERR3601989	England and Wales	2016	180	Clade_Ia	ERR3602066	England and Wales	2007	180	Clade_Ia
ERR3601990	England and Wales	2018	180	Clade_II	ERR3602067	England and Wales	2010	180	Clade_Ia
ERR3601992	England and Wales	2018	180	Clade_II	ERR3602068	England and Wales	2004	1377	External
ERR3601993	England and Wales	2017	180	Clade_II	ERR3602070	England and Wales	2009	180	Clade_Ia
ERR3601994	England and Wales	2018	180	Clade_II	ERR3602071	England and Wales	2014	180	Clade_Ia
ERR3601995	England and Wales	2003	180	Clade_Ia	ERR3602072	England and Wales	2005	232	External
ERR3601998	England and Wales	2008	180	Clade_Ia	ERR3602073	England and Wales	2016	233	External
ERR3602000	England and Wales	2016	1220	External	ERR3602074	England and Wales	2013	233	External
ERR3602001	England and Wales	2005	180	Clade_Ia	ERR3602076	England and Wales	2011	180	Clade_Ia
ERR3602005	England and Wales	2015	180	Clade_Ia	ERR3602077	England and Wales	2016	180	Clade_Ia
ERR3602006	England and Wales	2018	180	Clade_II	ERR3602078	England and Wales	2009	180	Clade_Ia
ERR3602007	England and Wales	2006	180	Clade_Ia	ERR3602079	England and Wales	2017	180	Clade_II
					ERR3602080	England and Wales	2017	180	Clade_II
					ERR3601944	England and Wales	2018	180	Clade_Ia
					ERR3601664	England and Wales	2014	180	Clade_Ia
					ERR3602082	England and Wales	2017	180	Clade_Ia

Supplementary Table S4. Characteristics of isolates and patients, which have suffered a vaccine failure.

