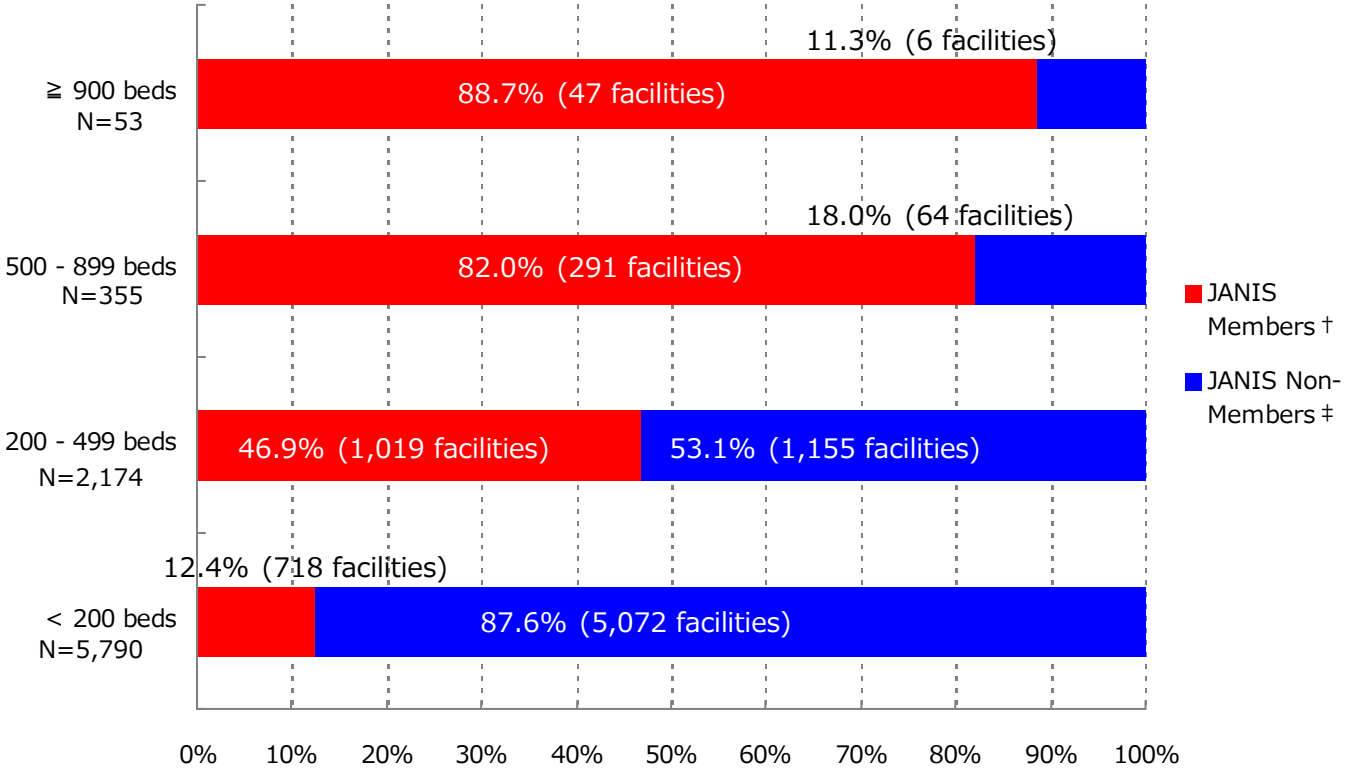
Annual Open Report 2019 (All Facilities)

Japan Nosocomial Infections Surveillance (JANIS)【CLSI2012 Version】

Clinical Laboratory Division

1. Number of Data-submitting Facilities* (2,075 facilities)



*Data-submitting Facilities indicate facilities included in Annual Open Report 2019.

†Number of JANIS Members = Number of facilities included in Annual Open Report 2019.

‡Number of JANIS Non-members = (Number of facilities nationwide in 2018¶) − (Number of facilities included in Annual Open Report 2019)

Number of beds	Number of facilities nationwide in 2018¶	Number of Facilities Included in Annual Open Report 2019 (percentage of facilities nationwide)
≧ 900 beds	53	47 (88.7%)
500 - 899 bed	355	291 (82.0%)
200 - 499 bed	2,174	1,019 (46.9%)
< 200 beds	5,790	718 (12.4%)
Unknown	-	0 (-)
Total	8,372	2,075 (24.8%)

¶Data of medical facilities is referred to Vital Statistics 2018.

This Open Report does not cover every data from facilities nationwide.

Date of Total Tabulation : April 06, 2020

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2. Number of Data-submitting Facilities, Specimens and Isolates Counted by Specimen Source

Specimen Sources	Number of facilities included in Annual Open Report 2019	Number of Specimens	Number of culture-positive specimens (Number of isolates)
Respiratory	2,074	2,231,419	1,373,039 (2,819,895)
Urine	2,072	1,145,879	635,346 (963,161)
Feces	2,053	597,171	247,660 (464,878)
Blood	2,064	2,938,267	375,374 (419,773)
Cerebrospinal fluid	1,491	85,785	3,765 (4,067)
Others	2,068	1,417,965	646,677 (1,144,029)
Total	2,075	8,416,486	3,281,861 (5,815,803)

Inpatient specimens are counted.
All isolated bacteria except Isolated Bacterial Code 9999 (comments only) are counted.
Each specimen includes corresponding specimen source codes as below.
Respiratory : 101 (Sputum), 102 (Endotracheal aspirate), 103 (Bronchoalveolar lavage), 104 (Throat), 105 (Nasal), 106 (Oral), 107 (Lung biopsy), 109 (Other Respiratory) and 404 (Pleural effusion)
Urinary : 201 (Urine), 202 (Urine collected by catheter), 203 (Urine obtained from indwelling catheter) and 206 (Catheterized urine)
Feces : 301 (Feces)
Blood : 401 (Venous blood) and 402 (Arterial blood)
Cerebrospinal fluid : 403 (Cerebrospinal fluid)
Others : Specimen codes not indicated above
Specimen Source Code : https://janis.mhlw.go.jp/section/kensa.html

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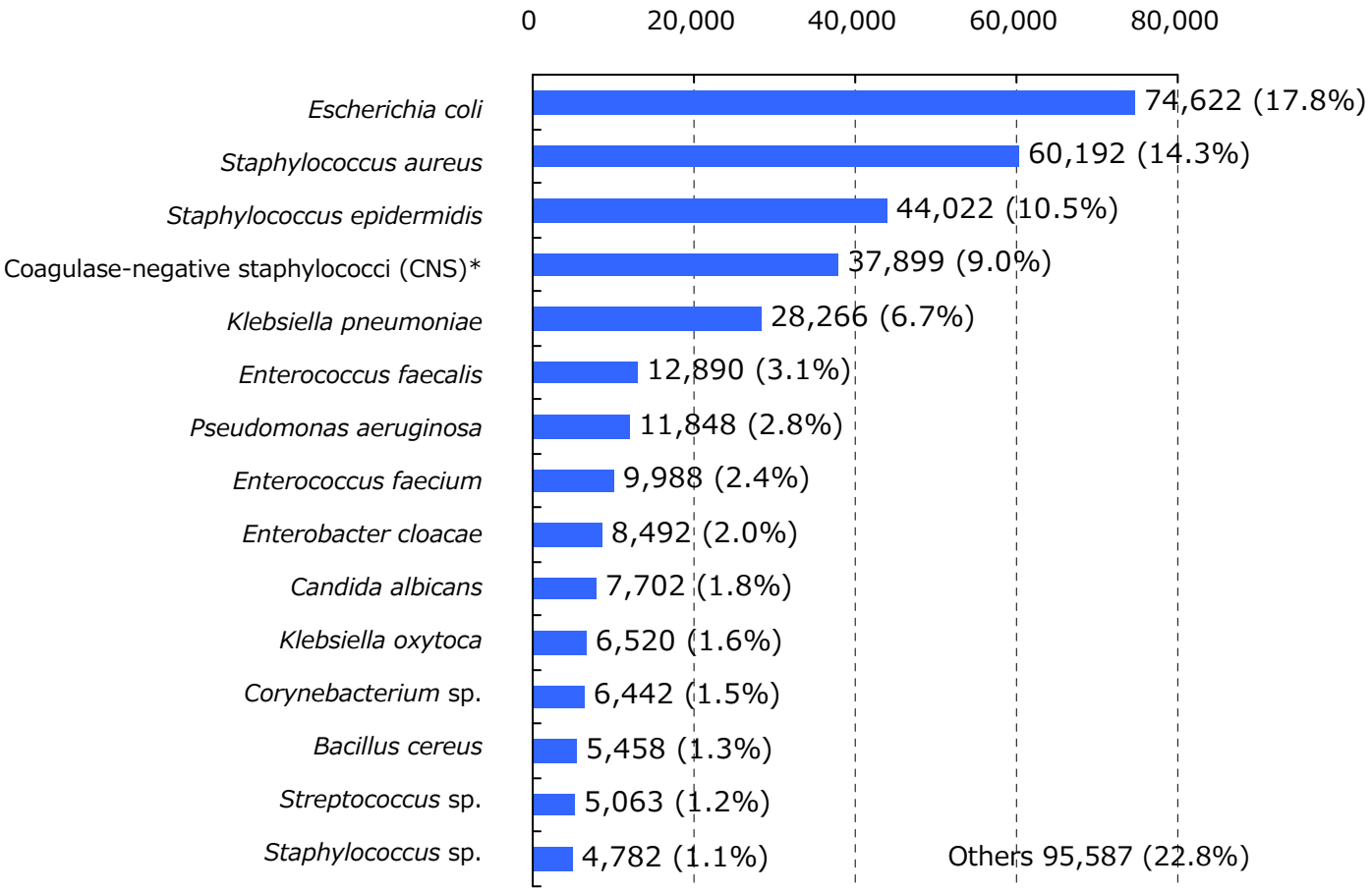
3. Isolated Bacteria from Blood Specimens

Blood Isolates (N=419,773)



*Coagulase-negative staphylococci correspond to Isolated Bacterial Codes 1311, 1313-1325 (except Code 1312,*Staphylococcus epidermidis*)

All inpatient speciments are counted (contaminants are not excluded).
Others include Isolated Bacterial Code 9998 (other species) and bacteria ranked 16th and lower.
All isolated bacteria except Bacterial Code 9999 (comments only) are counted.
Specimen reported as Specimen Source Code 401 (venous blood) and Code 402 (arterial blood) are counted.
Percentage of Corresponding Blood Isolates =
(Number of Corresponding Blood Isolates) / (Total Number of Blood Isolates) x 100
Isolated Bacterial Code : https://janis.mhlw.go.jp/section/kensa.html
Specimen Source Code : https://janis.mhlw.go.jp/section/kensa.html

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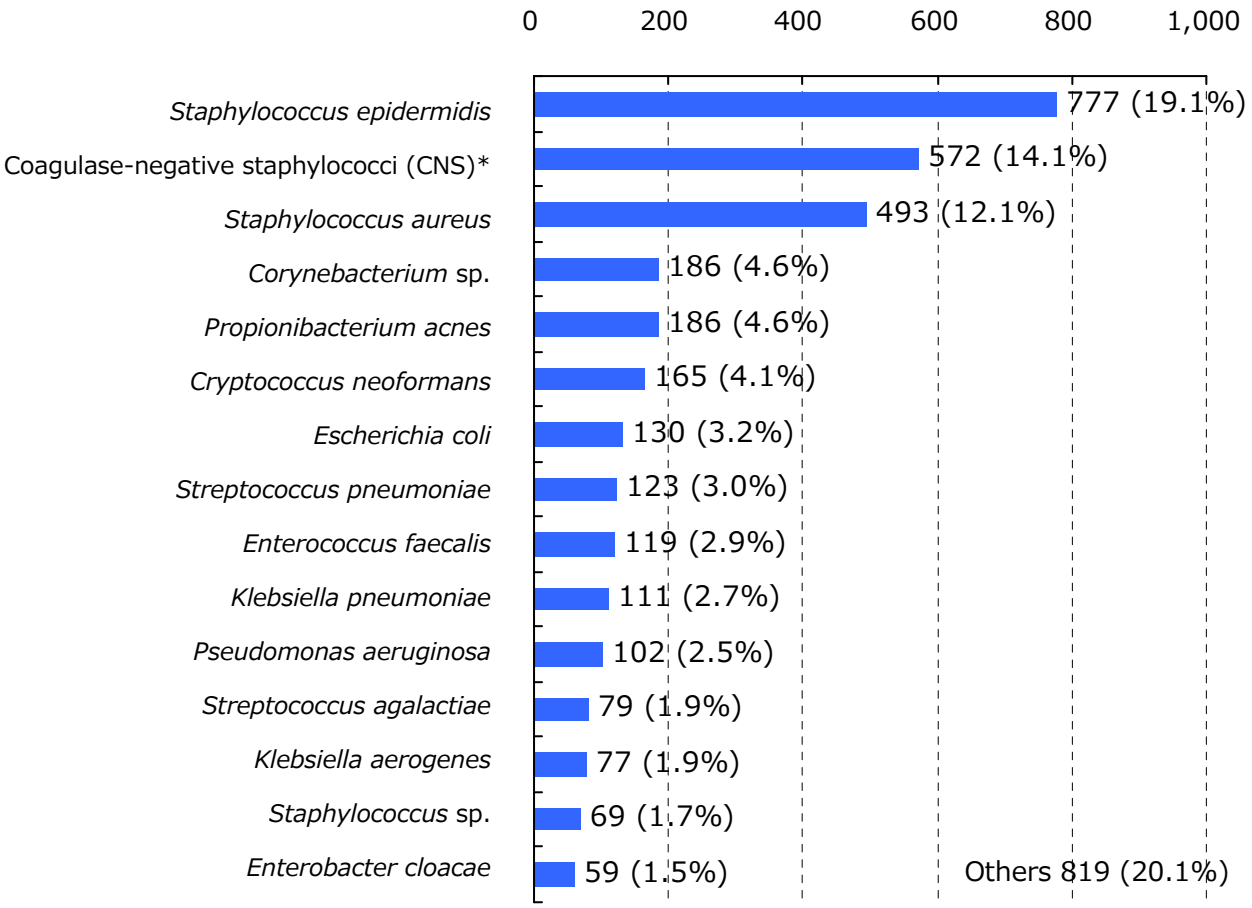
3. Isolated Bacteria from Cerebrospinal Fluid Specimens

Cerebrospinal Fluid Isolates (N=4,067)



*Coagulase-negative staphylococci correspond to Isolated Bacterial Codes 1311, 1313-1325 (except Code 1312,*Staphylococcus epidermidis*)

All inpatient speciments are counted (contaminants are not excluded).
Others include Isolated Bacterial Code 9998 (other species) and bacteria ranked 16th and lower.
All isolated bacteria except Bacterial Code 9999 (comments only) are counted.
Specimen reported as Specimen Source Code 403 (Cerebrospinal Fluid Samples) are counted.
Percentage of Corresponding Cerebrospinal Fluid Isolates =
(Number of Corresponding Cerebrospinal Fluid Isolates) / (Total Number of Cerebrospinal Fluid Isolates) x 100
Isolated Bacterial Code : https://janis.mhlw.go.jp/section/kensa.html
Specimen Source Code : https://janis.mhlw.go.jp/section/kensa.html

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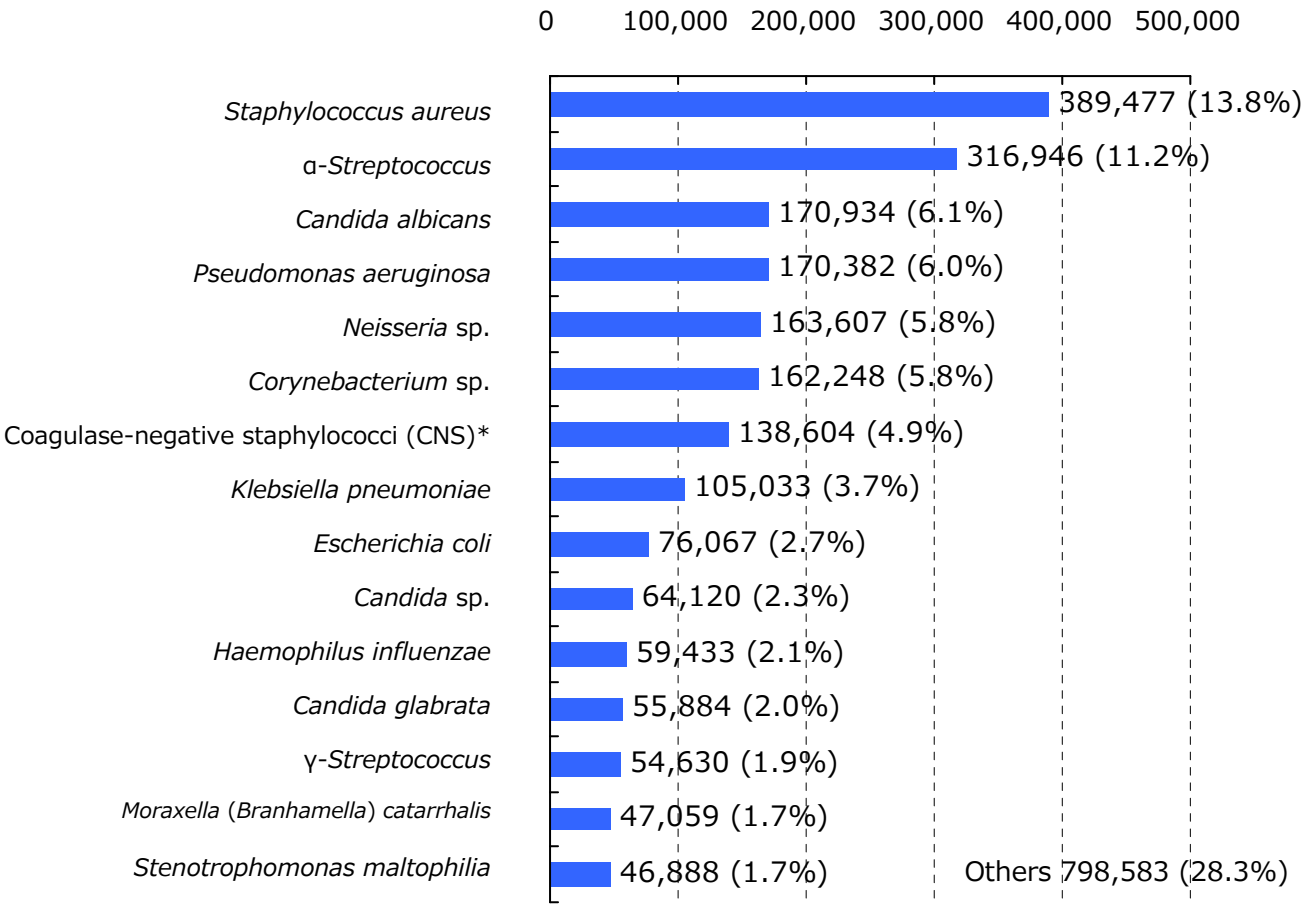
3. Isolated Bacteria from Respiratory Specimens

