

Appendix 1: The French *Groupe Iso Ressource* dependency classification.

	Dependency
Level 1	Loss of cognitive, physical, motor, and social independence
Level 2	Partially impaired cognitive functions but unaffected motor abilities
Level 3	Cognitively independent but requires help with personal care
Level 4	Cognitively independent and able to move around the home but has difficulties with certain activities of daily living
Level 5	Full cognitive independence and no problems moving around the home
Level 6	No difficulties performing activities of daily living

Appendix 2: The Charlson Comorbidity Index [33]

Score	Comorbidities
1	<ul style="list-style-type: none"> • Coronary artery disease • Global heart failure • Chronic lung disease • Peptic ulcer disease • Peripheral artery disease • Severe liver disease • Stroke • Connective tissue disease • Diabetes • Dementia
2	<ul style="list-style-type: none"> • Hemiplegia • Moderate to severe renal insufficiency (creatinine ≥ 265 $\mu\text{mol/L}$) • Complicated diabetes • Solid tumor • Leukemia • Lymphoma
3	<ul style="list-style-type: none"> • Cirrhosis with or without bleeding
6	<ul style="list-style-type: none"> • Solid tumor with metastases • HIV with or without AIDS

Age (years)	Score
< 50	0
50-59	1
60-69	2
70-79	3
80- 89	4
≥ 90	5

Total	Probability of survival at 10 years
0	99%
1	96%
2	90%
3	77%
4	53%
5	21%
6	2%
>6	0%

Appendix 3: The Quick Sequential Organ Failure Assessment (qSOFA) [34, 35] identifying patients at risk of developing sepsis:

qSOFA

- **Respiratory rate ≥ 22 breaths per minute**
- **Altered mental status**
- **Systolic blood pressure ≤ 100 mmHg**

Appendix 4: Description of non-compliant antibiotic prescriptions for cystitis, male UTI, and APN.

Molecule	Cystitis n=178 (39)	Male UTI n=95 (21)	APN n=183 (40)	Total n=456 (100)
Amoxicillin	4 (18.2)	0 (0.0)	0 (0.0)	4 (6.2)
Amox-clav	1 (4.5)	1 (7.7)	0 (0.0)	2 (3.1)
Ceftriaxon	0 (0.0)	3 (23.1)	14 (46.7)	17 (26.2)
Ofloxacin	3 (13.6)	6 (46.1)	13 (43.3)	22 (33.8)
Levofloxacin	0 (0.0)	0 (0.0)	2 (6.6)	2 (3.1)
Ciprofloxacin	3 (13.6)	3 (23.1)	3 (10)	9 (13.8)
Fosfomycin	3 (13.6)	0 (0.0)	1 (3.3)	4 (6.2)
Trimet/sulfam	1 (4.5)	0 (0.0)	0 (0.0)	1 (1.5)
Pivmecillinam	5 (22.3)	0 (0.0)	0 (0.0)	5 (7.7)
No antibiotic	2 (9.1)	0 (0.0)	1 (3.3)	3 (4.6)

Amox-clav: amoxicillin-clavulanic acid; APN: acute pyelonephritis; Trimet/sulfam: Trimethoprim/ Sulfamethoxazol;
UTI: urinary tract infection.

Appendix 5: Study of Non-Conformity Risk Factors (Bivariate Analysis)

Variable	Non-compliant (n=184)	Compliant (n=271)	Odds ratio [95%CI]	p-value
Sex			0.26[0.1 - 0.41]	<0.0001
- Male	131 (70.8)	81 (29.9)		
- Female	54 (29.2)	190 (70.1)		
Age (mean ± SD)	46.5 ± 21.13	38.8 ± 20.3		0.001
Final diagnosis			0.37[0.24 - 0.60]	0.0004
- Cystitis	35 (18.9)	143 (52.7)		
- Male UTI	66 (35.7)	29 (10.1)		
- APN	84 (45.4)	99 (36.5)		
Molecule non-compliant			0 [0 – NaN]	<0.0001
- No	104 (61.9)	271 (100)		
- Yes	64 (38.1)	0 (0.0)		
Dose regimen non-compliant			0 [0 – NaN]	<0.0001
- No	127 (75.6)	271 (100)		
- Yes	41 (24.4)	0 (0.0)		
Duration non-compliant			0 [0 – NaN]	<0.0001
- No	49 (31.2)	271 (100)		
- Yes	108 (68.8)	0 (0.0)		
Wild-type strain			1.11[0.72-1.72]	0.628
- No	104 (67.1)	141 (64.7)		
- Yes	51 (32.9)	77 (35.3)		
Resistant strain			0.85[0.56-1.29]	0.465
- No	72 (45.9)	85 (54.1)		
- Yes	100 (49.7)	101 (50.3)		
GIR dependency level			0.85[0.56-1.29]	0.465
- Level 1	2 (1.1)	3 (1.1)		
- Level 2	2 (1.1)	0 (0.0)		
- Level 3	3 (1.6)	4 (1.5)		
- Level 4	2 (1.1)	6 (2.2)		
- Level 5	10 (5.5)	9 (3.4)		
- Level 6	163 (89.6)	247 (91.8)		
Residence in an institution			0.56[0.16 -1.86]	0.339
- No	179 (96.8%)	266 (98.2)		
- Yes	6 (3.2%)	5 (1.8)		
Charlson Comorbidity Index	1.53 ± 2.41	0.95 ± 1.87	-	0.002
Length of stay in the ED (min)	336.1 ±161.9	295.3 ±159.7	-	0.006
Urological comorbidities			0.67[0.45-1.01]	NaN
- No	120 (64.9)	197 (73.2)		
- Yes	65 (35.1)	72 (26.8)		