ID	GENDER	AGE	YEAR	SEROTYPE	GPSC ^a	CC ^b	MLST	DIAGNOSTIC	TREATMENT	1st VACCINATION	2nd VACCINATION	OUTCOME	COPD ^c	DIABETES	HEART FAILURE	CANCER ^d	OTHER	Smoker ^e	Enolism ^e
HUB-03362	Female	19	28/02/1995	3	83	260	260	Pneumonia	CEFTRIAXONE	PPSV23 (01/09/1993)	No	Cured	Yes	No	No	No	No	Yes	No
HUB-03657	Male	75	31/10/1995	3	83	260	260	Pneumonia	CEFTRIAXONE	PPSV23 (07/05/1993)	No	Cured	No	No	No	No	No	No	No
HUB-06357	Female	70	30/04/2002	3	12	180	180	Pneumonia	CEFTRIAXONE + LEVOFLOXACIN	PPSV23 (10/10/2000)	No	Cured	No	Mellitus	No	No	No	No	No
HUB-07300	Female	76	31/10/2004	3	83	260	260	Pneumonia	AMOXYCILLIN CLAVULANIC ACID	PPSV23 (08/11/2000)	No	Cured	No	No	No	No	No	No	No
HUB-07386	Male	73	31/12/2004	3	83	260	260	Pneumonia	CEFTRIAXONE	PPSV23 (02/10/2000)	No	Cured	Yes	No	Yes	No	No	No	No
HUB-07644	Male	77	30/04/2005	3	12	180	180	Meningitis	CEFOTAXIME	PPSV23 (20/10/2000)	No	Cured	Yes	No	No	No	No	No	No
HUB-09061	Male	68	05/04/2008	3	83	260-related	1377	Pneumonia	CEFTRIAXONE	PPSV23 (13/10/2005)	No	Cured	Yes	No	Yes	No	No	No	No
HUB-08114	Female	78	21/05/2006	3	83	260	18060	Pneumonia	CEFTRIAXONE + LEVOFLOXACIN	PPSV23 (06/07/2005)	No	Cured	Yes	No	Yes	No	No	No	No
HUB-08899	Male	63	07/01/2008	3	83	260	260	Pneumonia	CEFTRIAXONE	PPSV23 (22/10/2004)	No	Cured	No	Mellitus	No	Yes	Dementia	No	No
HUB-09766	Male	69	30/05/2009	3	83	260	1220	Pneumonia	CEFEPIME + LEVOFLOXACIN	PPSV23 (13/10/2005)	No	Cured	No	Mellitus	Yes	Yes	No	No	No
HUB-09876	Male	84	06/10/2009	3	83	260	1220	Bacteremia	CIPROFLOXACIN	PPSV23 (15/10/2004)	No	Cured	No	No	No	No	No	No	No
HUB-10105	Male	67	25/01/2010	3	83	260	260	Pneumonia	CEFTRIAXONE	PPSV23 (27/07/2009)	No	Cured	No	No	No	No	No	Yes	No
HUB-10149	Male	59	20/02/2010	3	83	260	1220	Meningitis	CEFOTAXIME	PPSV23 (02/11/2006)	No	Cured	Yes	No	No	No	No	Yes	No
HUB-10202	Male	83	19/03/2010	3	12	180	180	Pneumonia	MOXIFLOXACIN	PPSV23 (21/02/2005)	No	Exitus	Yes	No	Yes	No	No	Yes	Yes
HUB-10498	Male	82	06/01/2011	3	12	180	180	Pneumonia	CEFEPIME	PPSV23 (10/11/2006)	No	Cured	No	Mellitus	No	Yes	No	No	No
HUB-10702	Female	67	17/06/2011	3	83	260	1220	Pneumonia	LEVOFLOXACIN	PPSV23 (28/10/2006)	No	Cured	Yes	No	No	No	No	No	No
HUB-10823	Male	79	30/12/2011	3	12	180	180	Bacteremia	NO TREATMENT	PPSV23 (16/11/2006)	No	Exitus	No	Mellitus	Yes	No	No	No	No
HUB-10837	Female	80	07/01/2012	3	12	180	180	Pneumonia	CEFEPIME	PPSV23 (06/10/2008)	No	Exitus	Yes	No	No	No	No	No	No
HUB-11111	Female	78	17/10/2012	3	50	Other	113	Pneumonia	CEFTRIAXONE	PPSV23 (13/10/2008)	No	Cured	Yes	No	Yes	No	No	No	No
HUB-11224	Male	70	16/01/2013	3	12	180	180	Pneumonia	CEFTRIAXONE + LEVOFLOXACIN	PPSV23 (20/10/2009)	No	Cured	Yes	No	No	No	No	Yes	No
HUB-11555	Female	68	03/01/2014	3	51	Other	458	Pneumonia	CEFTRIAXONE	PPSV23 (01/01/2012)	No	Cured	No	No	No	No	No	No	No
HUB-11814	Male	51	09/10/2014	3	NS	Other	NS	Pneumonia	AMOXYCILLIN CLAVULANIC ACID	PPSV23 (14/09/2010)	No	Cured	Yes	No	No	No	No	Yes	Yes
HUB-11862	Female	64	27/11/2014	3	83	260	1220	Pneumonia	CEFTRIAXONE	PPSV23 (22/10/2009)	No	Cured	Yes	No	No	Yes	No	No	No
HUB-11864	Male	77	28/11/2014	3	12	180	505	Pneumonia	AMOXYCILLIN CLAVULANIC ACID	PPSV23 (22/10/2014)	No	Cured	No	No	No	No	No	No	No
HUB-11987	Male	65	19/02/2015	3	12	180	180	Bacteremia	AMOXYCILLIN	PPSV23 (26/10/2012)	No	Exitus	Yes	Mellitus	No	Yes	No	Yes	Yes
HUB-12060	Female	76	29/04/2015	3	83	260	1220	Pneumonia	CEFTRIAXONE	PPSV23 (19/10/2011)	No	Cured	Yes	Mellitus	Yes	No	Renal Failure	No	No
HUB-12495	Male	68	13/05/2016	3	12	180	180	Meningitis	CEFOTAXIME	PPSV23 (03/03/2014)	No	Cured	No	Mellitus	No	No	No	No	Yes
HUB-12408	Female	68	14/03/2016	3	12	180	180	Pneumonia	IMPENEM + LEVOFLOXACIN	PPSV23 (12/11/2014)	No	Cured	No	No	No	No	Cirrhosis	No	No
HUB-12701	Male	71	28/12/2016	3	83	260	260	Meningitis	CEFOTAXIME	PPSV23 (29/10/2012)	PCV13 (28/07/2015)	Cured	Yes	Mellitus	No	No	No	No	No
HUB-13097	Female	62	28/12/2017	3	83	260	260	Bacteremia	CEFTRIAXONE	PPSV23 (15/12/2015)	No	Cured	No	Mellitus	No	No	No	Yes	No
HUB-13687	Male	72	13/03/2019	3	83	260	260	Bacteremia	CEFTRIAXONE	PPSV23 (26/10/2016)	No	Cured	No	Mellitus	Yes	Yes	No	Yes	Yes
HUB-14116	Male	70	15/01/2020	3	12	180	180	Meningitis	CEFTRIAXONE	PPSV23 (25/09/2017)	No	Exitus	No	Mellitus	No	Yes	No	Yes	No
HUB-14101	Male	77	10/01/2020	3	83	260	1220	Pneumonia	CEFTRIAXONE	PPSV23 + PCV7 (25/10/2005)	No	Cured	No	No	No	Yes	No	No	No

