

## **Supplementary Data**

### **MDRO risk factors and MDRO carriage in children, collected at time of hospital admission, AKK Hamburg, Germany, 2018-2019**

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**Table S1.** MDRO risk factors and MDRO carriage in children, collected at time of hospital admission, AKK Hamburg, Germany, 2018-2019 – part 1

N	Risk factor	MDRO negative n = 3685		MDRO positive n = 166		Missing n = 113	Total n = 3964	
		(n)	(%)	(n)	(%)	(n)	(n)	(%)
<b>1.</b>	<b>History of MRSA</b>							
	No	3655	99.2	159	95.8	111	3925	99.0
	Yes	30	0.8	7	4.2	2	39	1.0
<b>1.1.</b>	<b>Localization of MRSA</b>							
	Nasal/throat	16	N/A	4	N/A	0	20	N/A
	Wound	2	N/A	1	N/A	0	3	N/A
	Other	2	N/A	0	N/A	0	2	N/A
	Missing	3665	99.5	161	97.0	113	3939	99.4
<b>2.</b>	<b>History of MRGN</b>							
	No	3642	98.8	139	83.7	112	3893	98.2
	Yes	43	1.2	27	16.3	1	71	1.8
<b>2.1.</b>	<b>Localization of MRGN</b>							
	Anal/rectal/stool	3642	98.8	139	83.7	112	3893	98.2
	Wound	26	N/A	16	N/A	0	42	N/A
	Urine	1	N/A	3	N/A	1	5	N/A
	Other	11	N/A	4	N/A	0	15	N/A
	Missing	5	0.1	4	2.4	0	9	0.2
<b>3.</b>	<b>History of VRE</b>							
	No	3684	100	166	100	113	3963	100
	Yes	1	0.0	0	0.0	0	1	0.0
<b>3.1.</b>	<b>Localization of VRE</b>							
	Anal/rectal/stool	1	N/A	0	N/A	0	1	N/A
	Missing	3684	100.0	166	100	113	3963	100
<b>4.</b>	<b>Hospital stay within the previous 12 months</b>							
	No	2656	72.1	99	59.6	59	2814	71.0
	Yes	1022	27.7	66	39.8	54	1142	28.8
	Missing	7	0.2	1	0.6	0	8	0.2
<b>4.1.</b>	<b>Number</b>							
	1	679	18.4	30	18.1	27	736	18.6
	>1	242	6.6	28	16.9	11	281	7.1
	Missing	2764	75.0	108	65.1	75	2947	74.3
<b>4.2.</b>	<b>Duration (in days)</b>							
	0-3	412	11.2	24	14.5	24	460	11.6
	4-5	190	5.2	5	3.0	8	203	5.1
	6-10	131	3.6	11	6.6	7	149	3.8
	11-20	65	1.8	5	3.0	2	72	1.8
	>20	122	3.3	11	6.6	5	138	3.5
	Missing	2765	75.0	110	66.3	67	2942	74.2
<b>5.</b>	<b>Treatment in dialysis department</b>							
	No	3681	99.9	166	100	112	3959	99.9
	Yes	4	0.1	0	0.0	1	5	0.1
<b>6.</b>	<b>Parents working with living stock</b>							
	No	3507	95.2	158	95.2	113	3778	95.3
	Yes	48	1.3	1	0.6	0	49	1.2
	Missing	130	3.5	7	4.2	0	137	3.5
<b>7.</b>	<b>Living in a care facility</b>							
	No	3661	99.3	161	97.0	110	3932	99.2
	Yes	23	0.6	5	3.0	3	31	0.8
	Missing	1	0.0	0	0.0	0	1	0.0
<b>8.</b>	<b>In-home nursing care</b>							
	No	3625	98.4	151	91.0	111	3887	98.1
	Yes	60	1.6	14	8.4	2	76	1.9
	Missing	0	0.0	1	0.6	0	1	0.0
<b>9.</b>	<b>Attending a healthcare facility abroad within the previous 12 months</b>							
	No	3601	97.7	162	97.6	111	3874	97.7
	Yes	84	2.3	4	2.4	2	90	2.3
<b>9.1.</b>	<b>Number</b>							
	1	47	N/A	4	N/A	2	53	N/A
	>1	10	N/A	0	N/A	0	10	N/A
	Missing	3628	98.5	162	97.6	111	3901	98.4
<b>9.2.</b>	<b>Duration (in days)</b>							
	0-3	37	N/A	2	N/A	1	40	N/A
	4-5	8	N/A	0	N/A	0	8	N/A
	6-10	5	N/A	1	N/A	1	7	N/A
	11-20	2	N/A	1	N/A	0	3	N/A
	>20	2	N/A	0	N/A	0	2	N/A
	Missing	3631	98.5	162	97.6	111	3904	98.5

