

Improvement of Clinical Management and Antibiotic Quality with Simplified Therapeutic Guidelines

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Introduction

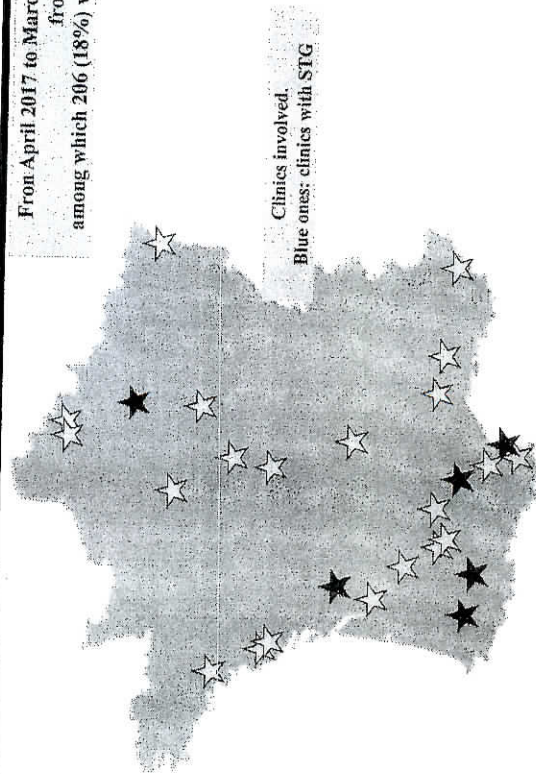
- We have reported that unnecessary antibiotic therapies are associated with unspecified diagnoses and the lack of microbial investigation.
- Besides, national and international guidelines are comprised of therapeutic proposals which are not easy to use in daily practice.
- Our aim was to examine the impact of simplified therapeutic guidelines (STG) on the quality of antibiotic use.

Method

- Prospective multicenter study performed in a group of clinics in which a network works for antimicrobial stewardship
- Real-time antibiotic audits based on the same electronic patient records in all institutions and feedback information were collected successively over a 24-month period
- The STG aimed to reduce therapeutic proposals to just a few double-sided pages for most common types of infections. These STG were tailored to each clinic following local bacterial resistance data. No more than 15 antibiotic compounds were used, in keeping with a number of recommendations to improve diagnostic accuracy and increase microbial investigations and to avoid the use of fluoroquinolones (FQ), ceftriaxone and third generation cephalosporins (TGC) as much as possible.
- Optimal antibiotic therapy was defined as the prescription of a drug according to the STG for the appropriate diagnosis.
- Antibiotic evaluation was performed according to previously published definitions

Results

From April 2017 to March 2019, 1142 antibiotic treatments from 27 clinics, among which 206 (18%) were prescribed in clinics with STG



Conclusion: The STG were associated with a significant improvement of clinical practices with increase of microbial testing and a higher rate of optimal antibiotic therapy

Roger PHL, Veronique E, Lescage P et al. Risk factors for unnecessary antibiotic therapy: a higher rate for clinical management. Clin Infect Dis 2018 Oct 31; doi: 10.1093/cid/ciy271

Spinks EK, Congrove SE, Steinheim A. Measuring appropriate antimicrobial use: attempts at opening the black box. Clin Infect Dis 2016; 63: 1639-41

Factors associated with STG: uni- and multivariate analysis (logistic regression)

	Without STG n = 936 (82%)	with STG n = 206 (18%)	P	AOR [95% CI]
Suspected or definitive diagnosis				
urinary tract infections	264 (28)	52 (25)	0.389	
respiratory infections	166 (18)	55 (27)	0.003	1.79 [1.24 – 2.59]
gastrointestinal infections	154 (16)	34 (16)	0.985	
cutaneous infections	87 (9)	25 (12)	0.214	
osteocartilicular infections or endocarditis	77 (8)	13 (6)	0.312	
unspecified	185 (20)	28 (14)	0.039	
Microbiological data				
≥ 1 microbial test	616 (66)	141 (68)	0.469	
blood cultures	247 (26)	72 (35)	0.013	
bacteremia	73 (8)	28 (14)	0.008	
urine cultures	442 (47)	92 (44)	0.504	
any positive microbial test result	331/616 (54)	80/141 (56)	0.635	
Unnecessary antibiotic therapy	367 (39)	61 (30)	0.010	
Required antibiotic treatment				
Inappropriate	151 (31)	72 (35)	0.345	
suboptimal	71 (15)	22 (11)	0.137	
optimal	148 (16)	56 (27)	<0.001	
parenteral administration	609 (65)	133 (66)	0.898	
antibiotic combination	334 (36)	75 (36)	0.844	
third-generation cephalosporins	318 (34)	48 (23)	0.003	
ceftriaxone	246 (26)	35 (17)	0.005	
amoxicillin + clavulanic acid	288 (31)	97 (47)	<0.001	
fluoroquinolones	270 (29)	47 (23)	0.080	1.86 [1.29 – 2.69]
Effective antibiotic reassessment				
Adverse clinical outcome	253 (27)	69 (33)	0.061	
Non-bacterial infections	93 (10)	16 (8)	0.337	
urinary colonisation				
acute bronchitis	100 (11)	7 (4)	0.001	
	49 (2)	14 (7)	0.310	0.36 [0.16 – 0.79]