NS (Not Sequenced)

^a GPSC - The Global Pneumococcal Sequencing Project

^b CC - Clonal Complex

^c COPD - Chronic Obstructive Pulmonary Disease

^d Patient with immunosuppressive therapy

^e At the moment of the episode

Supplementary Table S5. Patients clinical characteristics divided into major lineages.

	Overall (%)	GPSC12 CC180 (%)	GPSC83 CC260 (%)	<i>p-value</i> ^b CC180 vs CC260
Available cases	270	113	137	
Clinical characteristics				
Age (years), Mean (\pm SD)	66.8 (\pm 15.4)	66.8 (\pm 14.9)	66.4 (\pm 15.8)	0.834
Male	176 (65.2)	80 (70.8)	86 (62.8)	0.226
Clinical presentation				
Pneumonia	231 (85.6)	93 (82.3)	124 (90.5)	0.062
Meningitis	22 (8.1)	12 (10.6)	8 (5.8)	0.241
Others	17 (6.3)	8 (7.1)	5 (3.7)	0.261
Bacteraemia	242 (83.4)	102 (90.3)	124 (90.5)	0.887
Available cases	255	109	128	
Nosocomial acquisition ^a	12 (4.7)	7 (6.4%)	4 (3.7%)	0.353
Risk factors				
Smoking	84 (32.9)	38 (34.9)	42 (32.8)	0.783
Alcohol abuse	44 (17.3)	19 (17.4)	21 (16.4)	0.863
Prior antibiotic therapy	41 (16.1)	17 (15.6)	21 (16.4)	1.000
Comorbidities				
One or more	184 (72.2)	81 (74.3)	90 (70.3)	0.562
Chronic pulmonary disease	63 (24.7)	33 (30.3)	26 (20.3)	0.097
Chronic heart disease	64 (25.1)	29 (26.6)	31 (24.2)	0.764
Diabetes mellitus	62 (24.3)	32 (29.4)	26 (20.3)	0.129
Malignancies	52 (20.4)	23 (21.1)	26 (20.3)	1.000
Liver cirrhosis	15 (5.6)	6 (5.5)	8 (6.3)	1.000
HIV infection	7 (2.7)	2 (1.8)	5 (3.9)	0.457
Chronic renal failure	16 (6.3)	10 (9.2)	6 (4.7)	0.199
Cerebrovascular disease/dementia	24 (9.4)	9 (8.3)	13 (10.2)	0.656
Immunosuppressive therapy	26 (10.2)	11 (10.1)	13 (10.2)	0.841
Septic shock	71 (27.8)	32 (29.4)	37 (28.9)	1.000
Available cases	261	110	132	
7-day mortality (early mortality)	48 (18.4)	20 (18.2)	26 (19.7)	0.869
30-day mortality	63 (24.1)	25 (22.7)	36 (27.3)	0.459

^aAcquisition could be nosocomial or extrahospitalary

^bChi-square was used to compare categorical variables and anova test for non-categorical between CC180 and CC260

Supplementary Table S6A. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 1/10).