Comorbidity: pyelonephritis			0.92[0.49 -1.72]	0.812
- No	166 (89.7)	245 (90.4)		
- Yes	19 (10.3)	26 (9.6)		
Comorbidity: BPH			0.33[0.09 -1.12]	0.064
- No	177 (95.7)	265 (98.5)		
- Yes	8 (4.3)	4 (1.5)		
Urinary malformation			2.08[0.41 -10.45]	0.360
- No	183 (98.9)	263 (97.8)		
- Yes	2 (1.0)	6 (2.2)		
Previous surgery			1.74[0.53 -5.65]	0.346
- No	181 (97.8)	259 (96.3)		
- Yes	4 (2.2)	10 (3.7)		
Comorbidity: IRC			0.13[0.01 -1.15]	0.033
- No	189 (97.3)	268 (99.6)		
- Yes	5 (2.7)	1 (0.37)		
Comorbidity: male UTI			0.48[0.19 -1.22]	0.120
- No	174 (94.0)	261 (97.0)		
- Yes	11 (5.9)	8 (2.9)		
Comorbidity: neoplasia			1.73[0.33 -9.02]	0.509
- No	183 (98.9)	264 (98.1)		
- Yes	2 (1.1)	5 (1.8)		
Comorbidity: kidney transplant			0 [0 -NaN]	0.227
- No	184 (99.5)	269 (100.0)		
- Yes	1 (0.5)	0 (0.00)		
Comorbidity: renal colic			0.73[0.31 -1.71]	0.478
- No	174 (94.0)	257 (95.5)		
- Yes	11 (5.9)	12 (4.5)		
Other comorbidities			0.38[0.24 -0.59]	< 0.0001
- No	124 (67.4)	224 (84.5)		
- Yes	60 (32.66)	41 (15.5)		
Hypertension			0.48[0.28 - 0.81]	0.005
- No	146 (79.4)	238 (88.8)		
- Yes	38 (32.7)	30 (11.2)		
Diabetes			0.38[0.18 - 0.80]	0.009
- No	164 (89.1)	256 (95.5)		
- Yes	20 (10.8)	12 (4.5)		
Cardiopathy			0.42[0.21 - 0.86]	0.015
- No	163 (88.6)	254 (94.8)		
- Yes	21 (11.4)	14 (5.2)		
Comorbidity: smoking			0.50[0.25 -0.99]	0.046
- No	146 (87.9)	245 (93.4)		
- Yes	20 (12.1)	17 (6.5)		
Comorbidity: exogenosis			0.30[0.07 -1.22]	0.302
- No	156 (96.3)	258 (98.8)		
- Yes	6 (3.7)	3 (1.2)		
Comorbidity: stroke			0.42[0.16 -1.11]	0.074
- No	174 (94.1)	261 (97.4)		
- Yes	11 (5.9)	7 (2.6)		

Home care			0.42[0.26 - 0.67]	0.0002
- No	130 (70.7)	226 (84.9)		
- Yes	54 (29.4)	40 (15.1)		
Antihypertensive medication			0.46[0.27 - 0.78]	0.003
- No	145 (78.8)	238 (88.8)		
- Yes	39 (21.2)	30 (11.2)		
Anticoagulant therapy			0.60[0.26-1.41]	0.243
- No	170 (93.4)	256 (95.8)		
- Yes	12 (6.6)	11 (4.2)		
Antiplatelet therapy			0.40[0.20 - 0.81]	0.009
- No	162 (88.0)	254 (94.7)		
- Yes	22 (12.0)	14 (5.3)		
Diuretic medication			0.67[0.19 - 2.37]	0.539
- No	178 (97.3)	263 (98.1)		
- Yes	5 (2.7)	5 (1.8)		
Hospital admission in the previous 6 months			0.86[0.38 - 1.94]	0.723
- No	173 (94.0)	255 (94.8)		
- Yes	11 (6.0)	14 (5.2)		
Risk factors for complications			0.30[0.20 - 0.46]	< 0.0001
- No	102 (55.1)	216 (80.0)		
- Yes	83 (44.9)	54 (20.0)		
Frailty			1.28[0.50 – 3.27]	0.604
- No	178 (96.3)	258 (95.2)		
- Yes	7 (3.7)	13 (4.8)		
Risk factor for ESBLPE			0.75[0.4 -1.407]	0.380
- No	164 (88.6)	247 (91.1)		
- Yes	21 (11.4)	245 (8.86)		
Signs of urinary dysfunction			0.95[0.62 - 1.47]	0.847
- No	139 (75.1)	205 (75.9)		
- Yes	46 (24.2)	65 (24.1)		
Burning sensation on urination			1.56[1.06 - 2.26]	0.021
- No	104 (56.2)	122 (45.2)		
- Yes	81 (43.8)	148 (54.8)		
Dysuria			1.30[0.81 - 2.11]	0.271
- No	153 (82.7)	212 (78.5)		
- Yes	32 (17.3)	58 (21.5)		
Pollakiuria			1.35[0.88 - 2.09]	0.166
- No	143 (77.3)	193 (71.5)		
- Yes	42 (22.7)	77 (28.5)		
Hematuria			0.88[0.55 - 1.40]	0.605
- No	145 (78.4)	217 (80.4)		
- Yes	40 (21.6)	53 (19.6)		
Flank pain			0.61[0.41 - 0.88]	0.009
- No	78 (42.2)	148 (54.6)		
- Yes	107 (57.8)	123 (45.4)		
Hypogastric pain			0.66[0.39 - 1.13]	0.137
- No	154 (83.2)	238 (88.1)		
- Yes	31 (16.8)	32 (11.9)		