Respiratory Isolates (N=2,819,895)



*Coagulase-negative staphylococci correspond to Isolated Bacterial Codes 1311, 1313-1325 (except Code 1312,*Staphylococcus epidermidis*)

All inpatient speciments are counted (including commensals).
Others include Isolated Bacterial Code 9998 (other species) and bacteria ranked 16th and lower.
All isolated bacteria except Bacterial Code 9999 (comments only) are counted.
Specimen reported as Specimen Source Code 101 (Sputum) and Code 102 (Endotracheal aspirate) and Code 103 (Bronchoalveolar lavage) and Code 104 (Throat) and Code 105 (Nasal) and Code 106 (Oral) and Code 107 (Lung biopsy) and Code 109 (Other （Respiratory)) and Code 404 (Pleural effusion) are counted.
Percentage of Corresponding Respiratory Isolates =
(Number of Corresponding Respiratory Isolates) / (Total Number of Respiratory Isolates) x 100
Isolated Bacterial Code : https://janis.mhlw.go.jp/section/kensa.html
Specimen Source Code : https://janis.mhlw.go.jp/section/kensa.html

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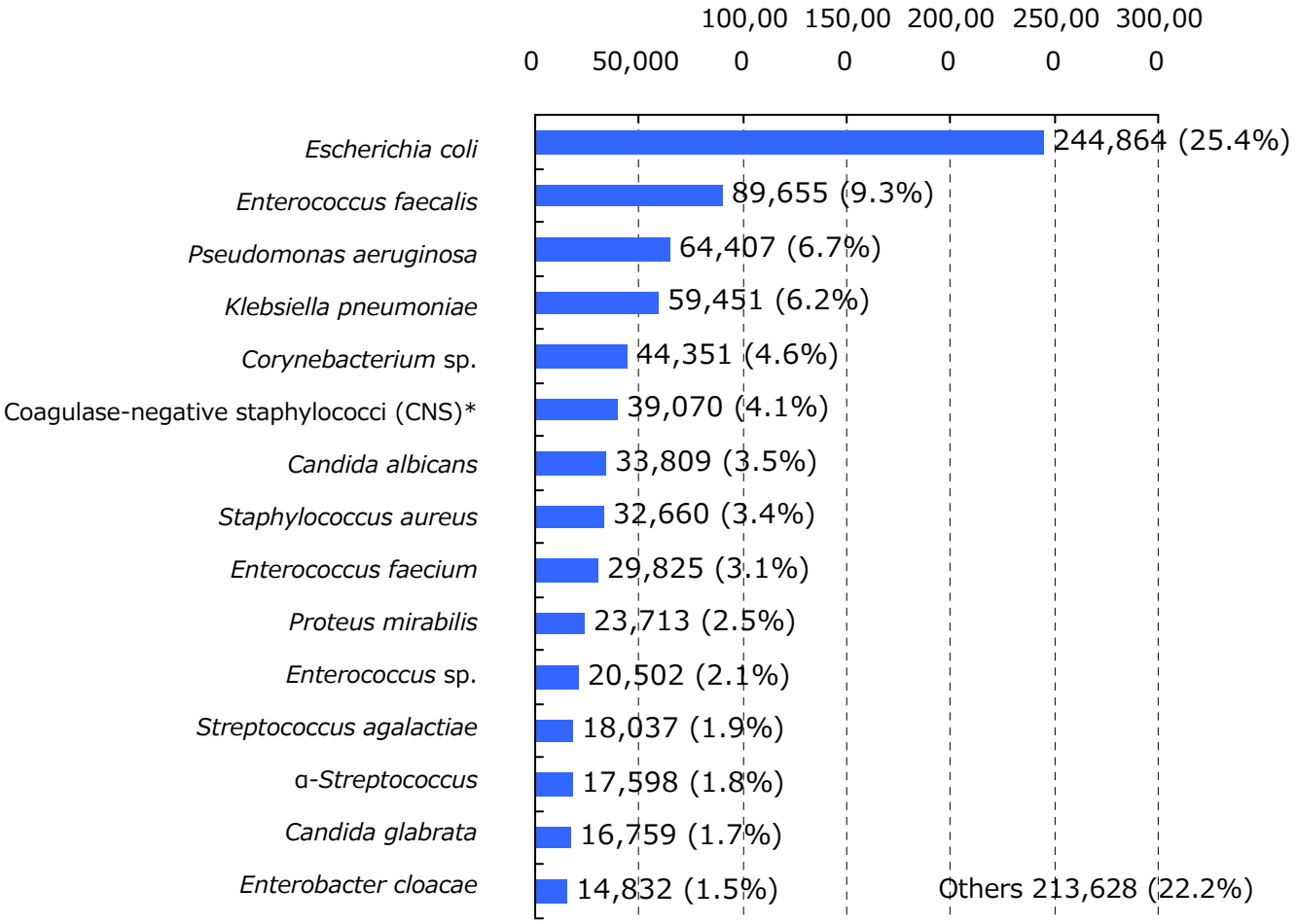
3. Isolated Bacteria from Urine Specimens

Urine Isolates (N=963,161)



*Coagulase-negative staphylococci correspond to Isolated Bacterial Codes 1311, 1313-1325 (except Code 1312,*Staphylococcus epidermidis*)

All inpatient speciments are counted (contaminants are not excluded).
Others include Isolated Bacterial Code 9998 (other species) and bacteria ranked 16th and lower.
All isolated bacteria except Bacterial Code 9999 (comments only) are counted.
Specimen reported as Specimen Source Code 201 (Urine) and Code 202 (Urine collected by catheter) and Code 203 (Urine obtained from indwelling catheter) and Code 206 (Catheterized urine) are counted.
Percentage of Corresponding Urine Isolates =
(Number of Corresponding Urine Isolates) / (Total Number of Urine Isolates) x 100
Isolated Bacterial Code : https://janis.mhlw.go.jp/section/kensa.html
Specimen Source Code : https://janis.mhlw.go.jp/section/kensa.html

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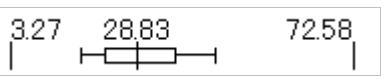
4. Number of Patients* and Isolation Rate of Major Bacteria

	Number of Patients (Total Isolation Rate ‡)					Distribution of Isolation Rates (%)¶ among Data-submitting Facilities †
	2015	2016	2017	2018	2019	
Number of Specimen-submitting Patients	2,551,541 cases	2,745,096 cases	2,818,296 cases (451.6)	2,891,652 cases (447.8)	2,972,343 cases (446.8)※	
S. aureus	349,743 cases (13.71%)	372,787 cases (13.58%)	383,006 cases (13.59%)	391,316 cases (13.53%)	400,094 cases (13.46%)	
S. epidermidis	99,594 cases (3.90%)	102,216 cases (3.72%)	101,567 cases (3.60%)	101,276 cases (3.50%)	99,317 cases (3.34%)	
S. pneumoniae	43,390 cases (1.70%)	42,708 cases (1.56%)	40,817 cases (1.45%)	39,194 cases (1.36%)	36,858 cases (1.24%)	
E. faecalis	130,647 cases (5.12%)	139,873 cases (5.10%)	142,142 cases (5.04%)	145,286 cases (5.02%)	148,000 cases (4.98%)	
E. faecium	46,969 cases (1.84%)	51,558 cases (1.88%)	54,868 cases (1.95%)	56,809 cases (1.96%)	61,386 cases (2.07%)	
E. coli	322,142 cases (12.63%)	358,746 cases (13.07%)	380,098 cases (13.49%)	399,752 cases (13.82%)	412,498 cases (13.88%)	
K. pneumoniae	150,147 cases (5.88%)	169,073 cases (6.16%)	174,820 cases (6.20%)	182,983 cases (6.33%)	185,294 cases (6.23%)	
Enterobacter spp.	96,837 cases (3.80%)	105,645 cases (3.85%)	108,433 cases (3.85%)	114,831 cases (3.97%)	116,131 cases (3.91%)	
Enterobacteriaceae	- -	- -	- -	746,255 cases (25.81%)	765,479 cases (25.75%)	
P. aeruginosa	163,631 cases (6.41%)	180,065 cases (6.56%)	184,472 cases (6.55%)	187,958 cases (6.50%)	194,895 cases (6.56%)	
Acinetobacter spp.	30,277 cases (1.19%)	32,270 cases (1.18%)	30,154 cases (1.07%)	30,903 cases (1.07%)	29,514 cases (0.99%)	

Inpatient specimens are counted.

*The number of duplicates within 30 days is not recounted for Patients with Major Bacteria and Specimen-submitting Patients (See Appendix).

‡Total Isolation Rate = (Total Number of Patients with Major Bacteria for Data-submitting Facilities) / (Total Number of Specimen-submitting Patients for Data-submitting Facilities) x 100

¶Isolation Rate = (Number of Patients with Major Bacteria for Each Facility) / (Number of Specimen-submitting Patients for Each Facility) x 100

†Data-submitting Facilities indicate facilities included in Annual Open Report 2019

This Open Report does not cover every data from facilities nationwide.

Date of Total Tabulation : April 06, 2020

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5. Number of Patients* and Isolation Rate of Specific AMR Bacteria

	Number of Patients (Total Isolation Rate ‡)					Distribution of Isolation Rates (%)¶ among Data-submitting Facilities †
	2015	2016	2017	2018	2019	
Number of Specimen-submitting Patients	2,551,541 cases	2,745,096 cases	2,818,296 cases (451.6)	2,891,652 cases (447.8)	2,972,343 cases (446.8)※	
Methicillin-resistant *Staphylococcus aureus*(MRSA)	169,528 cases (6.64%)	177,768 cases (6.48%)	182,619 cases (6.48%)	185,709 cases (6.42%)	192,320 cases (6.47%)	0.00 6.89 44.09
Vancomycin-resistant *Staphylococcus aureus*(VRSA)	0 cases (0.00%)	0 cases (0.00%)	0 cases (0.00%)	0 cases (0.00%)	0 cases (0.00%)	0.00
Vancomycin-resistant Enterococci(VRE)	465 cases (0.02%)	642 cases (0.02%)	684 cases (0.02%)	697 cases (0.02%)	1,176 cases (0.04%)	0.00 0.00 3.02
Penicillin-resistant *Streptococcus pneumoniae*(PRSP)	16,236 cases (0.64%)	15,608 cases (0.57%)	14,724 cases (0.52%)	14,139 cases (0.49%)	13,189 cases (0.44%)	0.00 0.23 16.92
Multidrug-resistant *Pseudomonas aeruginosa*(MDRP)	1,804 cases (0.07%)	1,655 cases (0.06%)	1,410 cases (0.05%)	1,082 cases (0.04%)	1,099 cases (0.04%)	0.00 0.00 3.62
Multidrug-resistant *Acinetobacter* spp.(MDRA)	143 cases (0.01%)	130 cases (0.00%)	80 cases (0.00%)	99 cases (0.00%)	98 cases (0.00%)	0.00 0.00 4.23
Carbapenem-resistant Enterobacteriaceae(CRE)	9,254 cases (0.36%)	7,827 cases (0.29%)	7,572 cases (0.27%)	9,304 cases (0.32%)	9,721 cases (0.33%)	0.00 0.05 5.60
Carbapenem-resistant *Pseudomonas aeruginosa*	21,487 cases (0.84%)	22,506 cases (0.82%)	21,668 cases (0.77%)	21,202 cases (0.73%)	21,704 cases (0.73%)	0.00 0.51 20.64
3rd Generation Cephalosporin-resistant *Klebsiella pneumoniae*	8,075 cases (0.32%)	9,931 cases (0.36%)	10,682 cases (0.38%)	14,858 cases (0.51%)	16,982 cases (0.57%)	0.00 0.33 18.55
3rd Generation Cephalosporin-resistant *Escherichia coli*	50,748 cases (1.99%)	60,034 cases (2.19%)	66,097 cases (2.35%)	92,653 cases (3.20%)	100,144 cases (3.37%)	0.00 3.51 36.44
Fluoroquinolone-resistant *Escherichia coli*	94,393 cases (3.70%)	109,766 cases (4.00%)	121,577 cases (4.31%)	133,170 cases (4.61%)	141,668 cases (4.77%)	0.00 5.30 42.37

Inpatient specimens with MIC Value reported by either the broth microdilution method or Etest are counted.

*The number of duplicates within 30 days is not recounted for the Patients with Specific AMR Bacteria and Specimen-submitting Patients (See Appendix).

‡Total Isolation Rate = (Total Number of Patients with Specific AMR Bacteria for Data-submitting Facilities) /(Total Number of Specimen-submitting Patients for Data-submitting Facilities) x 100

¶Isolation Rate = (Number of Patients with Specific AMR Bacteria for Each Facility) / (Number of Specimen-submittingPatients for Each Facility) x 100

†Data-submitting Facilities indicate facilities included in Annual Open Report 2019

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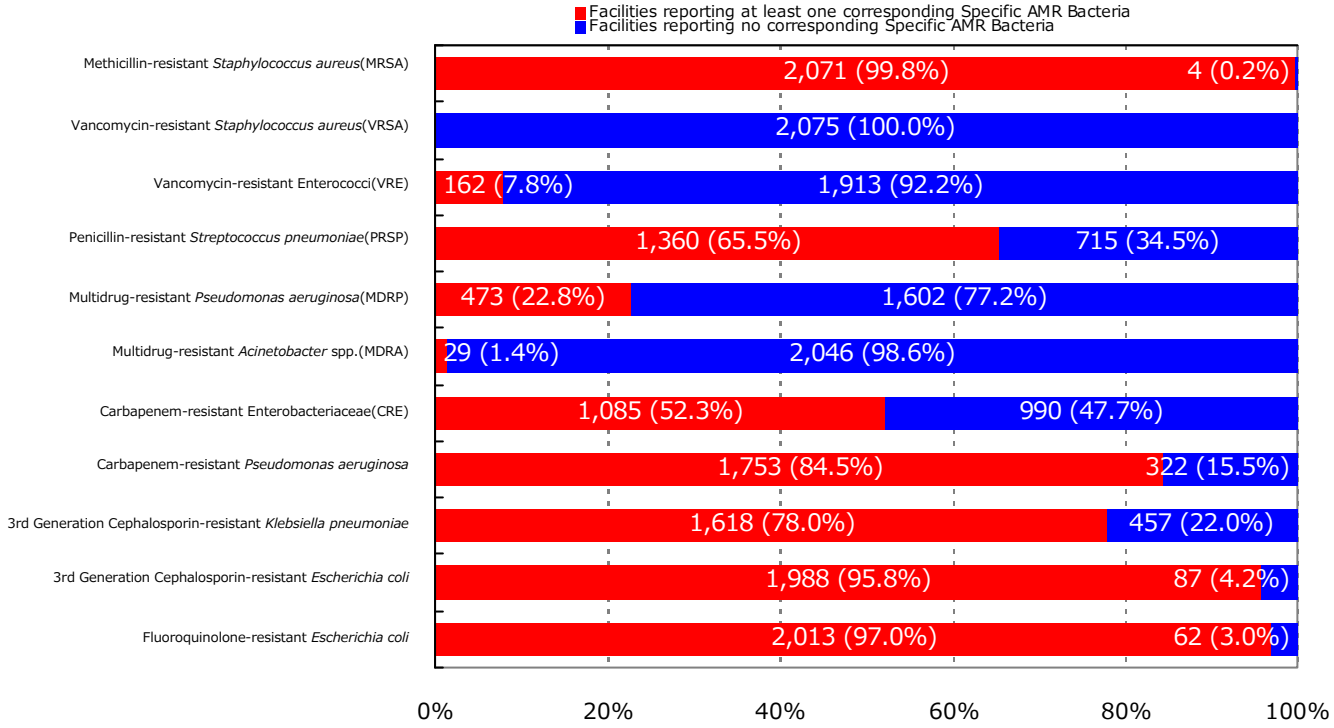
6. Percentage of Facilities Reporting Specific AMR Bacteria

Percentage of Facilities Reporting Specific AMR Bacteria in 2019 (N=2,075)



Percentage of Facilities Reporting Specific AMR Bacteria for the Past Five Years

	2015	2016	2017	2018	2019
Number of facilities included in Annual Open Report	1,435	1,653	1,795	1,947	2,075
Methicillin-resistant *Staphylococcus aureus*(MRSA)	100.0%	99.9%	99.9%	99.8%	99.8%
Vancomycin-resistant *Staphylococcus aureus*(VRSA)	0.0%	0.0%	0.0%	0.0%	0.0%
Vancomycin-resistant Enterococci(VRE)	7.2%	8.1%	8.7%	7.5%	7.8%
Penicillin-resistant *Streptococcus pneumoniae*(PRSP)	76.6%	73.9%	70.8%	67.8%	65.5%
Multidrug-resistant *Pseudomonas aeruginosa*(MDRP)	37.7%	30.2%	26.5%	22.2%	22.8%
Multidrug-resistant *Acinetobacter* spp.(MDRA)	2.6%	2.4%	1.6%	1.7%	1.4%
Carbapenem-resistant Enterobacteriaceae(CRE)	70.5%	63.0%	56.4%	55.2%	52.3%
Carbapenem-resistant *Pseudomonas aeruginosa*	89.3%	88.4%	86.5%	85.3%	84.5%
3rd Generation Cephalosporin-resistant *Klebsiella pneumoniae*	71.0%	69.7%	69.1%	78.6%	78.0%
3rd Generation Cephalosporin-resistant *Escherichia coli*	90.2%	88.9%	89.1%	96.1%	95.8%
Fluoroquinolone-resistant *Escherichia coli*	95.7%	96.3%	96.8%	96.9%	97.0%

Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted.
Percentage of Facilities Reporting Specific AMR Bacteria = (Number of Facilities Reporting at Least one Corresponding Specific AMR Bacteria) / (Number of Data-submitting Facilities)