GENOME _↓	GPSC _↓	POSITION→	wgz										wzh					wzd					wze					ugd																				
			C1690T	C1785T	T2043C	C2477G	C2514T	C2518T	G2544A	A2545C	C2654A	T2694G	C2758T	C2791T	A2797C	delG3019	G3019T	C3090T	T3183C	C3847T	C3910A	C3910T	G3980T	G4149	delA4219	delA4220	delC4390	C4390T	delC4486	C4486T	T5838C	C5922A	A5955G	C6162T	C6189	G6434A	C6442A	A6874C	G6937A	A6941C	delA6941	A6941T						
Reference	12	(%)→	100	0	100	0,6	0	0	0	0	0,6	1,8	0	100	0,6	0	4,1	0,6	0,6	0	0	1,2	100	100	0	1,2	0,6	99,4	0	100	1,2	100	0,6	0,6	0	100	0,6	98,2	0,59	0,59								
	83	(%)→	0	0,6	100	0	3,7	0,6	100	100	0,6	0	100	100	0	1,2	0	0	0	0,6	0,6	0	0	0	0	0,6	0	0	1,2	100	0	100	0	0	0,6	0	0	0	0	0	0							
		MLST	C	C	T	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	G	G	A	A	C	C	C	T	T	C	A	C	C	C	G	C	A	G	A	A	A						
HGUGM-0000198	12	180	T	.	T	T				
HGUGM-0000349	12	180	T	.	C			
HGUGM-0000519	12	180	T	.	C		
HGUGM-0003167	12	180	T	.	C		
HGUGM-0024015	12	180	T	.	C		
HGUGM-0911016	12	180	T	.	C	
HGUGM-1047015	12	180	T	.	C	
HGUGM-1805016	12	180	T	.	C
HGUGM-2530016	12	180	T	.	C
HGUGM-2800016	12	180	T	.	C
HGUGM-3837015	12	180	T	.	C
HGUGM-3966015	12	180	T	.	C
HUB-01001	12	180	T	.	C
HUB-03003	12	180	T	.	C
HUB-03684	12	180	T	.	C
HUB-03964	12	180	T	.	C
HUB-04066	12	180	T	.	C
HUB-04393	12	180	T	.	C
HUB-04532	12	180	T	.	C
HUB-05079	12	180	T	.	C
HUB-05215	12	180	T	.	C
HUB-05507	12	180	T	.	C
HUB-05542	12	180	T	.	C
HUB-05626	12	180	T	.	C
HUB-05696	12	180	T	.	C
HUB-05897	12	180	T	.	C
HUB-06048	12	180	T	.	C
HUB-06216	12	180	T	.	C
HUB-06357	12	180	T	.	C
HUB-06411	12	180	T	.	C	
HUB-06585	12	180	T	.	C
HUB-06596	12	180	T	.	C
HUB-06623	12	180	T	.	C
HUB-06881	12	180	T	.	C
HUB-06954	12	180	T	.	C
HUB-06986	12	180	T	.	C
HUB-07103	12	180	T	.	C
HUB-07121	12	180	T	.	C
HUB-07132	12	180	T	.	C	
HUB-07147	12	180	T	.	C	
HUB-07151	12	180																																														

Supplementary Table S6A. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 3/10).

GENOME	GPSC	POSITION	wgz								wzh					wzd					wze				ugd						A6941C	A6941T	0.59										
			C1690T	C1785T	T2043C	C2477G	C2514T	C2518T	G2544A	A2545C	C2654A	T2694G	C2758T	C2791T	A2797C	delG3019	G3019T	C3090T	T3183C	C3847T	C3910A	C3910T	G3980T	G4149	delA4219	delA4220	delC4390	C4390T	delC4486	C4486T				T3838C	C3922A	A3955G	C6162T	C6189	G6434A	C6442A	A6874C	G6937A	
Reference	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1210799	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1305812	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1524014	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1915307	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1924843	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1927688	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
TAULI-1954024	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0158584	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0220861	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0221761	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0223411	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0229051	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0301091	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0337881	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-075522	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-218059	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-2383121	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-239998	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-264206	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-335517	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-344202	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-701229	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-754772	12	180	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HGUGM-0000919	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HGUGM-4474015	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-06113	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-08081	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-10244	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-11864	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
VH-0343290	12	505	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HGUGM-0000501	12	8561	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUD-76620713	12	8561	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUD-70089044	12	9420	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUD-71191502	12	9420	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUD-74122209	12	9420	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-03367	12	18057	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HGUGM-0432015	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HGUGM-0564015	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HGUGM-2556015	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-01990	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-02624	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-02629	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-02635	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-02778	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-02812	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C	A	G	A	A	A	A
HUB-02943	83	260	T	C	C	C	C	C	G	A	C	T	C	C	A	G	G	C	T	C	C	C	G	G	A	A	C	C	C	C	T	C	A	C	C	G	C</						

Supplementary Table S6B. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 1/5).

