

BACKGROUND

Optimizing the use of antibiotics is critical to effectively treat infections, protect patients from harms caused by unnecessary antibiotic use, and combat antibiotic resistance. Antimicrobial stewardship program was implemented in our hospital since October 2016.

The most important activities carried out by the antimicrobial stewardship team (AMST) in our hospital are:

- Daily control of broad-spectrum antibiotic prescriptions.
- Monitoring of bacteraemia.
- Implementation of empirical antibiotic therapy guideline.

Objectives:

- To evaluate the impact of the COVID-19 pandemic on the antimicrobial stewardship program of our hospital.
- To analyze changes in broad-spectrum antibiotics consumption.
- To analyze the evolution of the incidence of *Clostridioides difficile* (CD) diarrhea.

METHODS

Database with the following variables was created:

- Monthly percentage of broad-spectrum antibiotic prescriptions that were evaluated by the AMST.
- Monthly consumption of antimicrobials.
- Monthly incidence of diarrhea due to CD.

Two time periods were compared:

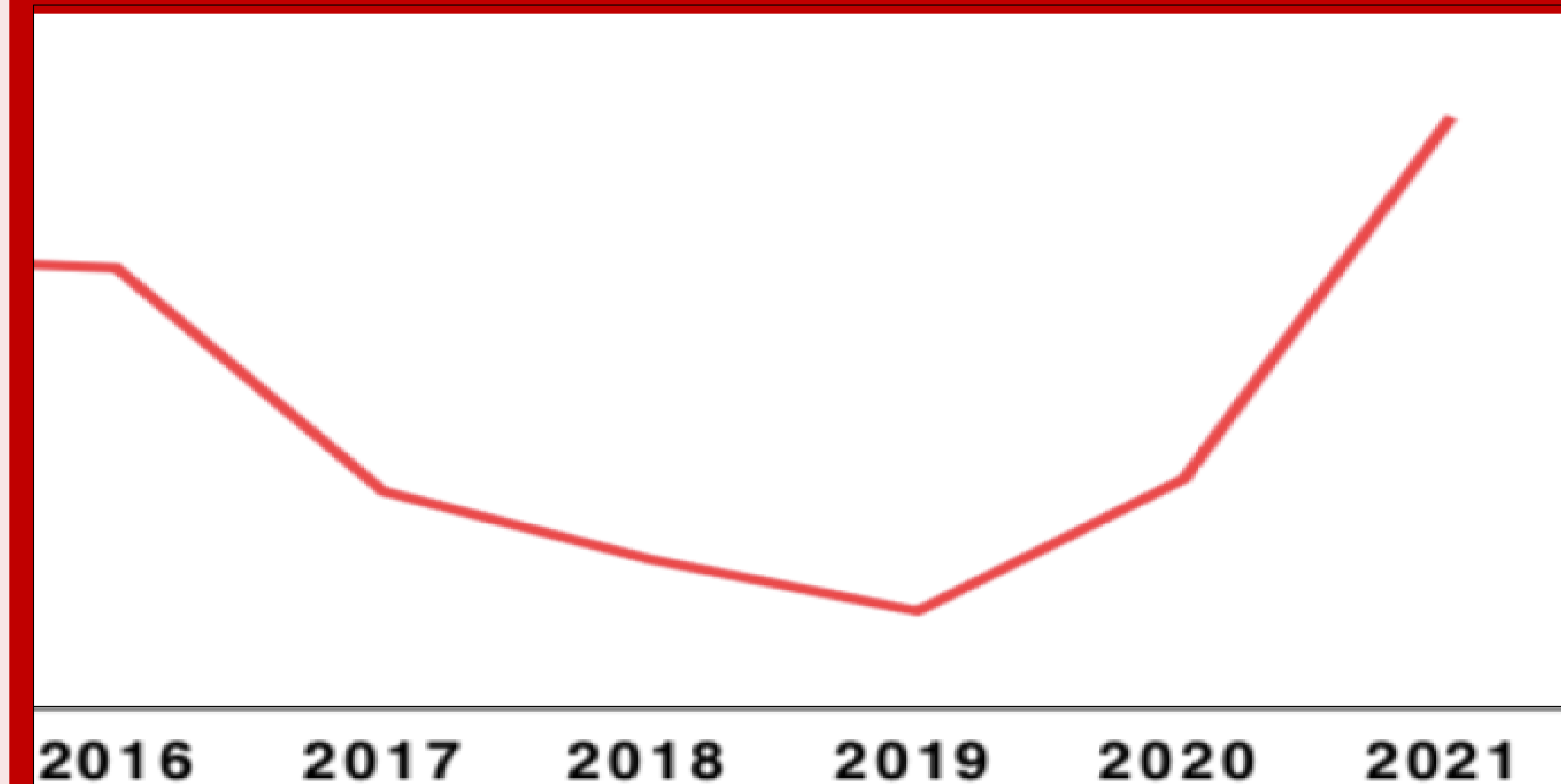
- Prepandemic period: from March 1th, 2018 to February 29th, 2020.
- Pandemic period: from March 1th, 2020 to February 28th, 2022.

-Time series analysis was performed with ARIMA models to assess the association of the pandemic period with a change in the monthly activity of AMST, in the monthly antibiotic consumption, and in the monthly incidence of CD diarrhea.