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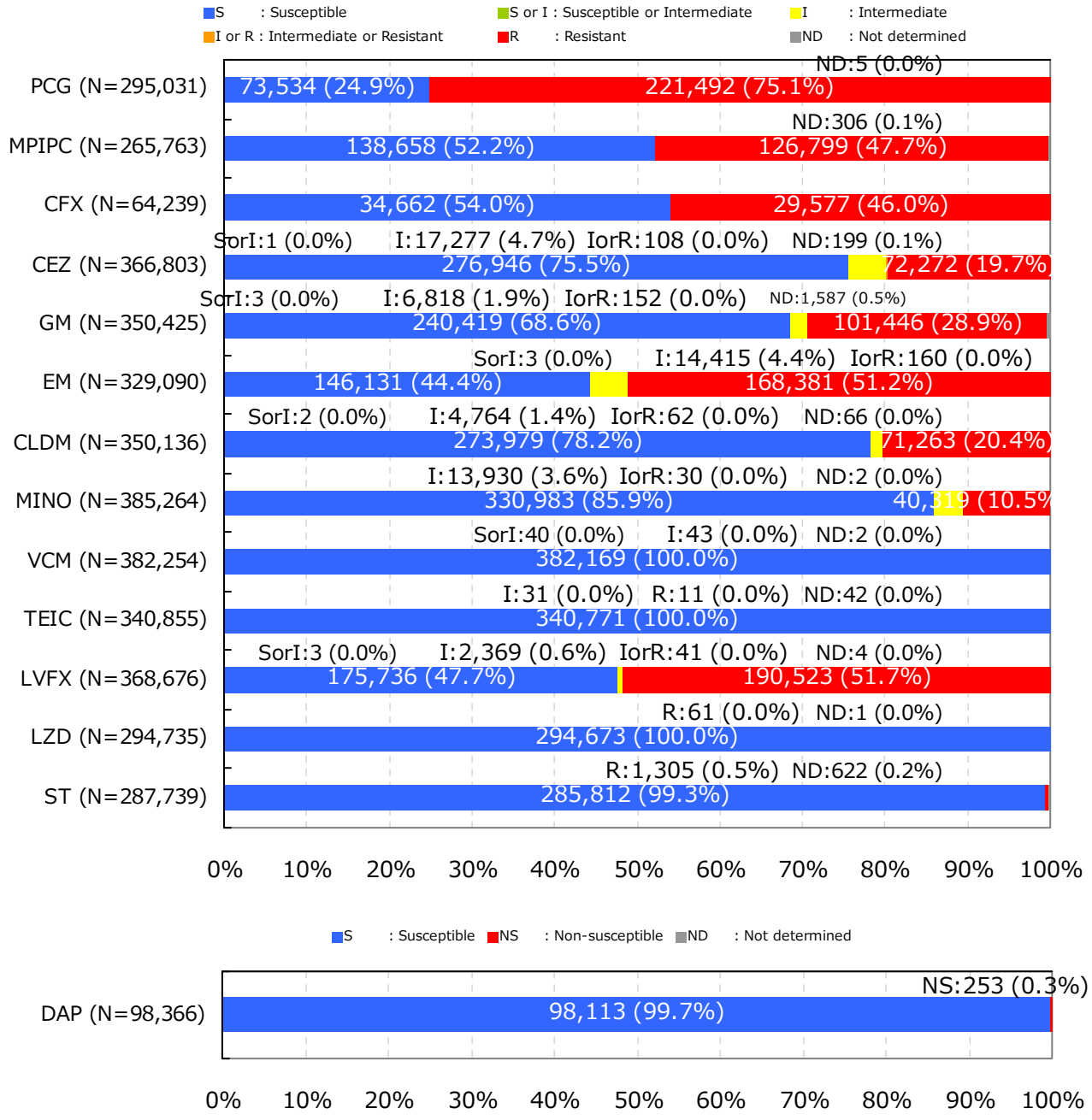
7. Antimicrobial Susceptibility of Major Bacteria*

Staphylococcus aureus (ALL) †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. aureus* corresponds to Isolated Bacterial Codes 1301 and 1303-1306.

Antibiogram is not created if the total number of isolates is less than 30.

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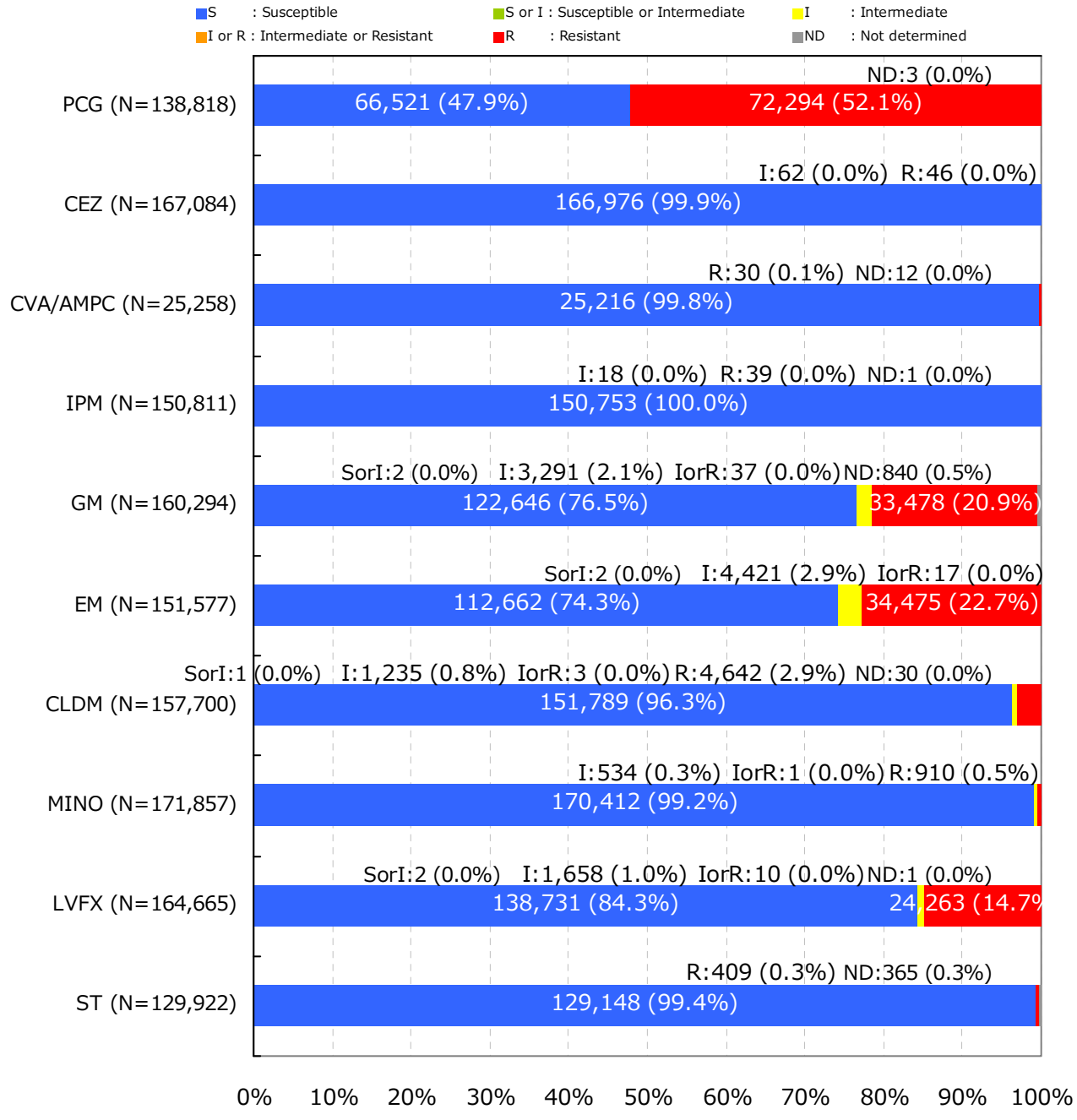
7. Antimicrobial Susceptibility of Major Bacteria*

Staphylococcus aureus (MSSA) †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. aureus* (MSSA) corresponds to Isolated Bacterial Codes 1304, 1305 and 1306; and also to Isolated Bacterial Code 1301 susceptible to Antimicrobial Code 1208 (Oxacillin) and 1606 (Cefoxitin).

Antibiogram is not created if the total number of isolates is less than 30.

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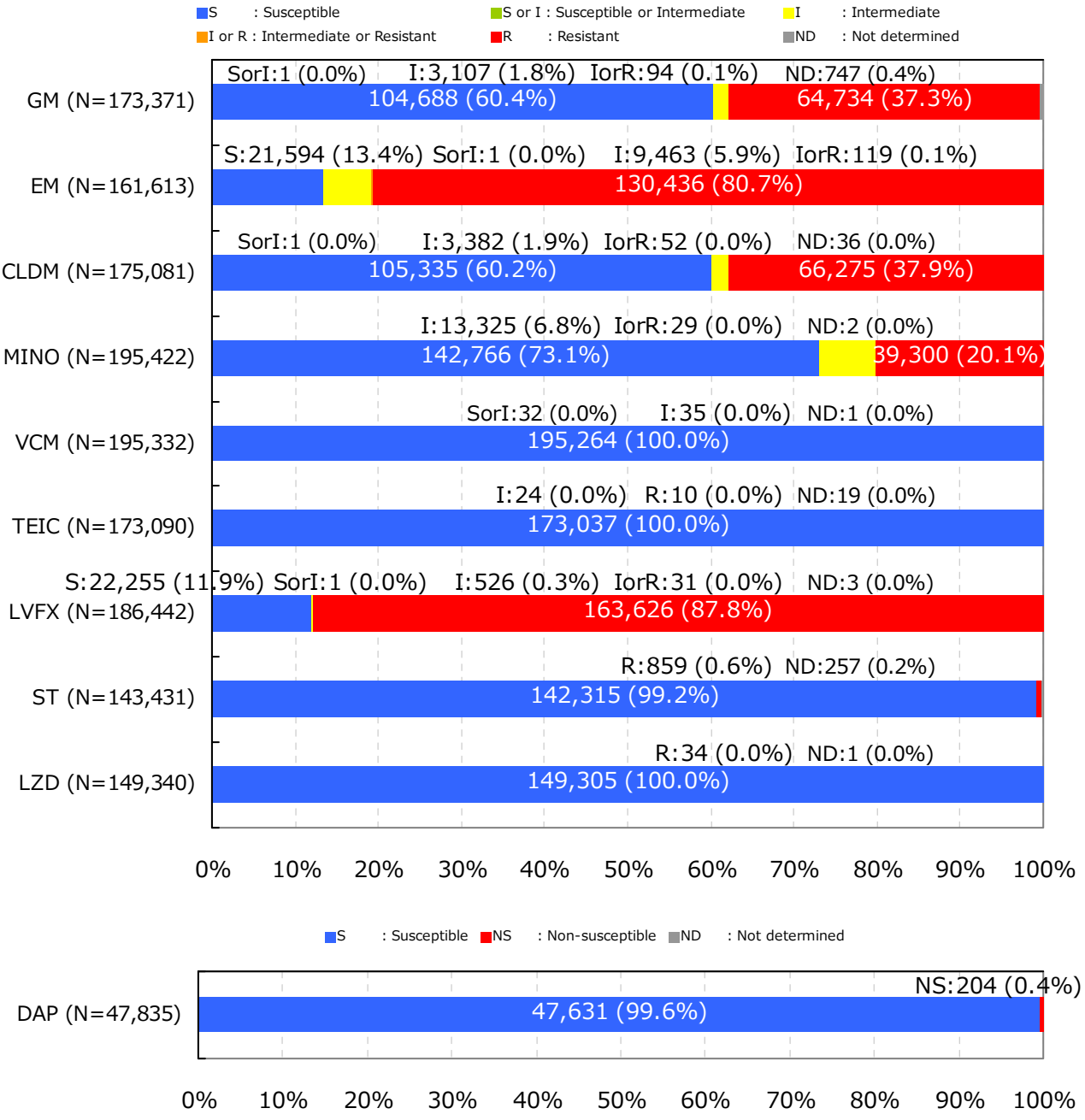
7. Antimicrobial Susceptibility of Major Bacteria*

Staphylococcus aureus (MRSA) †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. aureus* (MRSA) corresponds to Isolated Bacterial Codes 1303, and also to Isolated Bacterial Code 1301 Resistant to Antimicrobial Code 1208 (Oxacillin) or 1606 (Cefoxitin).

Antibiogram is not created if the total number of isolates is less than 30.

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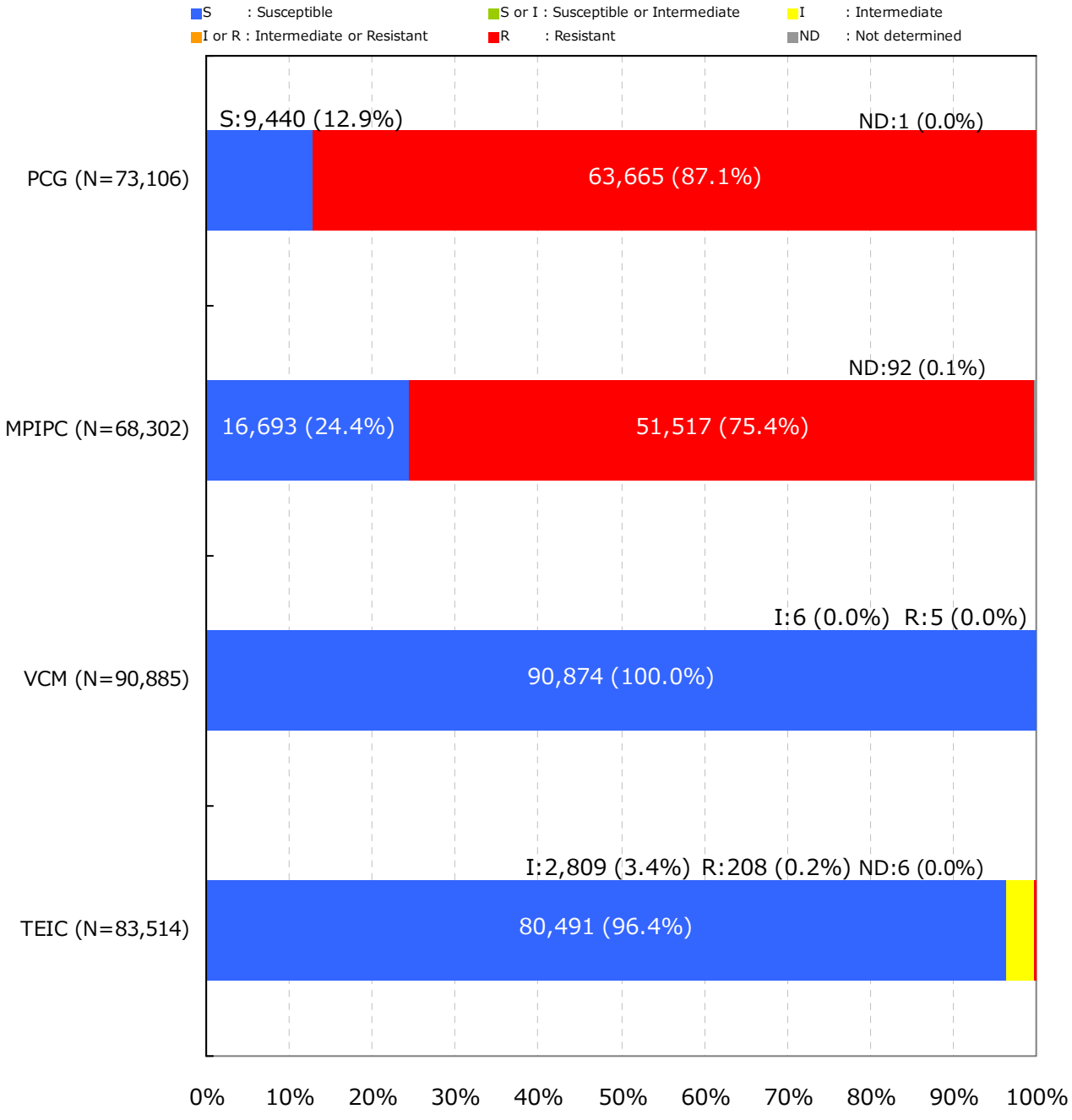
7. Antimicrobial Susceptibility of Major Bacteria*

Staphylococcus epidermidis †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. epidermidis* corresponds to Isolated Bacterial Code 1312.

Antibiogram is not created if the total number of isolates is less than 30.

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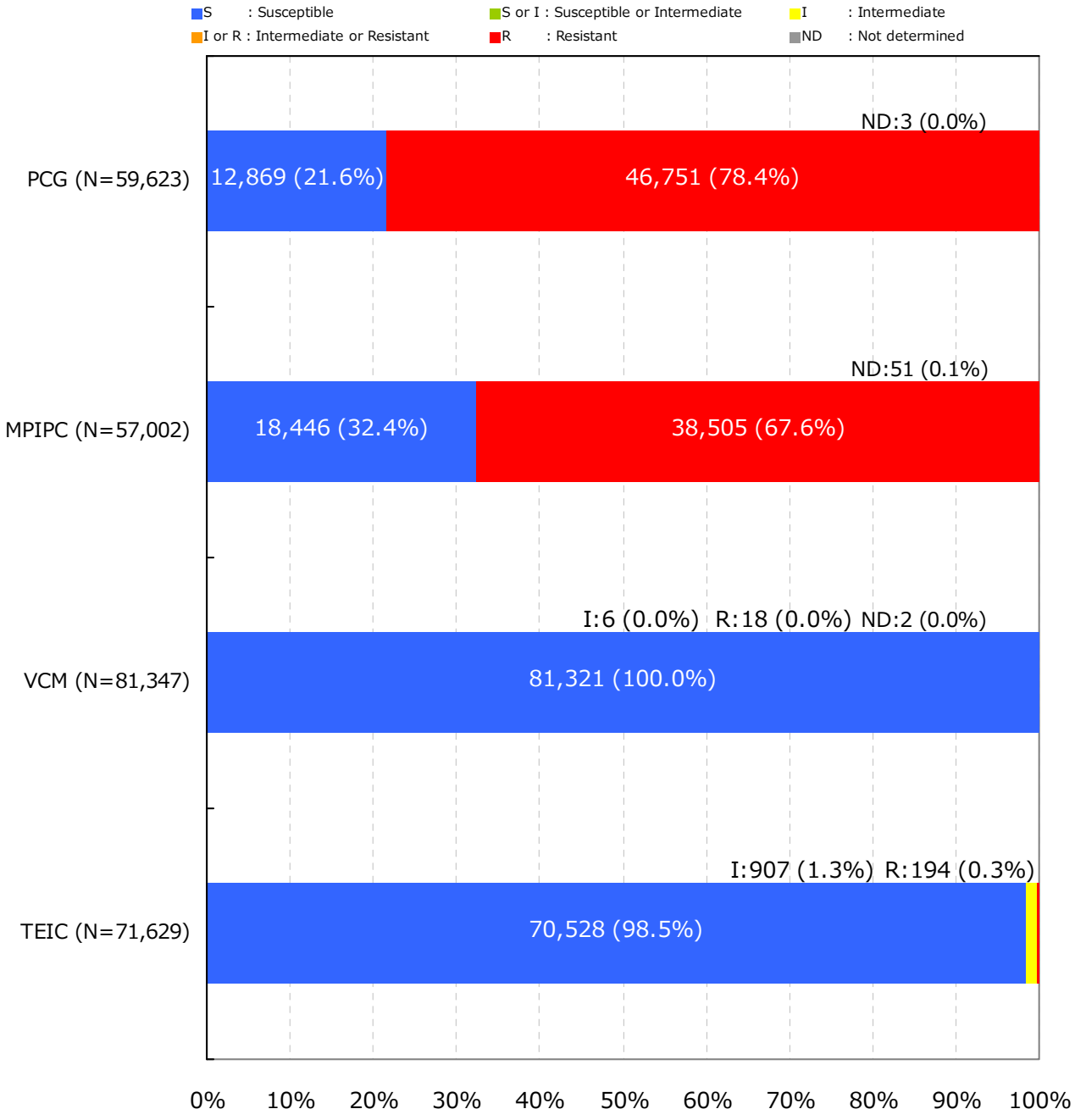
7. Antimicrobial Susceptibility of Major Bacteria*

Coagulase-negative staphylococci (CNS) †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† Coagulase-negative staphylococci (CNS) corresponds to Isolated Bacterial Codes 1311 and 1313-1325 (except Code 1312,*Staphylococcus epidermidis*)

Antibiogram is not created if the total number of isolates is less than 30.