Abbreviations: AKK, Altona Children's Hospital; ICU, intensive care unit; MDRO, multi-drug-resistant organisms; MRGN, multi-drug-resistant gram-negative bacteria; MRSA, methicillin-resistant *Staphylococcus aureus*; n., number; N/A, not applicable; PEG, percutaneous endoscopic gastrostomy; VRE, vancomycin-resistant enterococcus. Percentages may not total 100 due to rounding. Missing, questions not answered. Results are based on 3851 observations.

**Table S2.** MDRO risk factors and MDRO carriage in children, collected at time of hospital admission, AKK Hamburg, Germany, 2018-2019 -part 2

N	Risk factor	MDRO negative n = 3685		MDRO positive n = 166		Missing n = 113	Total n = 3964	
		(n)	(%)	(n)	(%)	(n)	(n)	(%)
<b>9.</b>	<b>Attending a healthcare facility abroad within the previous 12 months</b>							
<b>9.3.</b>	<b>Continent</b>							
	Africa	5	N/A	0	N/A	0	5	N/A
	Asia	5	N/A	1	N/A	0	6	N/A
	Europe	42	N/A	1	N/A	2	45	N/A
	Eastern Europe	9	N/A	1	N/A	0	10	N/A
	Southern Europe	9	N/A	1	N/A	0	10	N/A
	North America	3	N/A	0	N/A	0	3	N/A
	South America	1	N/A	0	N/A	0	1	N/A
	Middle East	5	N/A	0	N/A	0	5	N/A
	Australia/New Zealand	2	N/A	0	N/A	0	2	N/A
	Missing	3604	97.8	162	97.6	111	3877	97.8
<b>10.</b>	<b>Treatment in ICU for more than seven days within the previous 12 months</b>							
	No	3580	97.2	151	91.0	113	3844	97.0
	Yes	100	2.7	14	8.4	0	114	2.9
	Missing	5	0.1	1	0.6	0	6	0.2
<b>11.</b>	<b>Contact with a treated family member in ICU for more than seven days within the previous 12 months</b>							
	No	3366	91.3	148	89.2	113	3627	91.5
	Yes	52	1.4	0	0.0	0	52	1.3
	Missing	267	7.2	18	10.8	0	285	7.2
<b>12.</b>	<b>Having a pet</b>							
	No	2303	62.5	104	62.7	71	2478	62.5
	Yes	1123	30.5	50	30.1	33	1206	30.4
	Missing	259	7.0	12	7.2	9	280	7.1
<b>13.</b>	<b>Breastfeeding during the last 12 months</b>							
	No	2894	78.5	113	68.1	105	3112	78.5
	Yes	760	20.6	51	30.7	8	819	20.7
	Missing	31	0.8	2	1.2	0	33	0.8
<b>14.</b>	<b>Known contact with a MDRO carrier</b>							
	No	3659	99.3	164	98.8	113	3936	99.3
	Yes	26	0.7	2	1.2	0	28	0.7
<b>15.</b>	<b>Background with known high MRSA prevalence</b>							
	No	3614	98.1	158	95.2	109	3881	97.9
	Yes	71	1.9	8	4.8	4	83	2.1
<b>16.</b>	<b>Abroad for &gt; six weeks within the previous six months</b>							
	No	3554	96.4	161	97.0	109	3824	96.5
	Yes	113	3.1	4	2.4	3	120	3.0
	Missing	18	0.5	1	0.6	1	20	0.5
<b>17.</b>	<b>Refugee status within the previous 12 months</b>							
	No	3656	99.2	161	97.0	113	3930	99.1
	Yes	25	0.7	2	1.2	0	27	0.7
	Missing	4	0.1	3	1.8	0	7	0.2
<b>17.1</b>	<b>Moving in within the previous three months</b>							
	No	3674	99.7	163	98.2	113	3950	99.6
	Yes	6	0.2	0	0.0	0	6	0.2
	Missing	5	0.1	3	1.8	0	8	0.2
<b>17.2</b>	<b>Staying at a community center within the previous three months</b>							
	No	3668	99.5	162	97.6	113	3943	99.5
	Yes	11	0.3	1	0.6	0	12	0.3
	Missing	6	0.2	3	1.8	0	9	0.2
<b>18.</b>	<b>Chronic skin disease</b>							
	No	3529	95.8	158	95.2	110	3797	95.8
	Yes	155	4.2	8	4.8	3	166	4.2
	Missing	1	0.0	0	0.0	0	1	0.0
<b>18.1.</b>	<b>Type</b>							
	Chronic wound	8	N/A	2	N/A	0	10	N/A
	Ulcer	3	N/A	0	N/A	0	3	N/A
	Deep soft tissue infection	7	N/A	1	N/A	0	8	N/A
	Neurodermatitis	102	2.8	4	2.4	2	108	2.7
	Other	29	N/A	1	N/A	1	31	N/A
	Missing	3536	96.0	158	95.2	110	3804	96.0
<b>19.</b>	<b>Chronic condition requiring permanent care</b>							
	No	3512	95.3	136	81.9	97	3745	94.5
	Yes	170	4.6	29	17.5	16	215	5.4
	Missing	3	0.1	1	0.6	0	4	0.1