GENOME↓	GPSC↓	POSITION→	Ugd			WchE					GalU			
			N57K	G228E	N375H	V25A	I339M	A341T	V355I	H367N	E58G	P106S	K225N	L290
	12	(%)→	100	0,6	100	0,6	0,6	100	0,6	100	100	0,6	0,6	0,6
	83	(%)→	100	0	100	0	0	100	0	100	100	0	0	0
Reference		MLST	N	G	N	V	I	A	V	H	E	P	K	L
HGUGM-0000198	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-0000349	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-0000501	12	8561	K	.	H	.	X	X	.	N	G	.	.	.
HGUGM-0000519	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-0000919	12	505	K	.	H	.	.	T	.	N	G	.	N	.
HGUGM-0003167	12	180	K	.	H	.	.	T	.	N	G	S	.	.
HGUGM-0024015	12	180	K	.	H	A	.	T	.	N	G	.	.	.
HGUGM-0911016	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-1047015	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-1805016	12	180	K	.	H	.	M	T	.	N	G	.	.	.
HGUGM-2530016	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-2800016	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-3837015	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-3966015	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-4474015	12	505	K	.	H	.	.	T	.	N	G	.	.	.
HUB-01001	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-03003	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-03367	12	18057	K	.	H	.	.	T	.	N	G	.	.	.
HUB-03684	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-03964	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-04066	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-04393	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-04532	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05079	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05215	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05507	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05542	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05626	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05696	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-05897	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06048	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06113	12	505	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06216	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06357	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06411	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06585	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06596	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06623	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06881	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06954	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-06986	12	180	K	.	H	X	X	X	X	X	G	.	.	.
HUB-07103	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07121	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07132	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07147	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07151	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07157	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07374	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07492	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07542	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07644	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07774	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07826	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-07881	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08057	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08081	12	505	K	.	H	.	.	T	.	N	G	.	.	F
HUB-08199	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08223	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08328	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08391	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08564	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08797	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-08845	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-09104	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-09144	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-09439	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-09653	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-09895	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-09989	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10171	12	180	K	.	H	.	.	T	.	N	G	.	.	.

Supplementary Table S6B. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 2/5).

GENOME↓	GPSC↓	POSITION→	Ugd			WchE					GalU			
			N57K	G228E	N375H	V25A	I339M	A341T	V355I	H367N	E58G	P106S	K225N	L290
	12	(%)→	100	0,6	100	0,6	0,6	100	0,6	100	100	0,6	0,6	0,6
	83	(%)→	100	0	100	0	0	100	0	100	100	0	0	0
Refrence		MLST	N	G	N	V	I	A	V	H	E	P	K	L
HUB-10202	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10207	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10244	12	505	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10283	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10461	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10498	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10776	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10819	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10823	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10824	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10826	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10837	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10843	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-10871	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11205	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11224	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11225	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11300	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11369	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11399	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11502	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11601	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11675	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11821	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11864	12	505	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11957	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-11987	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12120	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12129	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12187	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12229	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12408	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12444	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12469	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12495	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12529	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12708	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12759	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12834	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-12967	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13081	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13082	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13102	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13142	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13359	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13638	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13665	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13800	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-13808	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-14063	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-14116	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUB-14429	12	180	K	.	H	.	.	T	I	N	G	.	.	.
HUB-NC44	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70001510	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70004787	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70005196	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70026364	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70032622	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70060164	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70089044	12	9420	K	.	H	.	.	T	.	N	G	.	.	.
HUD-70104327	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-71191502	12	9420	K	.	H	.	.	T	.	N	G	.	.	.
HUD-72444129	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUD-74122209	12	9420	K	.	H	.	.	T	.	N	G	.	.	.
HUD-76620713	12	8561	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-1G2013	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-2G2016	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-3B2012	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-4E2012	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-5B2019	12	180	K	.	H	.	.	T	.	N	G	.	.	.

Supplementary Table S6B. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 3/5).