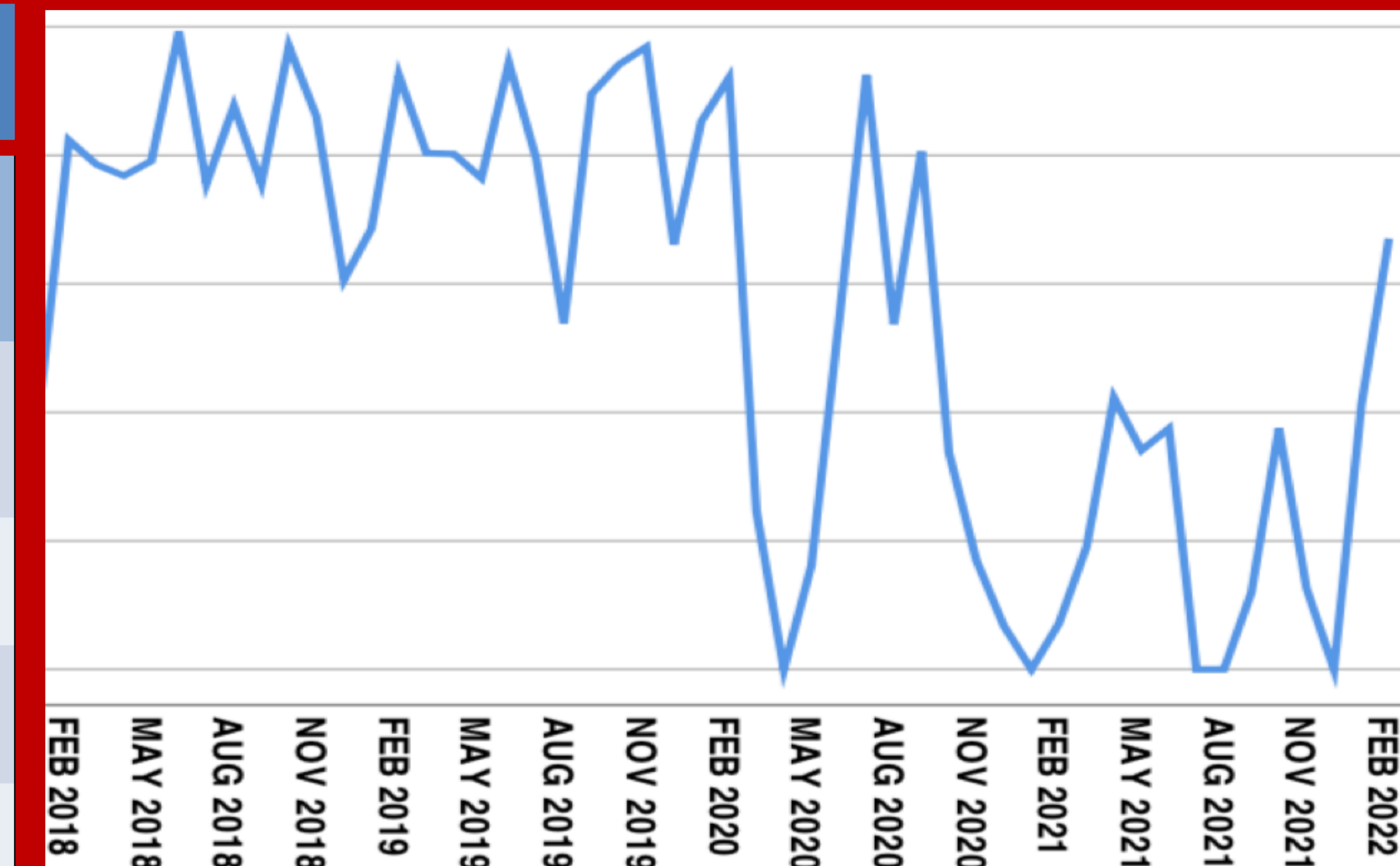
-The correlation of the percentage of monthly broad-spectrum antibiotic prescriptions reviewed by AMST with the monthly broad-spectrum antimicrobials consumption was also evaluated, using the Spearman coefficient.

RESULTS

Variable	1/3/18 - 29/2/20	1/3/20 - 28/02/22	Evolution	P
Broad-spectrum antibiotic prescriptions evaluated by AMST	82%	28%	-65%	<0,01
Broad-spectrum antibiotics (DDD per 100 bed-days)	12,1	15,7	+29%	NS
Anti-pseudomonal carbapenem (DDD per 100 bed-days)	1,4	2	+42%	<0,01
Anti-MRSA antibiotics (DDD per 100 bed-days)	12,9	35,6	+175%	<0,01
Cefepime (DDD per 100 bed-days)	0,6	1,1	+83%	<0,01
Aztreonam (DDD per 100 bed-days)	0,3	0,4	+33%	0,04
Nosocomial CD diarrhea (cases per 1000 bd)	0,7	1,02	+45%	<0,01



Broad-spectrum antimicrobials consumption (DDD/1000 bd)



Broad-spectrum antibiotic prescriptions evaluated by AMST (%)

Variable 1	Variable 2	Spearman CC	P
Broad-spectrum antibiotic prescriptions evaluated by AMST	Broad-spectrum antibiotics (DDD per 100 bed-days)	-0,63	<0,01
	Anti-pseudomonal carbapenem (DDD per 100 bed-days)	-0,58	<0,01
	Anti-MRSA antibiotics (DDD per 100 bed-days)	-0,7	<0,01

CONCLUSIONS

COVID-19 pandemic has had a significant impact on the antimicrobial stewardship program at our hospital, with an increase in broad-spectrum antimicrobials consumption and a significant increase in the incidence of CD diarrhea.