Abbreviations: AKK, Altona Children's Hospital; ICU, intensive care unit; MDRO, multi-drug-resistant organisms; MRGN, multi-drug-resistant gram-negative bacteria; MRSA, methicillin-resistant Staphylococcus aureus; n., number; N/A, not applicable; PEG, percutaneous endoscopic gastrostomy; VRE, vancomycin-resistant enterococcus. Percentages may not total 100 due to rounding. Missing, questions not answered. Results are based on 3851 observations.

**Table S3.** MDRO risk factors and MDRO carriage in children, collected at time of hospital admission, AKK Hamburg, Germany, 2018-2019 -part 3

N	Risk factor	MDRO negative n = 3685		MDRO positive n = 166		Missing n = 113	Total n = 3964	
		(n)	(%)	(n)	(%)	(n)	(n)	(%)
<b>20.</b>	<b>Antibiotic therapy within the previous 6 months</b>							
	No	2961	80.4	104	62.7	89	3154	79.6
	Yes	590	16.0	51	30.7	19	660	16.6
	Missing	134	3.6	11	6.6	5	150	3.8
<b>20.1.</b>	<b>Oral continuous prophylaxis</b>							
	No	3498	94.9	151	91.0	105	3754	94.7
	Yes	36	N/A	4	N/A	3	43	N/A
	Missing	151	4.1	11	6.6	5	167	4.2
<b>20.2.</b>	<b>Number of oral therapies</b>							
	None	3047	82.7	113	68.1	95	3255	82.1
	1	314	8.5	25	15.1	9	348	8.8
	2-3	102	2.8	10	6.0	0	112	2.8
	>3	40	N/A	4	N/A	0	44	N/A
	Missing	182	4.9	14	8.4	9	205	5.2
<b>20.3.</b>	<b>Number of intravenous therapies</b>							
	None	3406	92.4	139	83.7	101	3646	92.0
	1	56	1.5	6	3.6	1	63	1.6
	2-3	25	N/A	2	N/A	0	27	N/A
	>3	15	N/A	5	N/A	2	22	N/A
	Missing	183	5.0	14	8.4	9	206	5.2
<b>20.4.</b>	<b>Duration of treatment (days)</b>							
	≤7	215	5.8	17	10.2	6	238	6.0
	>7	164	4.5	18	10.8	6	188	4.7
	Missing	3306	89.7	131	78.9	101	3538	89.3
<b>21.</b>	<b>Indwelling catheter or stoma</b>							
	No	3565	96.7	145	87.3	108	3818	96.3
	Yes	120	3.3	21	12.7	5	146	3.7
<b>21.1.</b>	<b>Type</b>							
	Gastrostomy/PEG/Anus praeter	33	N/A	8	N/A	1	42	N/A
	Tracheostomy	13	N/A	5	N/A	0	18	N/A
	Central venous catheter/ Broviac catheter/ Port	10	N/A	1	N/A	2	13	N/A