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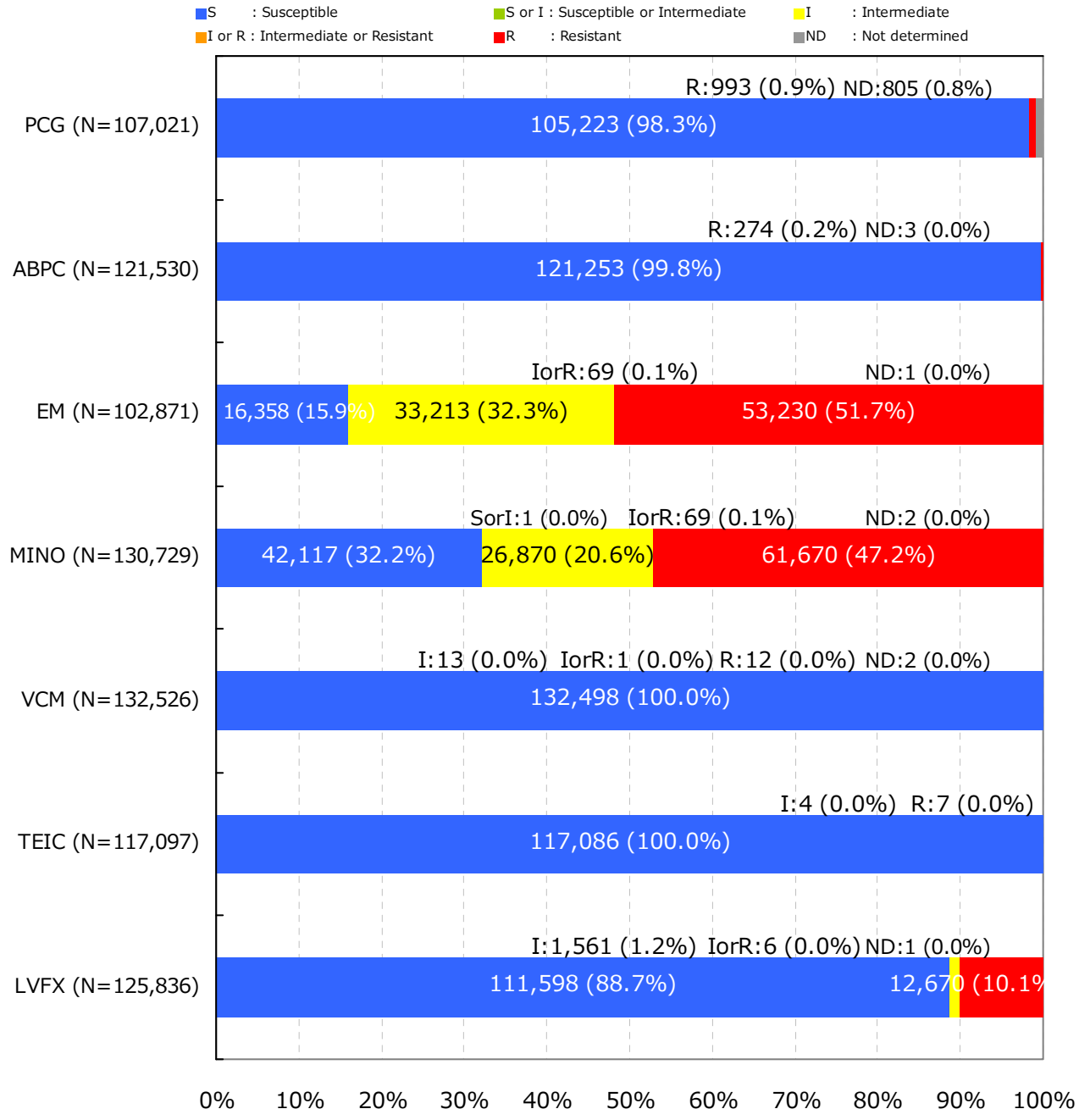
7. Antimicrobial Susceptibility of Major Bacteria*

Enterococcus faecalis †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *E. faecalis* corresponds to Isolated Bacterial Codes 1201 and 1202.

Antibiogram is not created if the total number of isolates is less than 30.

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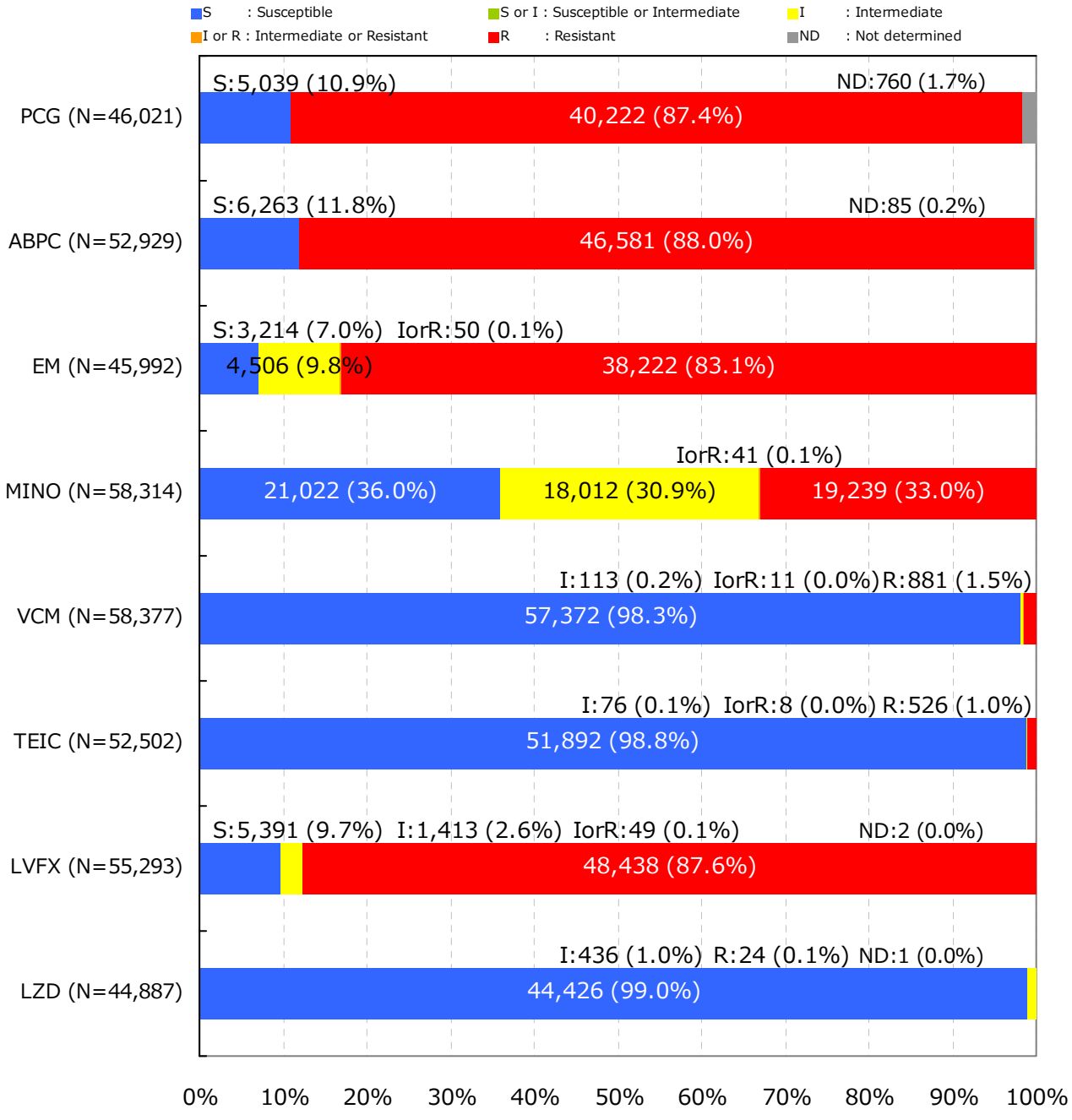
7. Antimicrobial Susceptibility of Major Bacteria*

Enterococcus faecium †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *E. faecium* corresponds to Isolated Bacterial Codes 1205 and 1206.

Antibiogram is not created if the total number of isolates is less than 30.

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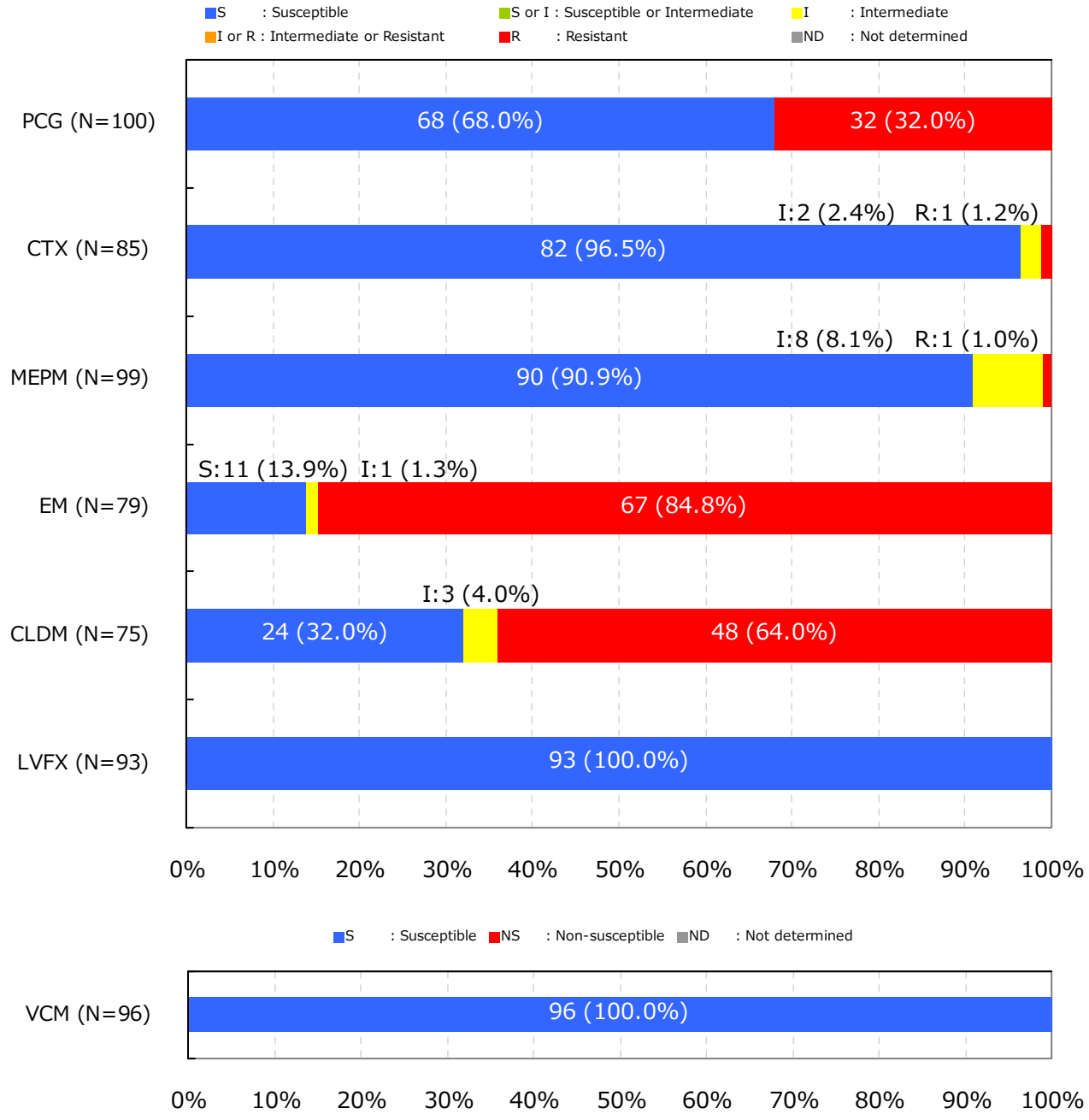
7. Antimicrobial Susceptibility of Major Bacteria*

Streptococcus pneumoniae(Cerebrospinal Fluid) †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. pneumoniae* corresponds to Isolated Bacterial Code 1131.

Antibiogram is not created if the total number of isolates is less than 30.

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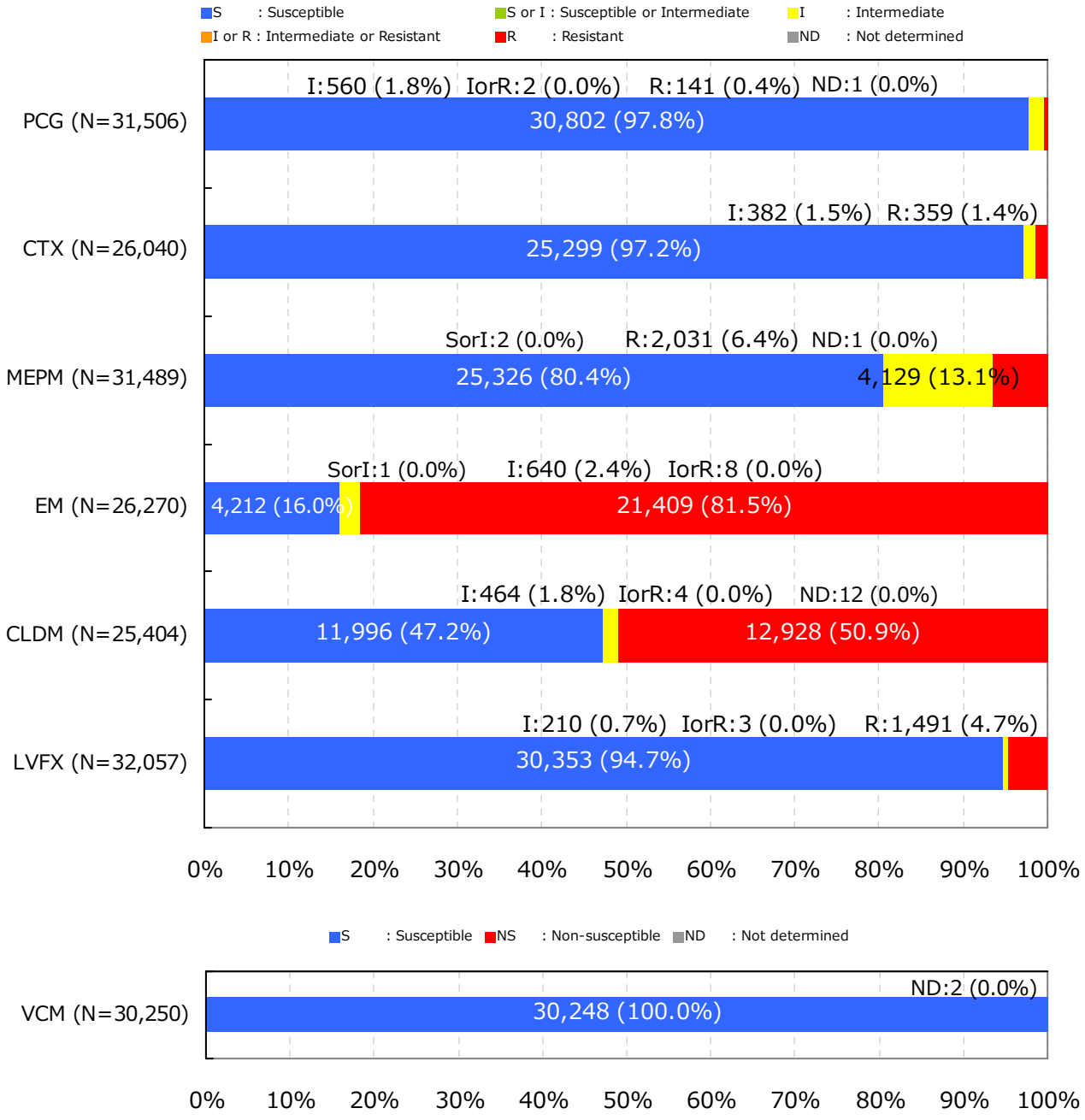
7. Antimicrobial Susceptibility of Major Bacteria*