GENOME↓	GPSC↓	POSITION→	Ugd			WchE					GalU			
			N57K	G228E	N375H	V25A	I339M	A341T	V355I	H367N	E58G	P106S	K225N	L290
	12	(%)→	100	0,6	100	0,6	0,6	100	0,6	100	100	0,6	0,6	0,6
	83	(%)→	100	0	100	0	0	100	0	100	100	0	0	0
Reference		MLST	N	G	N	V	I	A	V	H	E	P	K	L
HUGTiP-6I2020	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-8A2013	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-8B2016	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-8D2013	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-9D2019	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HUGTiP-9F0215	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1210799	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1305812	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1524014	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1915307	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1924843	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1927688	12	180	K	.	H	.	.	T	.	N	G	.	.	.
TAULI-1954024	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0158584	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0220861	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0221761	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0223411	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0229051	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0301091	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0337881	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-0343290	12	505	K	.	H	.	.	T	.	N	G	.	.	.
VH-075522	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-218059	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-2383121	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-239998	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-264206	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-335517	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-344202	12	180	K	E	H	.	.	T	.	N	G	.	.	.
VH-701229	12	180	K	.	H	.	.	T	.	N	G	.	.	.
VH-754772	12	180	K	.	H	.	.	T	.	N	G	.	.	.
HGUGM-0432015	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HGUGM-0564015	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HGUGM-2556015	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HGUGM-3030016	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-01990	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02624	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02629	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02635	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02778	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02812	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02943	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-02947	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03013	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03089	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03145	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03227	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03237	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03324	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03362	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03372	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03374	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03425	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03628	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03655	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03657	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03673	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03679	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03755	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03769	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03802	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-03936	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04010	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04029	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04073	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04074	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04107	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04249	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04382	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04438	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04520	83	260	K	.	.	.	.	T	.	N	G	.	.	.

Supplementary Table S6B. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 4/5).

GENOME↓	GPSC↓	POSITION→	Ugd			WcbE					GalU				
			N57K	G228E	N375H	V25A	E39M	A341T	V355I	H367N	E58G	P106S	K225N	L290	
	12	(%)→	100	0,6	100	0,6	0,6	100	0,6	100	100	100	0,6	0,6	0,6
	83	(%)→	100	0	100	0	0	100	0	100	100	100	0	0	0
Reference		MLST	N	G	N	V	I	A	V	H	E	P	K	L	
HUB-04555	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04606	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04889	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04920	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-04936	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05107	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05147	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05269	83	18059	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05370	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05395	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05396	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05416	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05438	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05473	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05550	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05561	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05629	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05649	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-05788	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06137	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06230	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06249	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06251	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06267	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06335	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06612	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06651	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06675	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06709	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06714	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06814	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06917	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06952	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-06987	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07161	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07207	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07225	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07300	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07311	83	1377	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07386	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07405	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07715	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07827	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-07845	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08008	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08114	83	18060	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08173	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08205	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08240	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08278	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08342	83	1377	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08456	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08474	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08653	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08899	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08941	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-08955	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09061	83	1377	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09321	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09409	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09418	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09512	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09513	83	1377	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09704	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09766	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09876	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-09962	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10105	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10135	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10149	83	1220	K	.	.	.	.	T	.	N	G	.	.	.

Supplementary Table S6B. Nucleotide variation in the capsular operon compared to strain 524/62 (CR931634) (part 5/5).

GENOME↓	GPSC↓	POSITION→	Ugd			WchE					GalU			
			N57K	G228E	N375H	V25A	I339M	A341T	V355I	H367N	E58G	P106S	K225N	L290
	12	(%)→	100	0,6	100	0,6	0,6	100	0,6	100	100	0,6	0,6	0,6
	83	(%)→	100	0	100	0	0	100	0	100	100	0	0	0
Reference		MLST	N	G	N	V	I	A	V	H	E	P	K	L
HUB-10246	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10365	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10501	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10505	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10614	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10630	83	1377	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10702	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-10945	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-11244	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-11252	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-11862	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12017	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12060	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12069	83	1377	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12177	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12197	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12262	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12307	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12395	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12397	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12693	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12701	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-12923	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13097	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13120	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13181	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13294	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13594	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13657	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13681	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13687	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13692	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-13911	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-14014	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUB-14101	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUD-0728447	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUD-70054372	83	1220	K	.	.	.	X	Y	.	N	G	.	.	.
HUD-73353050	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUGTiP-2A2013	83	*8e21	K	.	.	.	.	T	.	N	G	.	.	.
HUGTiP-2F2016	83	260	K	.	.	.	.	T	.	N	G	.	.	.
HUGTiP-6B2013	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUGTiP-6B2016	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUGTiP-8E2013	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
HUGTiP-9A2015	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
TAULI-1300384	83	260	K	.	.	.	.	T	.	N	G	.	.	.
TAULI-1303154	83	260	K	.	.	.	.	T	.	N	G	.	.	.
TAULI-1339079	83	260	K	.	.	.	.	T	.	N	G	.	.	.
TAULI-1900427	83	260	K	.	.	.	.	T	.	N	G	.	.	.
TAULI-2001878	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
VH-0205728	83	18059	K	.	.	.	.	T	.	N	G	.	.	.
VH-0220555	83	260	K	.	.	.	.	T	.	N	G	.	.	.
VH-0248546	83	1220	K	.	.	.	.	T	.	N	G	.	.	.
VH-0274842	83	260	K	.	.	.	.	T	.	N	G	.	.	.
VH-336497	83	260	K	.	.	.	.	T	.	N	G	.	.	.