	Transurethral/ suprapubic catheter	3	N/A	0	N/A	0	3	N/A
	Baclofen pump	3	N/A	3	N/A	0	6	N/A
	Ventriculoperitoneal/ventriculo-atrial shunt	23	N/A	3	N/A	2	28	N/A
	Insulin pump	31	N/A	1	N/A	0	32	N/A
	Missing	3569	96.9	145	87.3	108	3822	96.4
<b>22.</b>	<b>Major surgery within the previous 12 months</b>							
	No	3480	94.4	154	92.8	83	3717	93.8
	Yes	199	5.4	12	7.2	25	236	6.0
	Missing	6	0.2	0	0.0	5	11	0.3
<b>22.1.</b>	<b>Localization</b>							
	Vessel	9	N/A	0	N/A	0	9	N/A
	Heart	4	N/A	2	N/A	1	7	N/A
	Bone	117	3.2	3	1.8	23	143	3.6
	Abdomen	50	N/A	7	N/A	1	58	N/A
	Missing	3505	95.1	154	92.8	88	3747	94.5
<b>23.</b>	<b>Urogenital anomalies or recurrent urological infections</b>							
	No	3564	96.7	157	94.6	110	3831	96.6
	Yes	119	3.2	9	5.4	2	130	3.3
	Missing	2	0.1	0	0.0	1	3	0.1
<b>24.</b>	<b>Family member working in healthcare facilities with regular patient contact</b>							
	No	2809	76.2	136	81.9	91	3036	76.6
	Yes	507	13.8	15	9.0	18	540	13.6
	Missing	369	10.0	15	9.0	4	388	9.8
<b>24.1.</b>	<b>Place</b>							
	Hospital	158	4.3	6	3.6	8	172	4.3
	ICU	17	N/A	0	N/A	0	17	N/A
	Doctor's office	129	3.5	4	2.4	4	137	3.5
	Nursing home	83	2.3	3	1.8	4	90	2.3
	Other	81	2.2	1	0.6	1	83	2.1
	Missing	3217	87.3	152	91.6	96	3465	87.4
<b>25.</b>	<b>Stay at a neonatology unit for more than seven days within the previous 12 months</b>							
	No	3552	96.4	149	89.8	113	3814	96.2
	Yes	131	3.6	16	9.6	0	147	3.7
	Missing	2	0.1	1	0.6	0	3	0.1

Abbreviations: AKK, Altona Children's Hospital; ICU, intensive care unit; MDRO, multi-drug-resistant organisms; MRGN, multi-drug-resistant gram-negative bacteria; MRSA, methicillin-resistant Staphylococcus aureus; n., number; N/A, not applicable; PEG, percutaneous endoscopic gastrostomy; VRE, vancomycin-resistant enterococcus. Percentages may not total 100 due to rounding. Missing, questions not answered. Results are based on 3851 observations.