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# Imported Toxigenic *Corynebacterium Diphtheriae* in Refugees with Polymicrobial Skin Infections, Germany, 2022

## Appendix

**Appendix Table 1.** Data for Refugees with imported toxigenic *Corynebacterium diphtheriae* in polymicrobial skin infections, Germany, 2022\*

ID	Age	Umr	Country of birth	Escape route	Skin infection	Infection site	Throat swab	Skin swab	MALDI-TOF	Elek test	tox PCR	Agar type	Penicillin MIC [mg/l]	Penicillin EUCAST v. 13.1	Erythromycin MIC [mg/l]	Erythromycin EUCAST v. 13.1	Clindamycin EUCAST v. 13.1	Ciprofloxacin EUCAST v. 13.1	Sequence (MLST)
1	25		Afghanistan	Balkan	yes	lower thigh	MRSA	CD, MSSA, S.	C. diphtheriae mitis	positive	positive	coblfos	0,125	I	-	S	S	I	377
2	20		Syria	nd	yes	feet, lower thigh		pyogenes CD, MRSA, S.	C. diphtheriae gravis	positive	positive	coblfos	0,064	I	0,016	S	S	I	-
3	20		Syria	nd	yes	lower thigh		pyogenes CD, S.	C. diphtheriae mitis	positive	positive	coblfos	0,19	I	0,016	S	S	I	-
4	24		Syria	Balkan (TR, MK, BG, RS, SI, CZ)	yes	lower thigh		pyogenes CD, MRSA, S.	C. diphtheriae gravis	positive	positive	coblfos	0,064	I	< 0,016	S	S	I	-
5	25		Syria	Balkan	yes	feet, lower thigh	CD	CD, MRSA, S.	C. diphtheriae mitis	positive	positive	coblfos	0,064	I	0,016	S	S	I	-
6	23		Syria	nd	yes	feet		pyogenes CD, S.	C. diphtheriae mitis	positive	positive	coblfos	0,094	I	0,016	S	S	I	377
7	28		Syria	Balkan	yes	feet		pyogenes CD, MRSA, S.	C. diphtheriae gravis	positive	positive	coblfos	0,064	I	< 0,016	S	S	I	384
8	18		Afghanistan	Balkan (TR, BG, RS, HU)	yes	lower thigh		pyogenes CD, MSSA, S.	C. diphtheriae mitis	positive	positive	coblfos	0,19	I	0,016	S	S	I	574
9	33		Syria	Balkan (RS)	yes	lower thigh	CD	CD, MSSA, S.	C. diphtheriae mitis	positive	positive	coblfos	0,125	I	0,016	S	S	I	377
10	22		Syria	Balkan	yes	chin	CD	pyogenes CD, S.	C. diphtheriae mitis	positive	-	coblfos	0,094	I	0,016	S	S	I	384

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11	23		Syria	Balkan	yes	lower thigh	S. dysgalactiae, S. canis	CD, MSSA, S. pyogenes	C. diphtheriae	positive	positive	coblfos	0,125	I	0,023	S	S	I	377
12	49		Syria	Balkan (TR, RS, SV, AT)	yes	feet, lower thigh		CD, MRSA, S. pyogenes	C. diphtheriae	positive	-	coblfos	0,125	I	0,016	S	S	I	384
13	20		Afghanistan	nd	yes	knee, lower thigh		CD, MSSA, S. pyogenes	C. diphtheriae	positive	-	coblfos	0,125	I	0,023	S	S	I	574
14	35		Syria	nd	yes	feet, hands	MSSA	pyogenes CD, MRSA, S. pyogenes, Citrobacter koseri	C. diphtheriae	positive	-	tell	0,094	I	0,016	S	S	I	384
15	22	yes	Afghanistan	Balkan (RS)	yes	feet, lower thigh, hands		CD, MSSA, S. pyogenes	C. diphtheriae	positive	-	tell	0,19	I	6	R	R	R	377
16	18		Afghanistan	nd	yes	feet, genital, hands		CD, MRSA, S. pyogenes	C. diphtheriae	positive	-	tell	0,19	I	8	R	R	R	377
17	25		Afghanistan	Balkan (MK, RS, HU, AT, CH)	yes	lower thigh, hands		CD, MSSA, S. pyogenes	C. diphtheriae	positive	-	tell	0,125	I	0,023	S	S	I	574
18	18		Afghanistan	nd	yes	ear, hands		CD, MRSA, S. pyogenes	C. diphtheriae	positive	-	tell	0,19	I	0,016	S	S	R	-
19	18	yes	Afghanistan	Balkan	yes	feet, lower thigh		CD, S. pyogenes	C. diphtheriae	-	positive	tell	-	-	-	-	S	S	-
20	18	yes	Afghanistan	nd	yes	feet, lower thigh, hands		CD, MSSA, S. pyogenes	C. diphtheriae	positive	-	tell	0,19	I	0,047	S	S	I	574
21	18		Afghanistan	Balkan (IR, TR, BG, RS, HU, AT, CH)	no	none	CD	no skin infection	C. diphtheriae	-	negative	tell	0,38	I	0,032	S	S	I	-
22	18		Afghanistan	nd	no	none	CD	no skin infection	C. diphtheriae	negative	negative	tell	0,25	I	0,016	S	S	I	-
23	20		Afghanistan	Balkan (IR, TR, BG, RS, BA, HR, IT, CH)	yes	lower thigh, knee		CD, MSSA, S. pyogenes	C. diphtheriae	positive	-	tell	0,25	I	0,023	S	S	I	574
24	33		Afghanistan	Balkan (IR, TR,	yes	feet, genital, upper thigh		CD, MSSA, S. pyogenes	C. diphtheriae	positive	-	tell	-	I	-	S	S	-	574