Streptococcus pneumoniae(Other than Cerebrospinal Fluid) †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. pneumoniae* corresponds to Isolated Bacterial Code 1131.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
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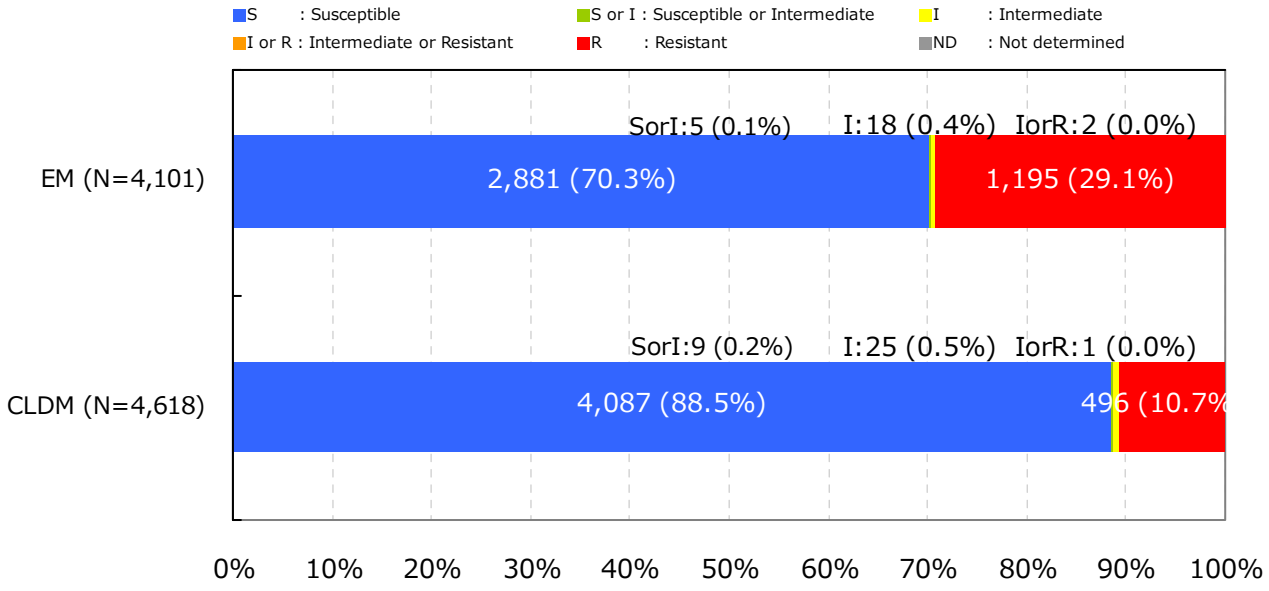
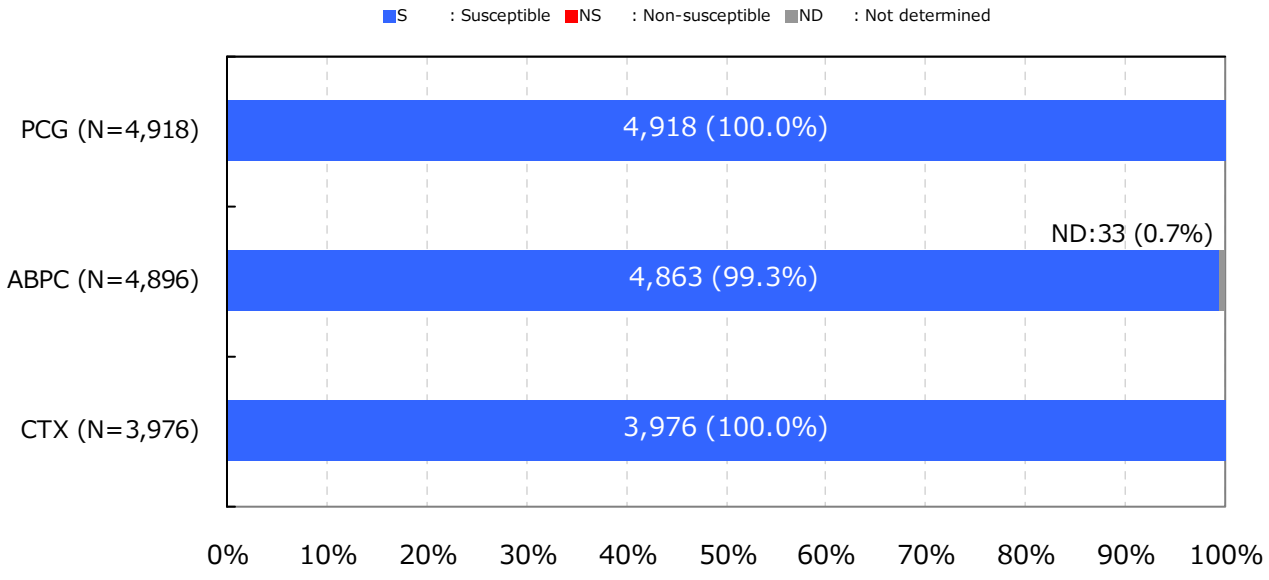
7. Antimicrobial Susceptibility of Major Bacteria*

Streptococcus pyogenes †





Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. pyogenes* corresponds to Isolated Bacterial Code 1111.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
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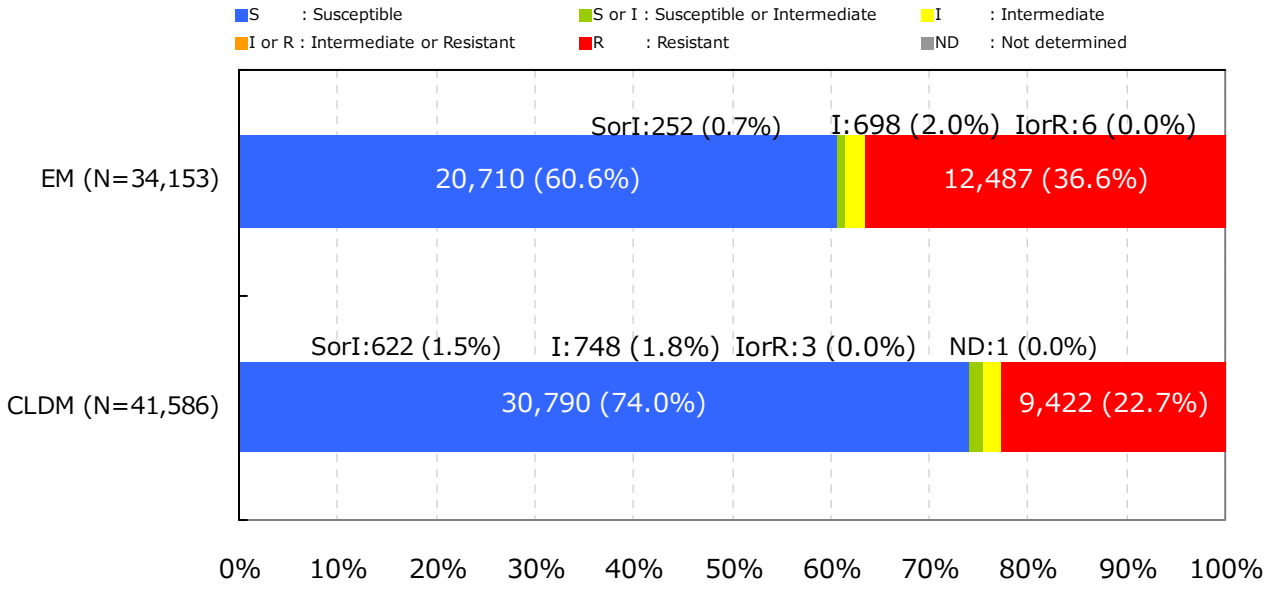
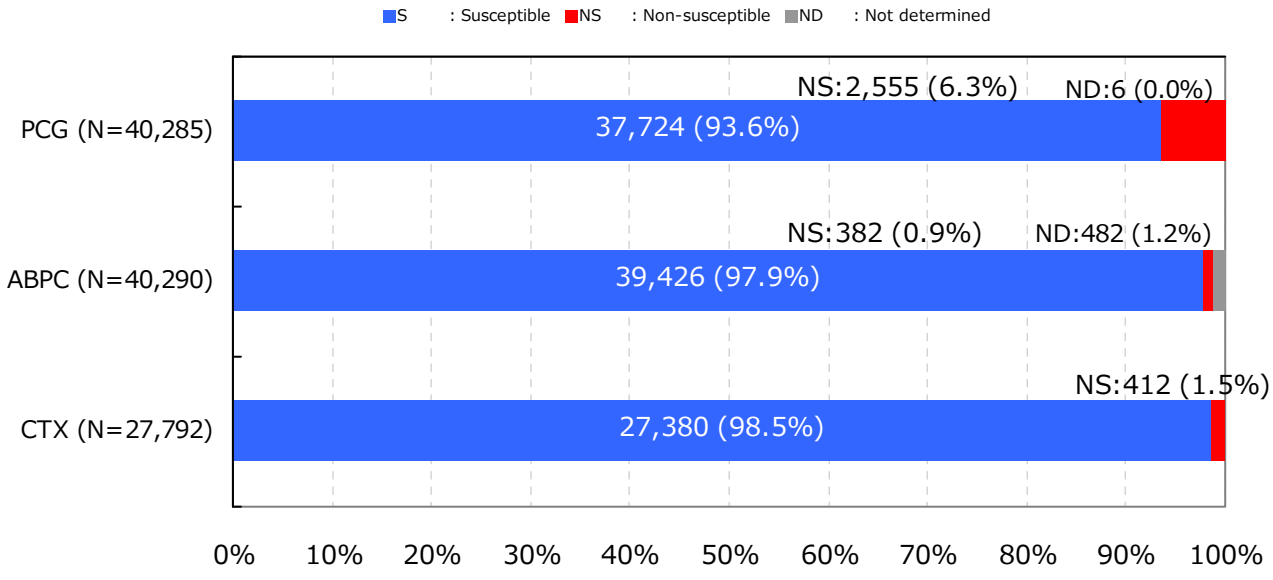
7. Antimicrobial Susceptibility of Major Bacteria*

Streptococcus agalactiae †





Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. agalactiae* corresponds to Isolated Bacterial Code 1114.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
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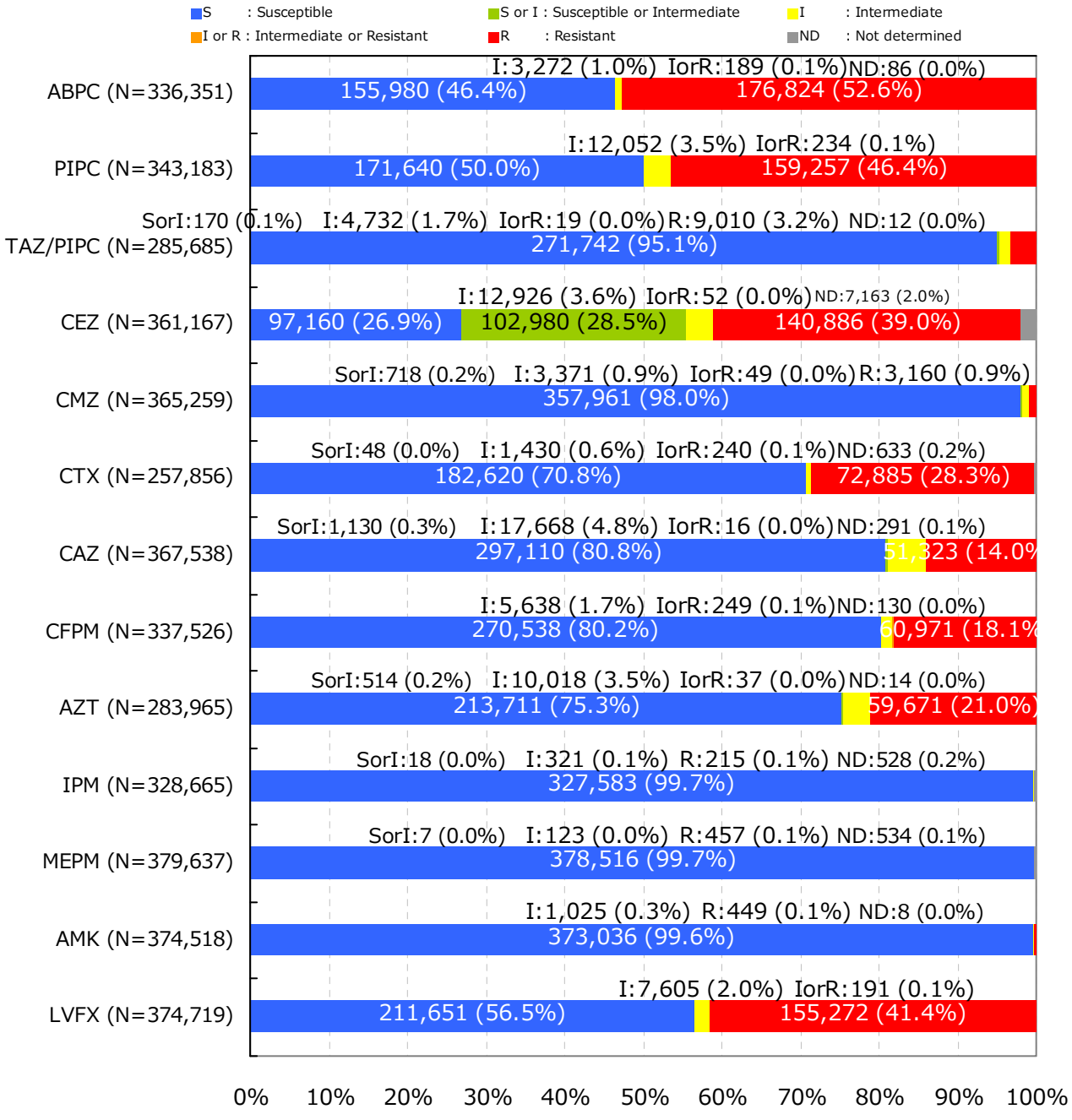
7. Antimicrobial Susceptibility of Major Bacteria*

Escherichia coli †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *E. coli* corresponds to Isolated Bacterial Codes 2001-2007.

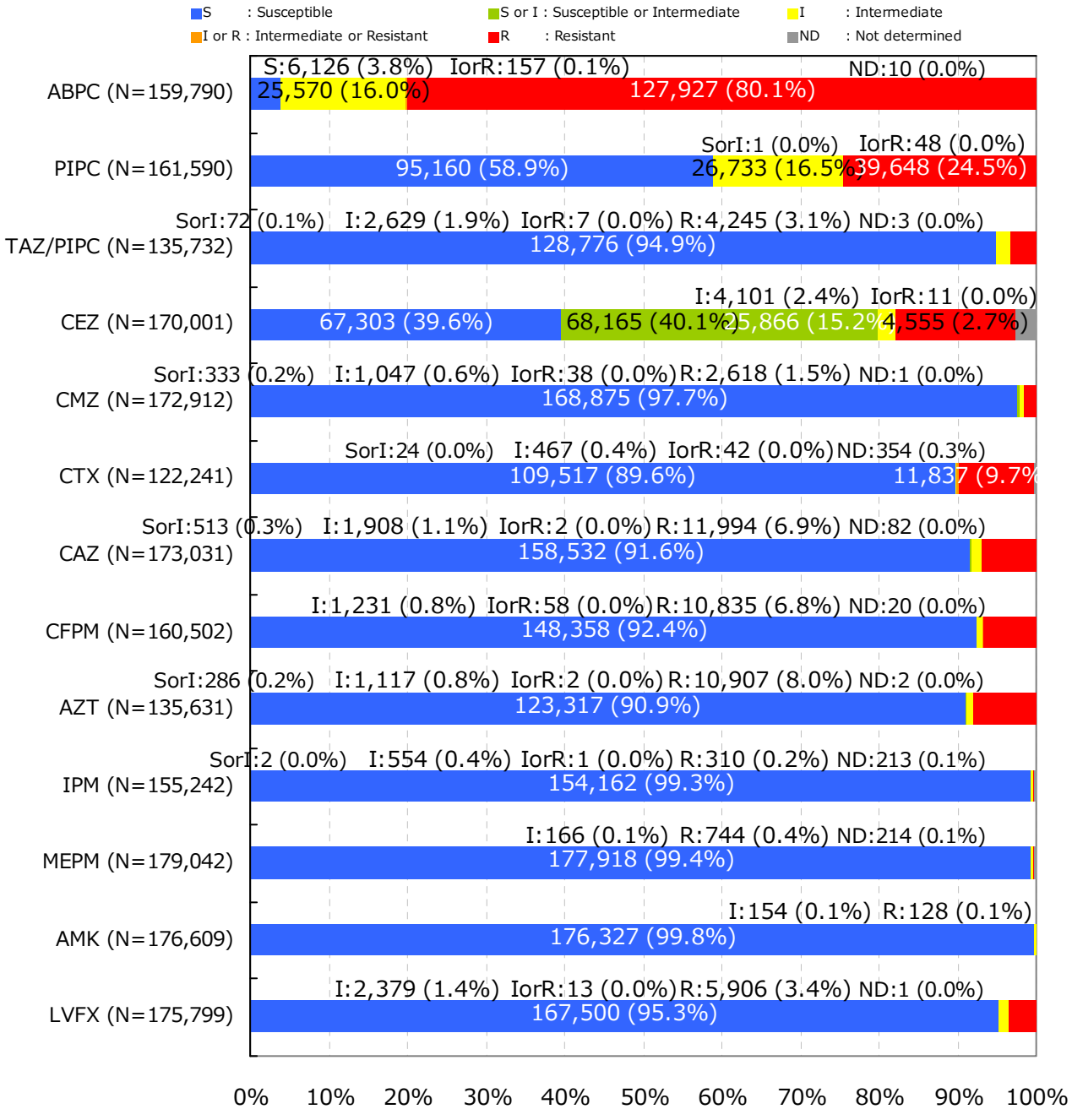
Antibiogram is not created if the total number of isolates is less than 30.

This Open Report does not cover every data from facilities nationwide.

Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

7. Antimicrobial Susceptibility of Major Bacteria*

Klebsiella pneumoniae †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *K. pneumoniae* corresponds to Isolated Bacterial Code 2351.

Antibiogram is not created if the total number of isolates is less than 30.