Supplementary Table S7. Molecular analysis of antibiotic resistance mechanisms.

Resistance pattern ^a (n)	Molecular mechanism	CC ^b (n)	ST (n)	ICE ^c family
ACQUIRED GENE				
TET (8)	<i>tet</i> (M)	180 (6)	180 (6)	Tn916
		260 (1)	260 (1)	
		Others (1)	458 (1)	
TET, CHL (4)	<i>tet</i> (M), <i>cat</i>	260 (3)	260 (3)	Tn5252
		Other-CC (1)	18058 (1)	
TET, ERY, CLI (3)	<i>tet</i> (M), <i>erm</i> (B)	180 (2)	180 (2)	Tn5252
		Other-CC (1)	717 (1)	Tn916
TET, ERY, CLI, CHL (5)	<i>tet</i> (M), <i>erm</i> (B), <i>cat</i>	180 (4)	180 (4)	Tn5252
		260 (1)	260 (1)	
AMINO ACID SUBSTITUTION				
SXT (1)	DHFR (I100L), DHPS (P59GSS -> P59GSSYS)	Other-CC (1)	113 (1)	
Qn (3)	GyrA (S81Y), ParE (D435N)	260 (1)	260 (1)	
		180 (1)	180 (1)	
		260 (1)	260 (1)	
	ParC (S79F)			

^a TET: Tetracycline; CHL: Chloramphenicol; ERY: Erythromycin; CLI: Clindamycin; SXT: Sulfamethoxazole-trimethoprim; Qn: Quinolones

^b Clonal Complex

^c Integrative and conjugative element

Supplementary Table S8. Rates of susceptibility and minimal inhibitory concentration (MIC).

ANTIBIOTIC	Global				CC180-GPSC12				CC260-GPSC83			
	NS ^a	S ^b	%S ^c	MIC range(mg/L)	NS ^a	S ^b	%S ^c	MIC range(mg/L)	NS ^a	S ^b	%S ^c	MIC range (mg/L)
Penicillin	0	312	100	≤0,03	0	148	100	≤0,03	0	155	100	≤0,03
Amoxicillin	0	344	100	≤0,03	0	170	100	≤0,03	0	164	100	≤0,03
Ceftotaxime	0	344	100	≤0,06	0	170	100	≤0,06	0	164	100	≤0,06
Erythromycin	8	336	97,7	<0,25 - >256	6	164	96,5	<0,25 - >256	1	163	99,4	<0,25 - >256
Clindamycin	8	336	97,7	<0,25 - >256	6	164	96,5	<0,25 - >256	1	163	99,4	<0,25 - >256
Chloramphenicol	9	335	97,4	<2 - >16	4	166	97,6	<2 - >16	4	160	97,6	<2 - >16
Tetracycline	20	324	94,2	<1 - 32	12	158	92,9	<1 - 32	5	159	97,0	<1 - 32
Cotrimoxazole	1	343	99,7	<0,5/9,5 - >2/38	0	170	100	<0,5/9,5	0	164	100,0	<0,5/9,5 - >2/38
Ciprofloxacin	3	341	99,1	<1 - >32	1	169	99,4	<1 - 8	2	162	98,8	<1 - >32

^aNS: number of non-susceptible isolates according to EUCAST criteria

^bS: number of susceptible isolates according to EUCAST criteria

^c%S: percentatge of susceptibility