

**RESEARCH LETTER:**

**Title: "Social distancing to combat COVID-19 led to a marked decrease in food-borne infections and sexually transmitted diseases in Spain"**

**Running Title:** Effect of social distancing on the incidence of infectious diseases in Spain.

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## **"Social distancing to combat COVID-19 led to a marked decrease in food-borne infections and sexually transmitted diseases in Spain"**

**Highlight:** Data from a recent epidemiological surveillance network showed a decrease in the reported number of sexually transmitted diseases and food-borne infections. We reflect on the possible drivers and consequences of a decrease in these transmittable infectious diseases linked to human contact in relation to social distancing due to the COVID-19 pandemic in Madrid (Spain).

### **RESEARCH LETTER**

Since the first case of coronavirus in Madrid (Spain) was diagnosed in February 25<sup>th</sup> 2020, the pandemic went on to affect over 90.500 persons in this city (as of August 12<sup>nd</sup>).<sup>1</sup> In an attempt to control the spread of the virus, the Government declared the state of alarm on March 15<sup>th</sup>, which imposed lockdown for all citizens. This meant that mass gatherings such as sports events, music festivals or even weddings were officially banned. This was followed by restrictions on the free movement of people and consequently tourism dramatically decreased. This is of particular concern in Spain, one of the world's leading tourist destination.

Recently, the Epidemiological Surveillance Network from Madrid Autonomous Community released data of obligatory declaration diseases from the first semester of 2020, which significantly overlaps with the same time period as the coronavirus pandemic<sup>2</sup>. Compared to the first semester of 2019, there is a marked decrease in the reported number of food-borne infections and sexually transmitted diseases (STD)[table 1]. Specifically, *Campylobacter* infections decreased from 1308 in 2019 to 391 in 2020

and *Salmonella* (excluding typhoid and paratyphoid fever) from 462 in 2019 to 111 cases this year.

In the same context, the number of STDs also decreased: in 2019 there were 1056 gonococcal infections, 1212 diagnosis of *Chlamydia trachomatis* (excluding *Lymphogranuloma venereum*) and 425 of syphilis, compared to 196, 292 and 114 respectively in 2020.

In our opinion, one important driver for the reduction of both gastrointestinal infections and STDs in the first semester of 2020 is the social distancing during the months where Madrid was affected by the pandemic. We also believe that fear of coronavirus infection may have led patients to not seek appropriate medical assistance. There are reports that as a collateral effect of the pandemic, persons avoid attending emergency rooms or search medical care with significant delay, which in turn can lead to more severe outcomes of their condition<sup>3</sup>. Arguably, diarrhea and STDs are unlikely to be life-threatening, but their long-term consequences should not be overlooked. As we are interpreting data from epidemiological surveillance, this does not allow us to establish the definitive cause leading to a decrease in the number of the reported diseases. It would be interesting to see if the diagnosis of these diseases increases in the upcoming period when lockdown is reduced, or if lessons learnt from this pandemic will help to reduce person-to person transmission of infections. This seems likely to be the case with air-borne transmission<sup>4</sup> but we wonder if social distancing and a wider attention to potential infectious risks will affect the behavior of the community, and if this could, for example, abrogate the current global burden and the estimated 1 million new daily STD cases<sup>5</sup>. We could expect that reducing situations that favor casual sex, such as clubbing and partying, would be accompanied by a decrease of STDs in times of confinement. With regards to food-borne infectious diseases, it could be argued that limiting food

consumption outside of households due to lockdown may have had an impact in the reduced incidence of these infections. Indeed, there have been reports of sporadic outbreaks in dining facilities<sup>6</sup> and asymptomatic food-handlers can become a source of infection transmission<sup>7</sup>. But, to the contrary, a study in Catalonia, in the northeastern region of Spain, showed that Salmonella outbreaks over a ten-year period were increasing in households compared to other settings<sup>8</sup>. Again, underreporting can alter data obtained from epidemiologic surveillance: we have to await for the upcoming months to access better insight of the trends in the reported cases of these infections.

Finally, we want to reflect on the role tourism may play in the reduction of infectious diseases in times of COVID-19. Both food-borne diseases and STDs have been associated with tourism<sup>9</sup>, which is of particular concern in terms of public health due to the possibility of disseminating antibiotic resistant strains<sup>10</sup>. Travelers are a risk group for both STD acquisition and transmission because their sexual behavior is modified during travel, with increased casual sex and number of sexual partners<sup>11</sup>. As an example, a recent French study of travel related STIs showed that HIV subtype and *Neisseria gonorrhoeae* antimicrobial resistance correlated well with the countries where these infections were acquired<sup>12</sup>. An optimistic view of the potential effects of this pandemic could be that travel restrictions might help to slow down the incidence of geographic translocation of antibiotic-resistant bacteria. But that seems a very high price to pay for the loss of tourism and Spanish *fiesta*.

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## TABLES

Table 1. Number of accumulated cases of sexually transmitted diseases and food-borne infections declared in Madrid between weeks 1-26 of 2019 and 2020<sup>2</sup>.

	<b>Disease</b>	<b>2019</b>	<b>2020</b>
<b>Sexually transmitted diseases</b>	Chlamydia infection (excluding <i>Lymphogranuloma venereum</i> )	1212	292
	Gonococcal infection	1056	196
	Syphilis	425	114
<b>Food-borne infections</b>	Campylobacteriosis	1308	391
	Salmonellosis (excluding typhoid and paratyphoid fever)	462	111