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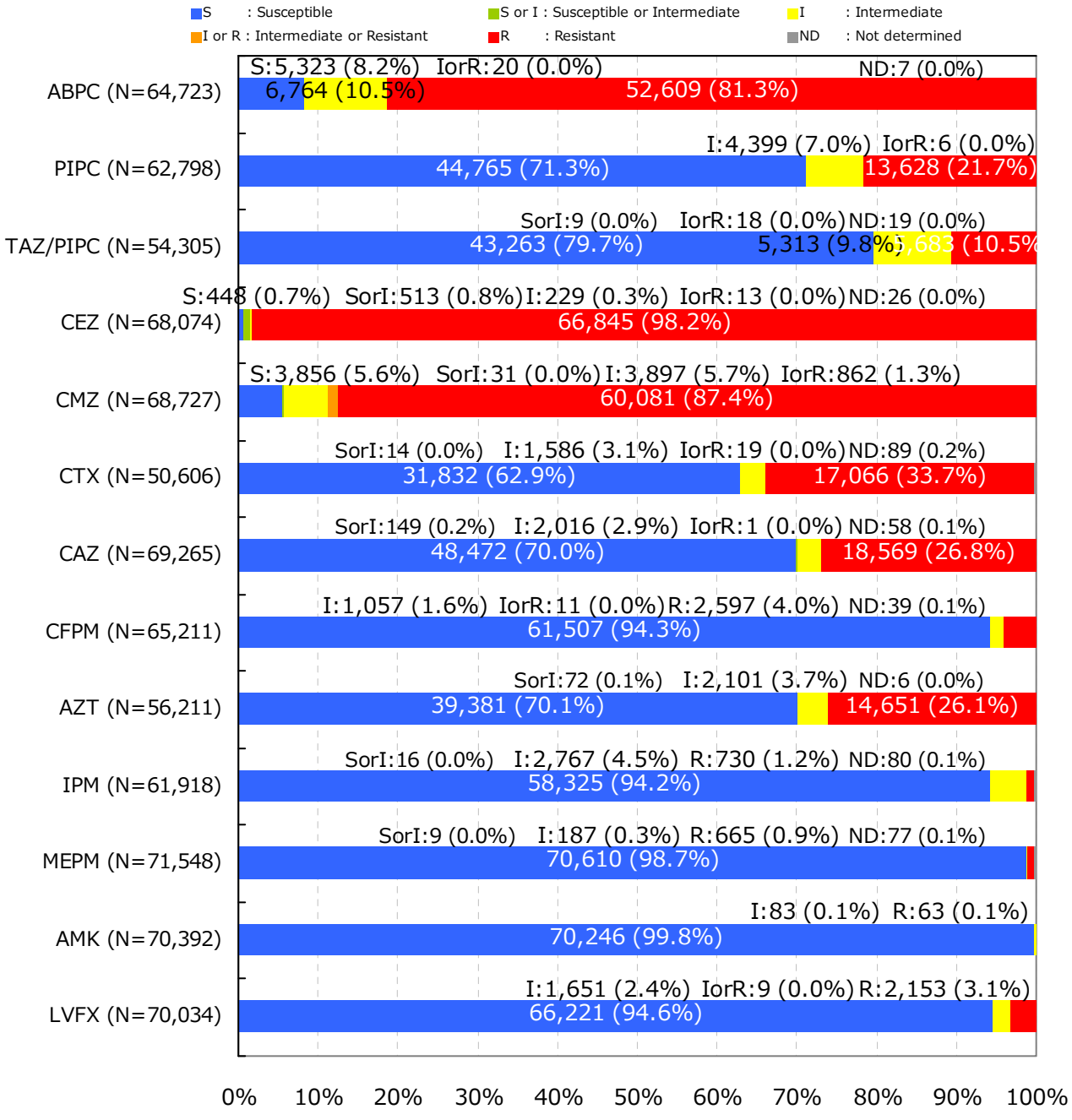
Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

7. Antimicrobial Susceptibility of Major Bacteria*

Enterobacter cloacae †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *E. cloacae* corresponds to Isolated Bacterial Code 2151.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
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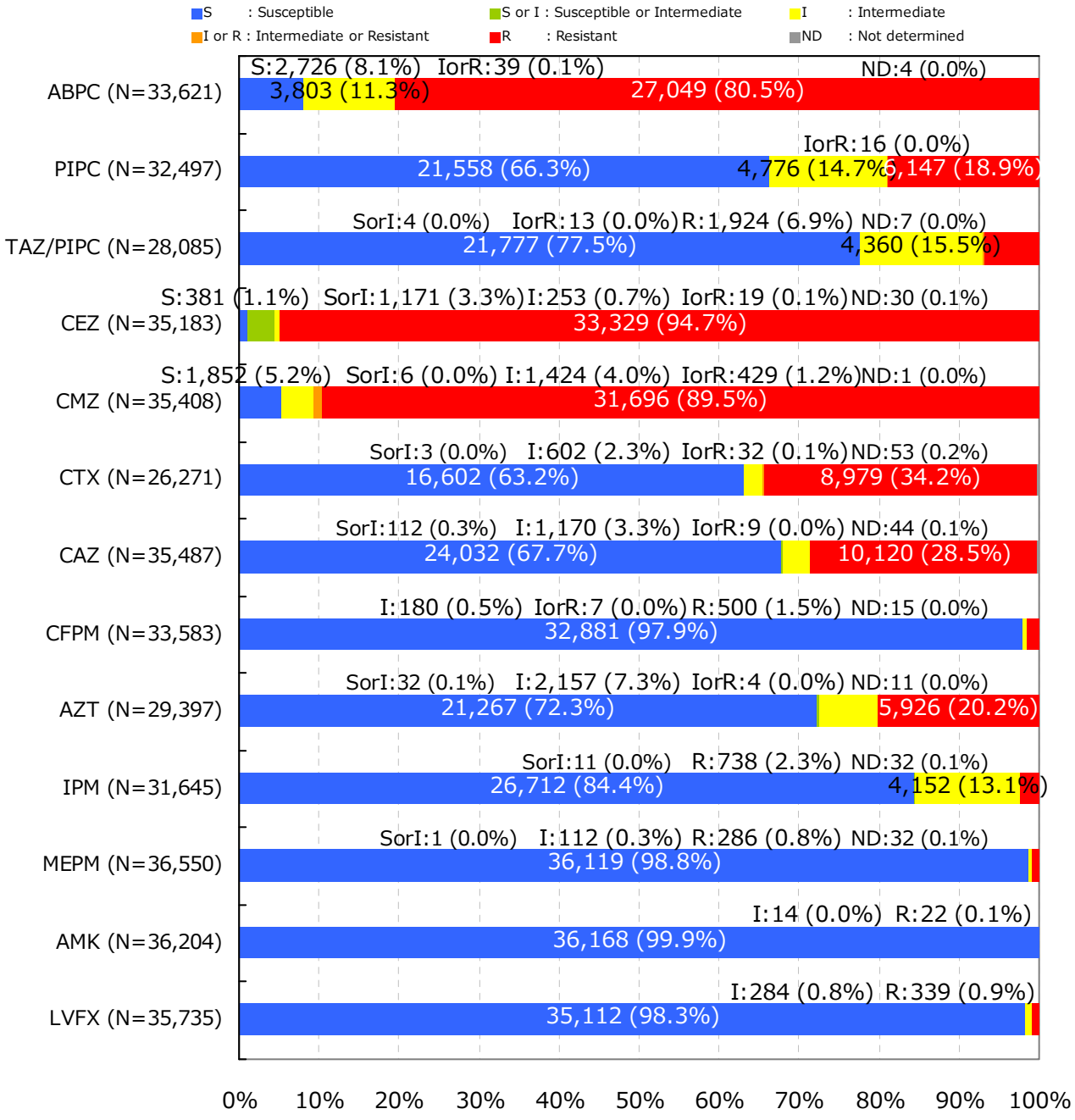
7. Antimicrobial Susceptibility of Major Bacteria*

Klebsiella aerogenes †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *K. aerogenes* corresponds to Isolated Bacterial Code 2152.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
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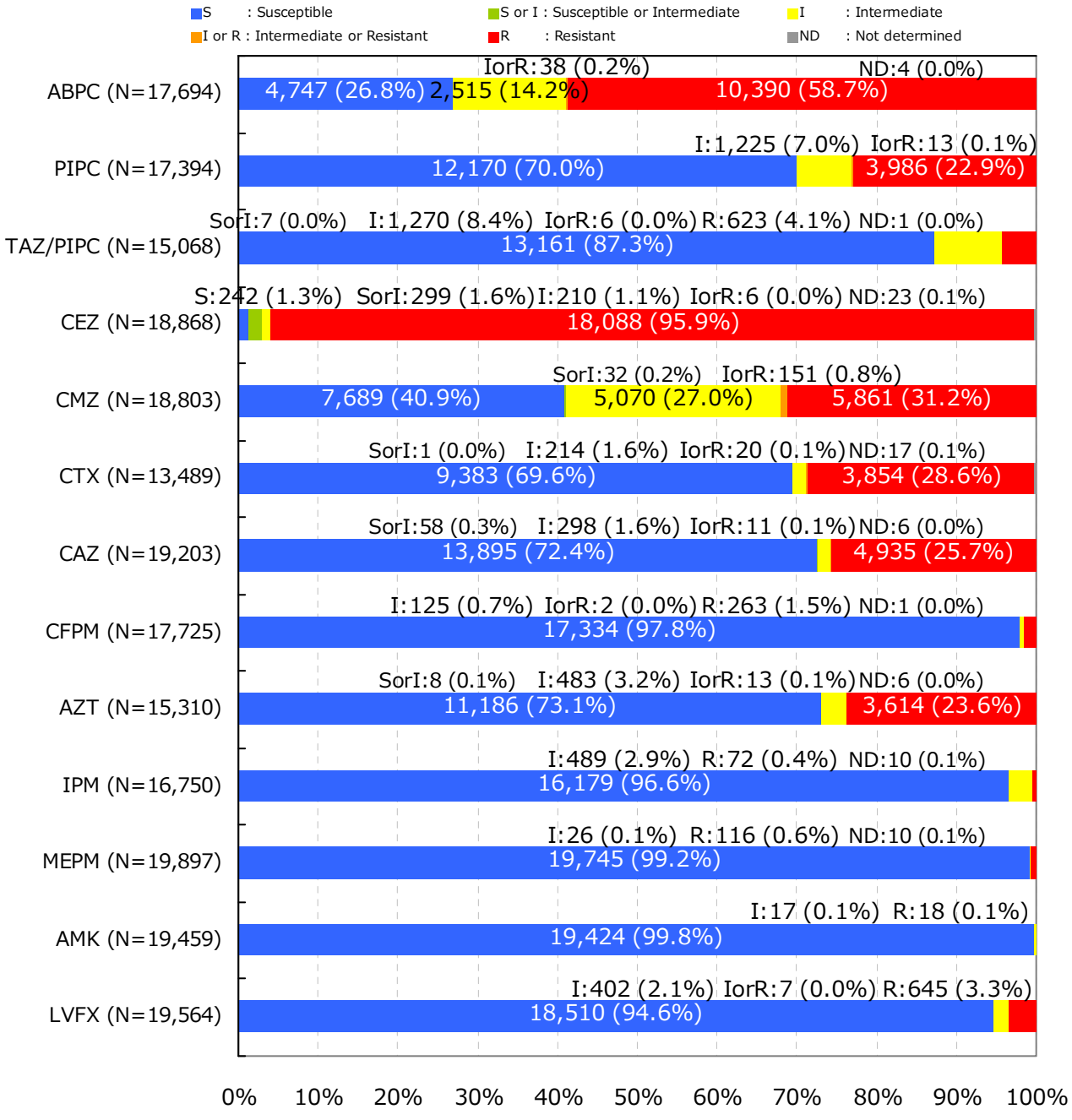
7. Antimicrobial Susceptibility of Major Bacteria*

Citrobacter freundii †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

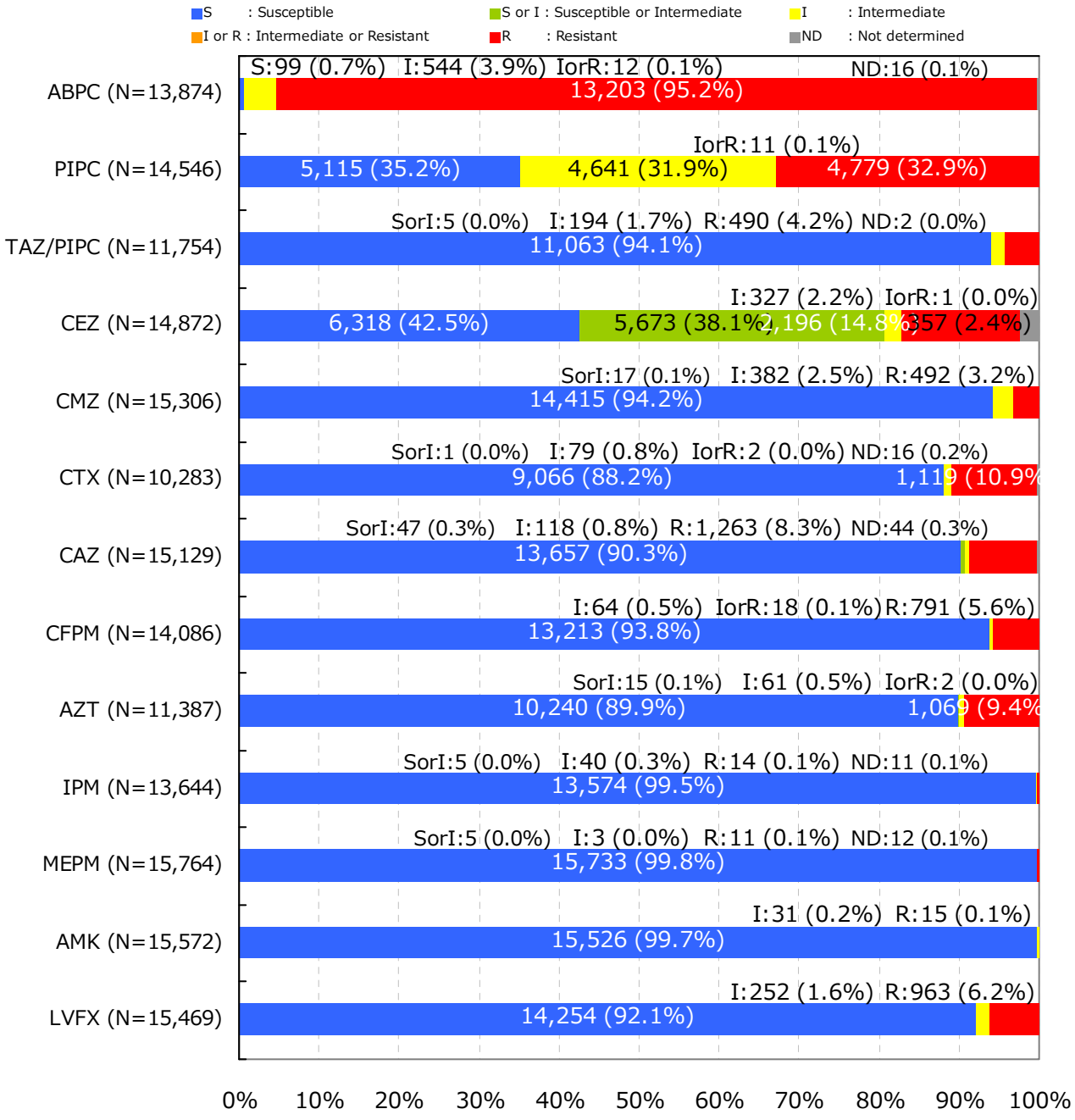
† *C. freundii* corresponds to Isolated Bacterial Code 2051.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

7. Antimicrobial Susceptibility of Major Bacteria*

Citrobacter koseri †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

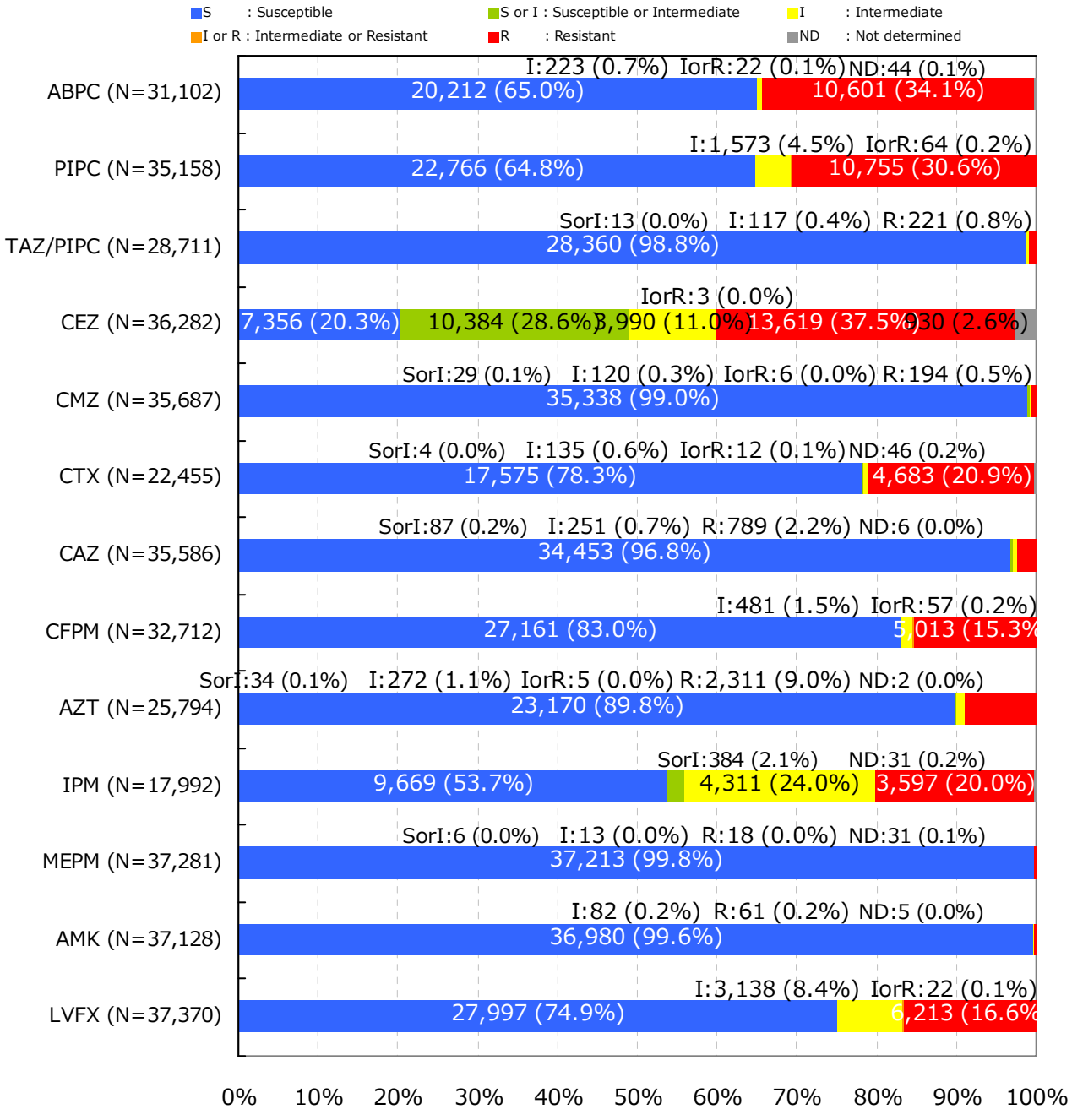
† *C. koseri* corresponds to Isolated Bacterial Code 2052.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

7. Antimicrobial Susceptibility of Major Bacteria*

Proteus mirabilis †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *P. mirabilis* corresponds to Isolated Bacterial Code 2201.