ID	Age	Umr	Country of birth	Escape route	Skin infection	Infection site	Throat swab	Skin swab	MALDI-TOF	Elek test	tox PCR	Agar type	Penicillin MIC [mg/l]	Penicillin EUCAST v. 13.1	Erythromycin MIC [mg/l]	Erythromycin EUCAST v. 13.1	Clindamycin EUCAST v. 13.1	Ciprofloxacin EUCAST v. 13.1	Sequence (MLST)
25	22		Afghanistan	RS, BA, IT, CH)	yes	lower thigh, hands		CD	C. diphtheriae	-	positive	tell	-	-	-	-	-	-	-
26	27		Morocco	Balkan (BA)	yes	hands	CD	CD, MRSA, S. pyogenes	C. diphtheriae	positive	-	tell	-	I	-	S	S	-	-
27	24		Afghanistan	Balkan (GR, AL, XK, RS, BA, HR, IT, NL)	yes	lower thigh, knee, upper thigh	CD	CD, MRSA, MSSA, S. pyogenes	C. diphtheriae	positive	positive	tell	-	I	-	S	S	-	-

\*UMR unaccompanied minor refugee, MRSA methicillin-resistant *S. aureus*, MSSA methicillin-sensible *S. aureus*, CD *Corynebacterium diphtheria*, cobifos *Columbia blood agar with fosfomycin plates*, tell *tellurite agar*, MIC minimal inhibitory concentration, EUCAST European Committee on Antimicrobial Susceptibility Testing, MLST multilocus sequence typing. Country codes: AL Albania, AT Austria, BA Bosnia and Herzegovina, BG Bulgaria, CH Switzerland, CZ Czech republic, GR Greece, HR Croatia, HU Hungary, IT Italy, IR Iran, IQ Iraq, , MK Macedonia, NL Netherlands, RS Serbia, SI Slovenia, SK Slovakia, TR Turkey, XK Kosovo.

**Appendix Table 2.** Cases of toxigenic cutaneous infections caused by *Corynebacterium diphtheria* published over the past 65 years

Reference number	Detected isolates of .... in skin infections						
	toxigenic <i>C. diphtheria</i> (CD)	any CD	<i>C. ulcerans</i>	<i>C. paratuberculosis</i>	MSSA	MRSA	<i>S. pyogenes</i>
(1)	1	12	0	0	n/a	n/a	n/a
(2)	1	1	0	0	1	0	0
(3)	3	3	0	0	1	0	1
(4)	2	2	1	0	2	0	2
(5)	1	1	0	0	0	0	0
(6)	6	13	0	0	n/a	n/a	n/a
(7)	14	18	5	0	n/a	n/a	n/a
(8)	1	1	0	0	0	1	1
(9)	4	4	0	0	1	0	2
(10)	2	2	0	0	0	0	2
(11)	2	1	0	0	1	0	0
(12)	3	3	0	0	2	0	1
(13)	0	1	0	0	1	0	1
(14)	2	1	0	0	n/a	n/a	n/a
(15)	1	1	0	0	1	0	1
(16)	0	1	0	0	n/a	n/a	n/a
(17)	0	1	0	0	0	1	0
(18)	0	1	0	0	1	0	1
(19)	10	20	0	0	9	4	15
(20)	1	1	0	0	n/a	n/a	n/a
(21)	1	1	0	0	0	0	0
(22)	0	1	0	0	0	0	0
(23)	1	1	0	0	0	0	1
(24)	0	0	1	0	0	0	0
(25)	0	0	1	0	0	0	0
(26)	0	1	0	0	0	0	0
(27)	0	1	0	0	1	0	0
(28)	0	1	0	0	0	0	0
(29)	1	72	0	0	32	3	61
(30)	0	0	1	0	0	0	1
(31)	1	1	0	0	0	0	1
(32)	0	0	1	0	0	0	0
(33)	0	1	0	0	0	0	0
(34)	0	32	0	0	17	7	22
(35)	1	1	0	0	1	0	1
(36)	0	33	0	0	18	3	21
(37)	0	0	1	0	n/a	n/a	n/a
(38)	0	1	0	0	0	0	0
(39)	1	5	0	0	n/a	n/a	n/a
(40)	6	6	0	0	4	0	4
(41)	0	1	0	0	1	0	n/a
(42)	3	3	0	0	2	0	1
(43)	0	1	0	0	n/a	n/a	n/a
(44)	0	0	1	0	1	0	0
(45)	0	10	0	0	7	0	6
(46)	0	1	0	0	0	0	0
(47)	1	1	0	0	1	0	1
(48)	1	1	0	0	1	0	0
(49)	0	5	0	0	4	0	3
(50)	1	1	0	0	0	0	1
<b>TOTAL</b>	<b>72</b>	<b>270</b>	<b>12</b>	<b>0</b>	<b>110</b>	<b>19</b>	<b>151</b>

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