Other abdominal pain			0.84[0.58 – 1.24]	0.398
- No	106 (57.3)	166 (61.3)		
- Yes	79 (42.7)	105 (38.7)		
Feeling feverish			1.11[0.69 - 1.79]	0.653
- No	151 (81.6)	215 (79.9)		
- Yes	34 (18.4)	54 (20.1)		
Fever at home			0.96[0.50 - 1.85]	0.922
- No	168 (90.8)	245 (91.1)		
- Yes	17 (9.2)	24 (8.9)		
Systolic blood pressure (mmHg)	138.8 ± 23.9	133.9 ± 19.9	-	0.025
Mean blood pressure (mmHg)	98.1 ± 17.7	96.7 ± 20.1	-	0.449
Heart rate (bpm)	91.1 ± 17.7	90.8 ± 16.9	-	0.871
Temperature (°C)	36.8 ± 1.1	36.7 ± 0.9	-	0.424
CRP	48.7 ± 63.3	51.1 ± 70.1	-	0.733
White blood cell count	11177.4 ± 4451.4	11027.7 ± 6295.7	-	0.791
Serum creatinine level	77.1 ± 57.9	66.5 ± 16.5	-	0.021
Serum urea levels	5.1 ± 4.7	4.3 ± 1.9	-	0.042
Positive MEU			1.03[0.64 – 1.64]	0.897
- No	38 (21.1)	53 (21.6)		
- Yes	142 (78.9)	192 (78.4)		
E. coli			0.87[0.55 – 1.39]	0.582
- No	43 (28.3)	62 (31.0)		
- Yes	109 (71.7)	138 (69.0)		
K. pneumoniae			0.88[0.35 – 2.24]	0.801
- No	135 (93.7)	169 (94.4)		
- Yes	9 (6.3)	10 (5.6)		
P. mirabilis			0.53[0.08 – 3.23]	0.488
- No	140 (97.9)	175 (98.9)		
- Yes	3 (2.1)	2 (1.1)		
S. saprophyticus			3.19[1.26 – 8.12]	0.010
- No	137 (95.8)	157 (87.7)		
- Yes	6 (4.2)	22 (12.3)		
Citrobacter koseri			1.20[0.19 – 7.32]	0.838
- No	140 (98.6)	174 (98.3)		
- Yes	2 (1.41)	3 (1.7)		
Adjustment of the antibiotic treatment			0.51[0.35 - 0.76]	0.001
- No	83 (46.1)	162 (62.3)		
- Yes	97 (53.9)	98 (38.7)		
Hygiene and dietary measures			2.050[1.19-3.52]	0.008
- No	163 (88.6%)	212 (79.1)		
- Yes	21 (11.4%)	56 (20.9)		

APN: acute pyelonephritis; BPH: benign prostatic hypertrophy; ED: emergency department; ESBLPE: extended-spectrum-beta-lactamase-producing Enterobacteriaceae; GIR: *Groupe Iso-Ressources*, a French classification system used to assess the level of dependency in elderly individuals; IRC: chronic renal insufficiency. NaN: Not a Number.

Appendix 6: Summary of Antibiotic Resistance among *E. coli*, *Klebsiella spp.*, and *Proteus mirabilis* strains

Pathogen	Resistance	n=143
E. coli	High-level penicillinase	35
	Probable tri- or oxacillinase	22
	Specific resistance to ofloxacin	18
	High-level penicillinase and cephalosporinase	15
	Extended-spectrum beta-lactamase (ESBL)	12
	Low-level cephalosporinase	9
	Multi-resistance type <i>S. saprophyticus</i>	8
	Missing data	5
Klebsiella spp.	Low-level penicillinase	18
	Extended-spectrum beta-lactamase (ESBL)	1
Proteus mirabilis	Intrinsic resistance	1
	High-level penicillinase	2
	Low-level cephalosporinase	3
Categorical variables are expressed as the frequency (percentage). n=number of patients.		