Antibiogram is not created if the total number of isolates is less than 30.

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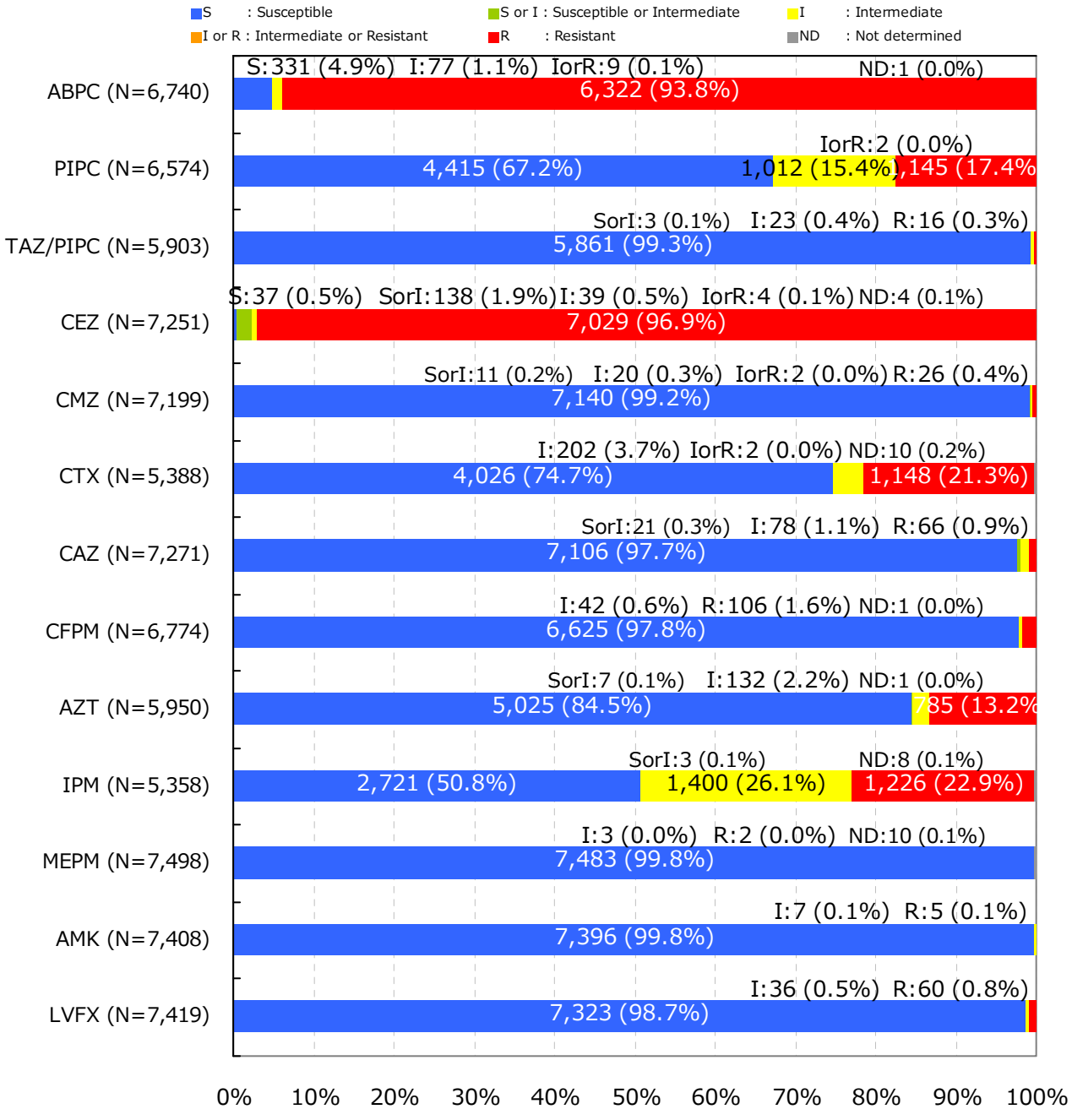
7. Antimicrobial Susceptibility of Major Bacteria*

Proteus vulgaris †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *P. vulgaris* corresponds to Isolated Bacterial Code 2202.

Antibiogram is not created if the total number of isolates is less than 30.

This Open Report does not cover every data from facilities nationwide.

Date of Total Tabulation : April 06, 2020

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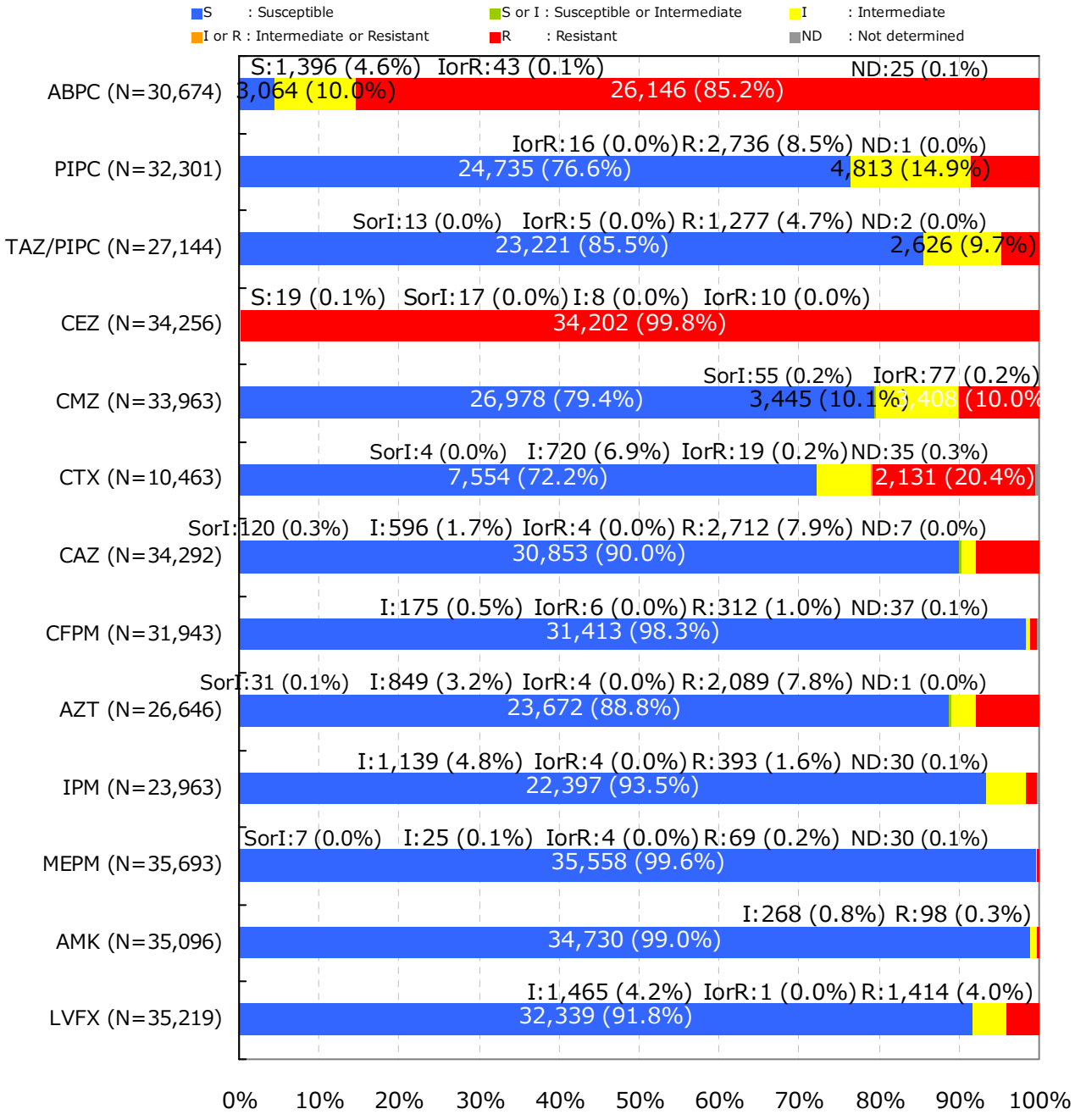
7. Antimicrobial Susceptibility of Major Bacteria*

Serratia marcescens †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *S. marcescens* corresponds to Isolated Bacterial Code 2101.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
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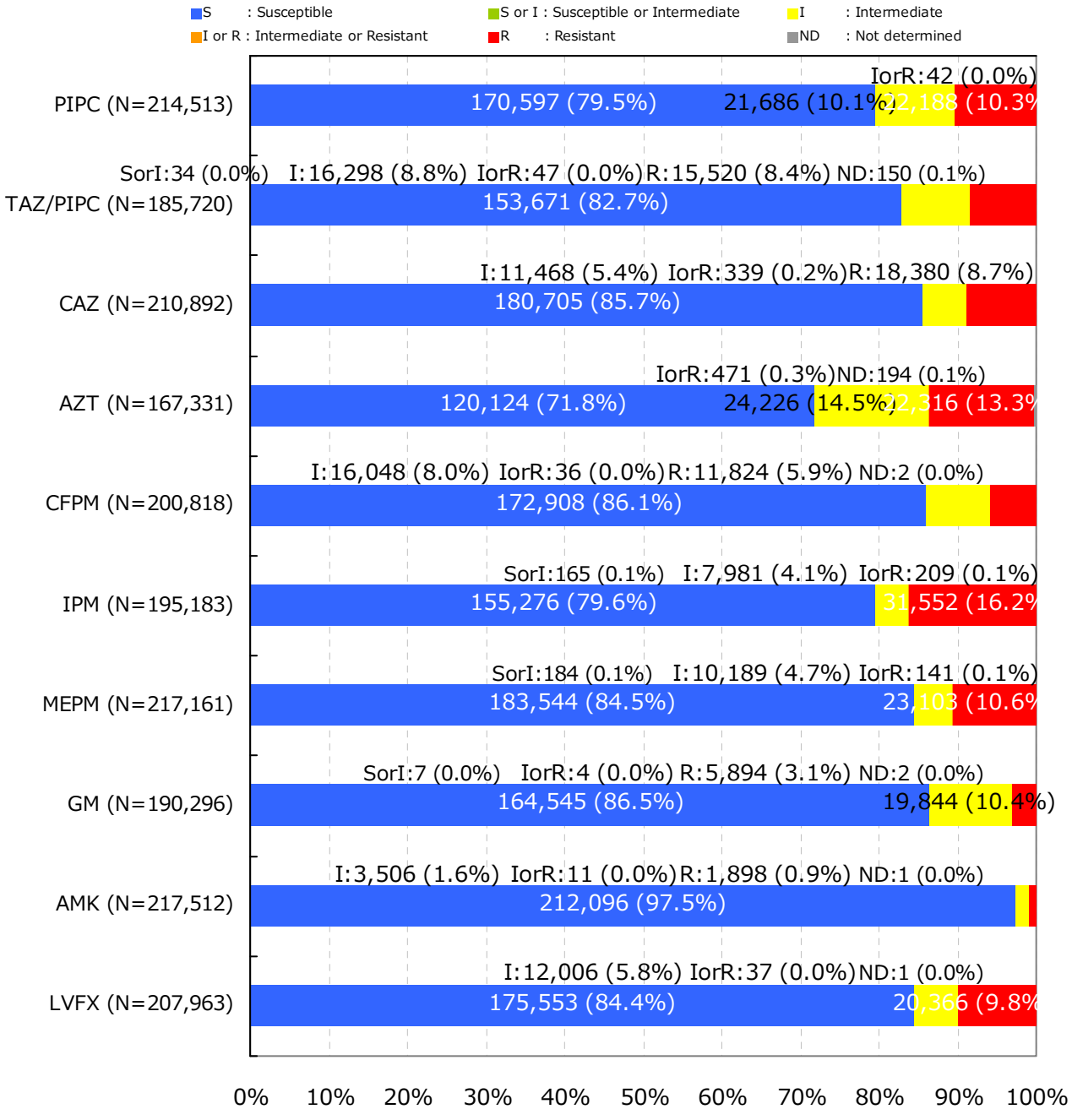
7. Antimicrobial Susceptibility of Major Bacteria*

Pseudomonas aeruginosa †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

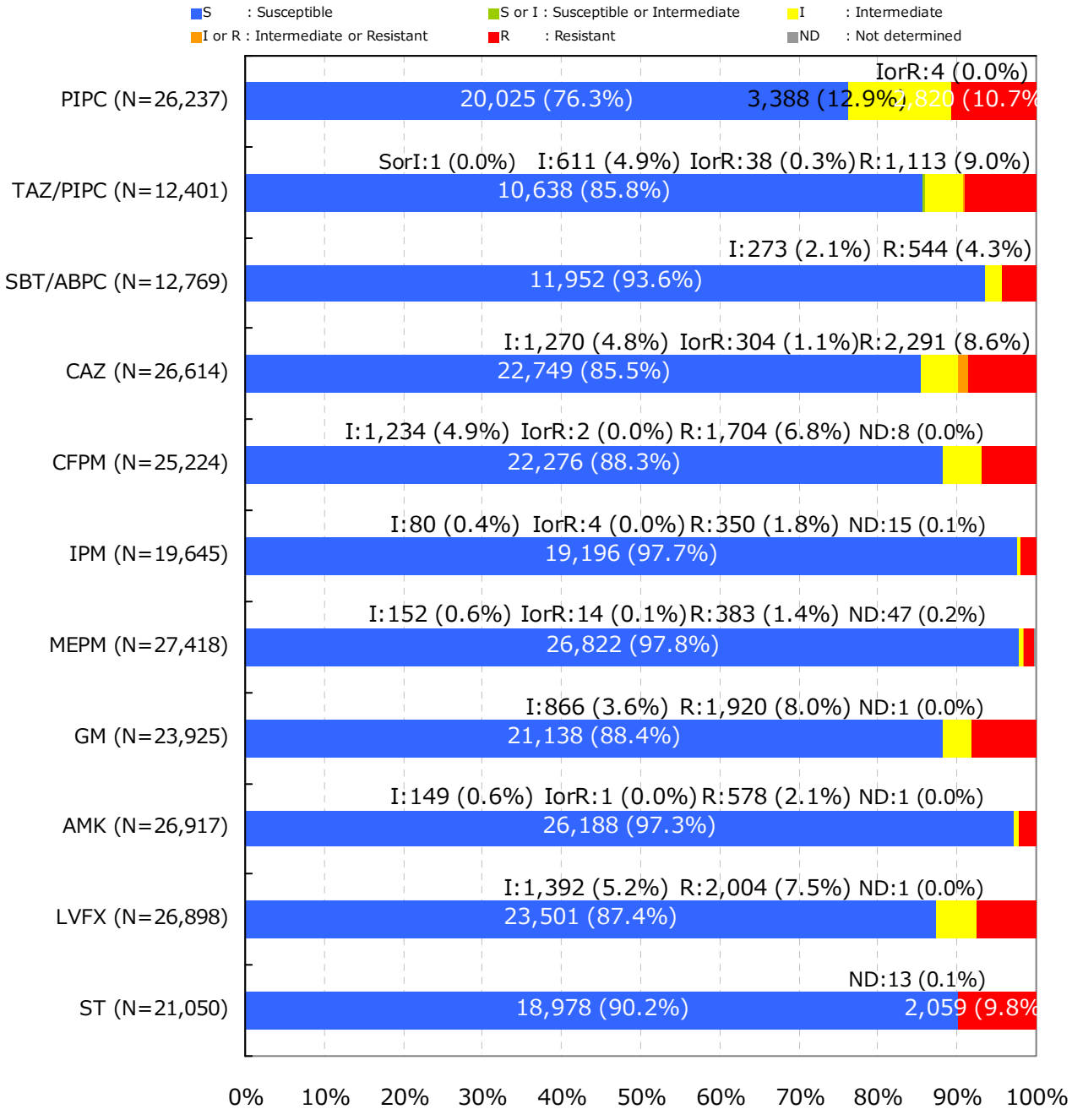
† *P. aeruginosa* corresponds to Isolated Bacterial Code 4001.

Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

7. Antimicrobial Susceptibility of Major Bacteria*

Acinetobacter spp. †



Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

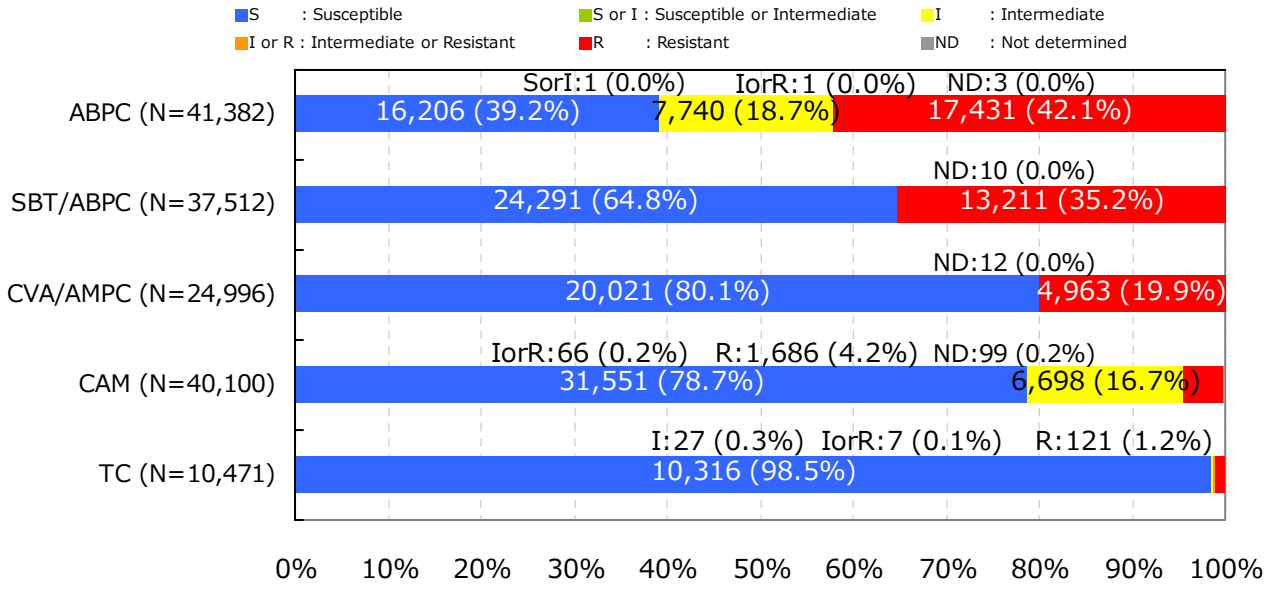
† *Acinetobacter* spp. correspond to Isolated Bacterial Codes 4400-4403.

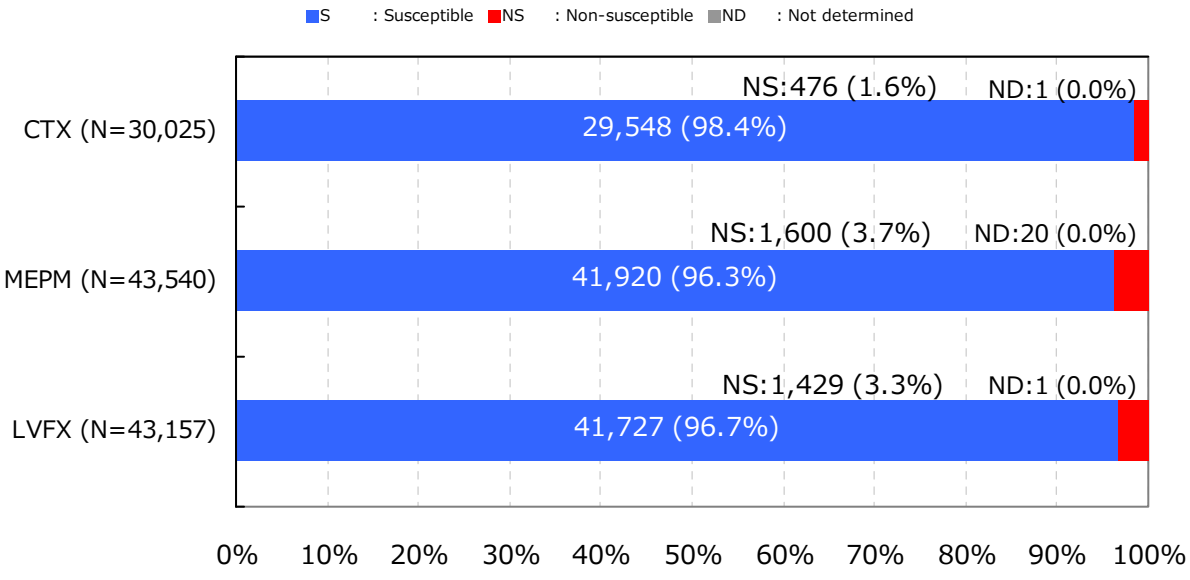
Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

7. Antimicrobial Susceptibility of Major Bacteria*

Haemophilus influenzae †





Inpatient specimens with MIC values reported by either the broth microdilution method or Etest are counted. Duplicates based on the result of Antimicrobial Susceptibility Testing are not recounted within 30 days (See Appendix).

* Results are interpreted according to the CLSI2012 (M100-S22) criteria.

† *H. influenzae* corresponds to Isolated Bacterial Codes 3201, 3202, 3203, 3205, 3208, 3211, 3214, 3217, 3220 and 3223. Antibiogram is not created if the total number of isolates is less than 30.

Date of Total Tabulation : April 06, 2020
Date of Publication (English Version) : July 03, 2020

【Appendix 1　Interpretive Criteria for Specific AMR Bacteria based on the Broth Microdilution Method】

Isolated Bacterium	Comments*	MIC Values by Broth Microdilution Method	Isolated Bacterial Code Ver.5.1
Methicillin-Resistant *Staphylococcus aureus* (MRSA)	*S. aureus* resistant to oxacillin and/or cefoxitin by the broth microdilution method or methicillin-resistant *S. aureus* detected on selective media	oxacillin ≥ 4 μg/mL cefoxitin ≥ 8 μg/mL	1301, 1303
Vancomycin-Resistant *Staphylococcus aureus* (VRSA)	*S. aureus* resistant to vancomycin	vancomycin ≥ 16 μg/mL	1301,1303–1306
Vancomycin-Resistant Enterococci (VRE)	*Enterococcus* spp. resistant† to vancomycin by the broth microdilution method or vancomycin-resistant enterococci detected on selective media Note: Excluding species that were not identified within *Enterococcus* sp.	vancomycin ≥ 16 μg/mL†	1201,1202,1205, 1206,1209,1210, 1213–1217
Penicillin-Resistant *Streptococcus pneumoniae* (PRSP)	*S. pneumoniae* resistant† to penicillin G	penicillin G ≥ 0.125 μg/mL†	1131
Multidrug-Resistant *Pseudomonas aeruginosa* (MDRP)	*P. aeruginosa* satisfying all of the following criteria: 1. Resistant† to carbapenems (imipenem and/or meropenem) 2. Resistant† to aminoglycosides (amikacin) 3. Resistant to fluoroquinolones (any of norfloxacin, ofloxacin, levofloxacin, lomefloxacin, ciprofloxacin).	1. imipenem ≥ 16 μg/mL†, meropenem ≥ 16 μg/mL† 2. amikacin ≥ 32 μg/mL† 3. norfloxacin ≥ 16 μg/mL, ofloxacin ≥ 8 μg/mL, levofloxacin ≥ 8 μg/mL, lomefloxacin≥ 8 μg/mL, ciprofloxacin ≥ 4 μg/mL	4001
Multidrug-Resistant *Acinetobacter* spp. (MDRA)	*Acinetobacter* spp. satisfying all of the following criteria: 1. Resistant to carbapenems (imipenem and/or meropenem) 2. Resistant† to aminoglycosides (amikacin) 3. Resistant to fluoroquinolones (any of levofloxacin, ciprofloxacin)	1. imipenem ≥ 16 μg/mL†, meropenem ≥ 16 μg/mL† 2. amikacin ≥ 32 μg/mL† 3. levofloxacin ≥ 8 μg/mL, ciprofloxacin ≥ 4 μg/mL	4400–4403
Carbapenem-Resistant *Enterobacteriaceae* (CRE)	*Enterobacteriaceae* satisfying one of the following criteria. 1. Resistant† to meropenem 2. Resistant† to imipenem and also resistant to cefmetazole	meropenem ≥ 2 μg/mL†, imipenem ≥ 2 μg/mL† and also cefmetazole ≥ 64 μg/mL	2000-2691, 3150-3151
Carbapenem-Resistant *Pseudomonas aeruginosa*	*P. aeruginosa* resistant to imipenem and/or meropenem	imipenem ≥ 16 μg/mL†, meropenem ≥ 16 μg/mL†	4001
3rd Generation Cephalosporin-Resistant *Klebsiella pneumoniae*	*K. pneumoniae* resistant to cefotaxime and/or ceftriaxone and/or ceftazidime	cefotaxime ≥ 4 μg/mL, ceftriaxone ≥ 4 μg/mL, ceftazidime ≥ 16 μg/mL	2351
3rd Generation Cephalosporin-Resistant *Escherichia coli*	*E. coli* resistant to cefotaxime and/or ceftriaxone and/or ceftazidime	cefotaxime ≥ 4 μg/mL, ceftriaxone ≥ 4 μg/mL, ceftazidime ≥ 16 μg/mL	2001–2007
Fluoroquinolone-Resistant *Escherichia coli*	*E. coli* resistant to fluoroquinolones (any of norfloxacin, ofloxacin, levofloxacin, lomefloxacin, and ciprofloxacin)	norfloxacin ≥ 16 μg/mL, ofloxacin ≥ 8 μg/mL, levofloxacin ≥ 8 μg/mL, lomefloxacin ≥ 8 μg/mL, ciprofloxacin ≥ 4 μg/mL	2001–2007

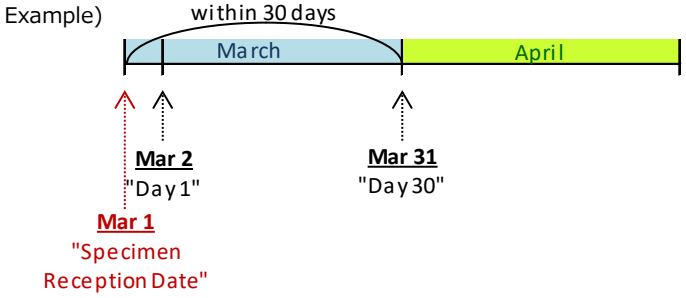
* In principle, RIS interpretation is based on the CLSI2012 (M100-S22) guidelines

† Criteria are based on the Infectious Diseases Control Law

【Appendix 2　Method to Eliminate Duplicates of Annual Report】

1. Rule of Counting Days

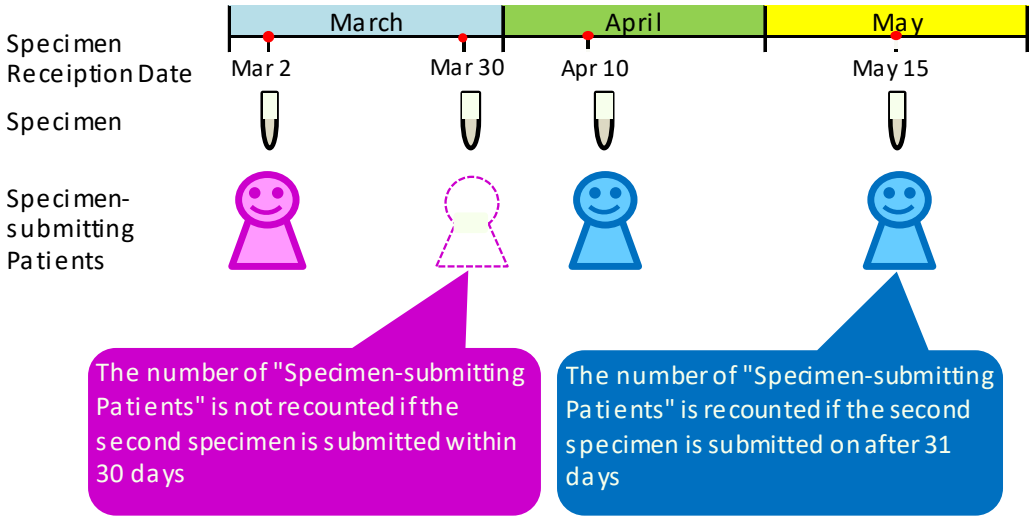
"Day 1" is defined as the day after the "Specimen Reception Date". For example, if a specimen is received on March 1, "Day 1" will be March 2 and "Day 30" will be March 31.



2. Number of "Specimen-submitting Patients"

The number of "Specimen-submitting Patients" is equal to the number of inpatients whose specimens were submitted, regardless of the specimen sources. If more than one specimen is submitted by one patient within 30 days, the number of "Specimen-submitting Patients" is defined as one. This is how we eliminate duplicates.

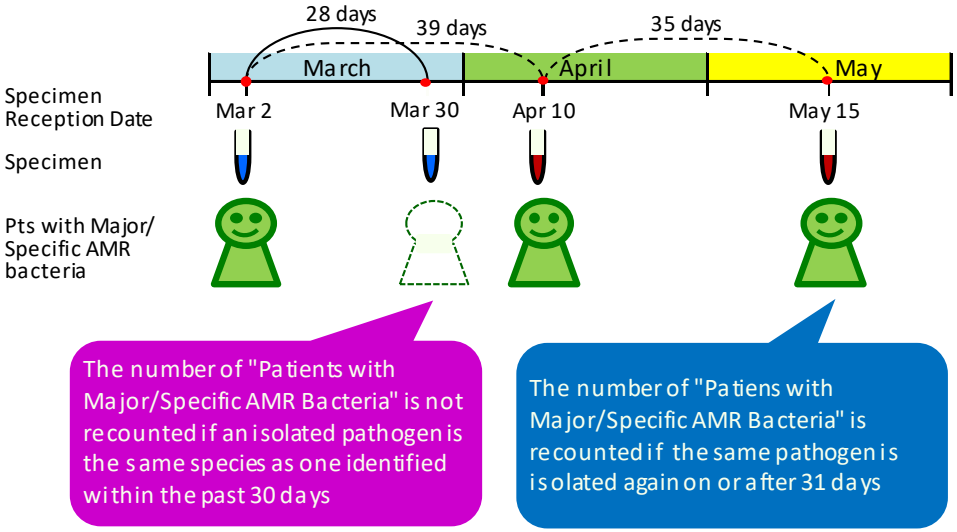
Example)



3. Number of Patients with Major/Specific AMR Bacteria

The same method used to eliminate duplicate "Specimen-submitting Patients" records is applied to "Patients with Major/Specific AMR Bacteria". If more than one identical bacterium is isolated from the same patient within 30 days, the number of "Patients with Major/Specific AMR Bacteria" is not recounted.
To obtain the number of "Patients with Specific AMR Bacteria", first the data regarding pathogens which meet "Specific AMR Bacteria" criteria are extracted. Then the method mentioned above is applied to eliminate duplicates.

Example



4. Definition of Isolates Based on the Results of Antimicrobial Susceptibility Testing (AST)

If the AST results differ* between the same bacteria isolated within 30 days, each of them is counted separately.
*Difference of AST is determined by satisfying any of the following four criteria:

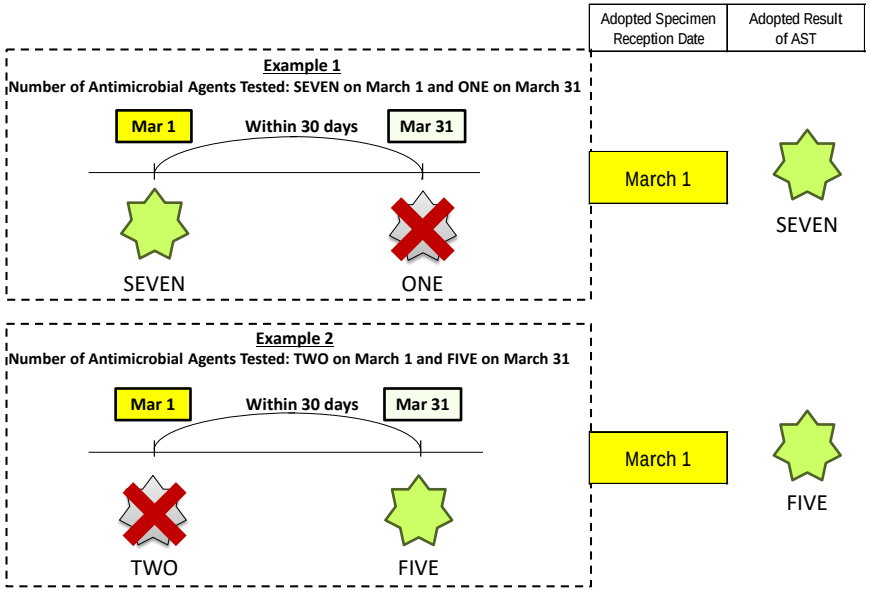
① More than four-fold difference in the MIC value; however,
MIC > 2 is equivalent to MIC ≥ 4 and is interpreted as MIC = 4, and
MIC < 16 is equivalent to MIC ≦ 16 and is interpreted as MIC = 16
② Findings of "R and S" on RIS interpretation
③ Findings of "- and ++", "+ and +++", or "- and +++" on +/- interpretation
④ Fewer than five duplicate antimicrobial agents among testings

【Appendix 2　Method to Eliminate Duplicates of Annual Report】

5. Method for Eliminating Duplicates Based on the Results of AST

The following method will be applied to eliminate duplicates if “Identical Bacteria” are detected more than once from the same patient within 30 days, according to the criteria in Section 4.

- With regard to the “Specimen Reception Date”, whichever is the earliest will be adopted
- Data in which the greatest number of antimicrobial agents tested will be adopted as the “Results of AST”

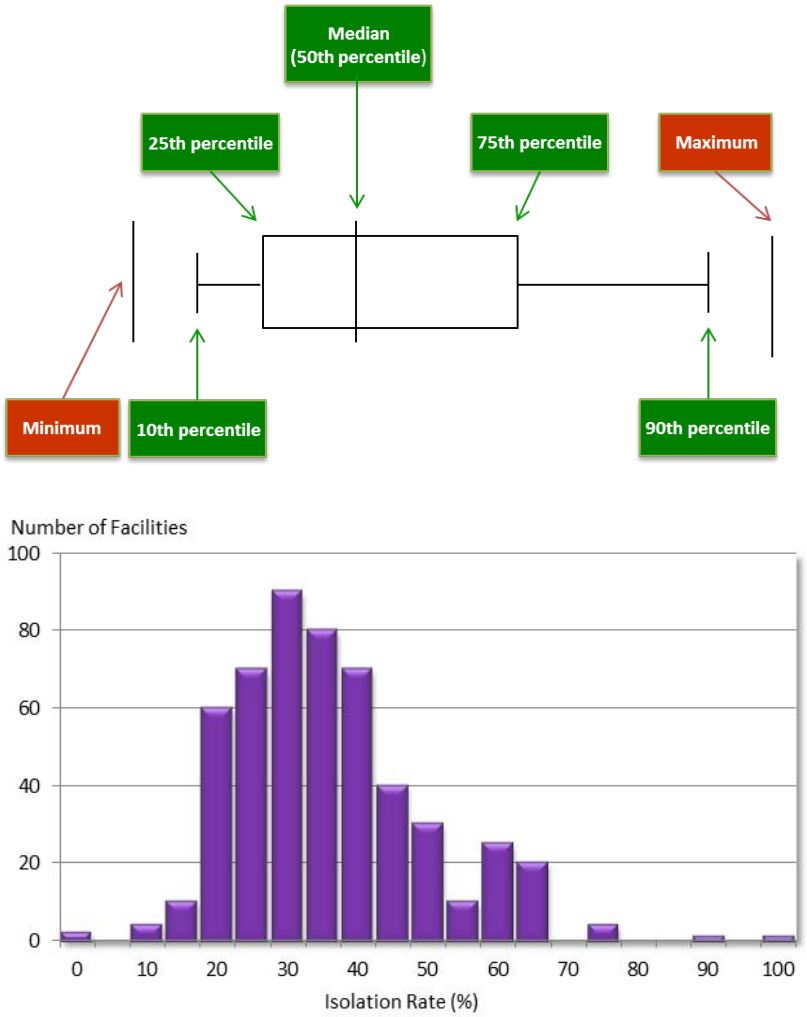


【Appendix 3　Box Plot Chart】

1. Box Plot Chart

The chart represents the data distribution of the facilities.

Example



※ Percentile represents the position of a single data value within a group of samples in ascending order. For example, if a group contains 100 samples, then the 10th percentile refers to the position of the 10th smallest value in the group.

n n

2. Box Plot Chart of Feedback Reports

Example