

# Coronavirus Disease COVID-19 (Severe Acute Respiratory Syndrome Cov-2) in European Countries: Epidemic, Origin, Spread and Confirmed Cases Up to First Week of April, 2020

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**Abstract:** *There is a worldwide outbreak of the nCoV-19 (novel Coronavirus disease 2019), the pathogen called SARS-CoV-2 (severe acute respiratory syndrome CoV-2) previously 2019-nCoV which has been originated from Wuhan city of China and has now spread to about 6 continents including 181 countries & region on April 2, 2020. Government of these countries is under increased pressure to stop the outbreak spiraling into a global health emergency. As this stage, preparedness, transparency, and sharing of information are crucial to risk assessments and beginning outbreak control activities. The pandemic spread from Asia reached Europe by the third week of January where COVID-19 was first confirmed in France and in a few weeks, its patients started coming from many countries of Europe. In Europe, around 873,767 confirmed cases of Corona virus disease (COVID-19) and more than 42,404 deaths have been reported. The outbreak of this epidemic is seen mostly in Italy, Spain and France where Italy has been identified as epicenter. Moreover, Italy and Spain are getting the highest number of recorded deaths. Cases of covid 19 are increasing day by day in Europe. Due to which there is a situation of lockdown in many countries of Europe. The present paper is an attempt to summarize the origin, spread, epidemiology of this dreadful disease in European countries with confirmed positive cases along with deaths and recovery of the patient's up to first week of April, 2020.*

**Keywords:** COVID-19, SARS-CoV-2, Europe, Spread, Epidemiology, Active and Confirmed Cases

## 1. Introduction

Coronaviruses are enveloped, non-segmented positive sensed single-stranded RNA (ribonucleic acid) viruses belonging to the Coronaviridae family (Pal Met.al 2020). They have been categorized based on antigenic in three main virus groups (a) alpha-CoVs, mainly responsible for gastrointestinal disorders (b) beta-CoVs, that include (1) batcoronavirus, (2) the human severe acute respiratory syndrome (SARS) virus (3) the Middle Eastern respiratory syndrome (MERS) virus (c) gamma-CoVs, that mainly infect avian species. In December 2019, a new virus (initially called Novel Corona virus 2019- nCoV-19 and later renamed to SARS-CoV-2) Causing Severe acute respiratory syndrome (Corona virus disease COVID-19) emerged in Wuhan, Hubei Province, China and rapidly spread to other parts of China and other countries around the world (KamelBoulos 2020) On January 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as the sixth public health emergency of international concern, following H1N1 (2009), polio (2014), Ebola in West Africa (2014), Zika Virus (2016) and Ebola in the Democratic Republic of Congo (2019). This epidemic started in Asia till now 180 countries, regions have set foot in it, it's most frightening form is seen in European countries where is spread fast. Till 02/04/2020 around 873,767 cases of Corona virus disease 2019 (COVID-19) and 42,404 deaths have been reported. The epidemic has caused the highest recorded deaths in Southern European Countries Italy and Spain, 12,428 in Italy and 9,053 in Spain. According to the World Health Organization (WHO) the best healthcare in the world 2020, (See <https://worldpopulationreview.com/countries/best-healthcare-in-the-world/>). Italy ranks second in the world but the highest number of infections and deaths due to COVID-19 happened in Italy itself.

### 1) Europe and European Countries

Europe is a continent location entirely in the Northern Hemisphere and mostly in the Eastern Hemisphere. It comprises the westernmost part of Eurasia and is bordered by the Arctic Ocean to the north, the Atlantic Ocean to the west, the Mediterranean Sea to the south and Asia to the east. Europe covers about 10,180,000 sq. kilometres (3,930,000 sq. mil) 2% of the Earth's surface (6.8% of land area) making it the sixth largest continent. Europe had a total population of about 746,419,440 (2018) and population density 72.3/km<sup>2</sup> (187/sq. mi) (about 11% of the World population as of 2018. European Countries namely Italy, Spain, Germany France, United kingdom, Switzerland, Belgium, Netherlands, Austria, Portugal, Sweden, Norway, Czech republic, Ireland, Denmark, Russia, Poland, Romania, Luxembourg, Finland, Greece, Iceland, Serbia, Croatia, Slovenia, Ukraine, Estonia, Lithuania, Armenia, Hungary, Bosnia and Herzegovina, Latvia, Moldova, Bulgaria, Slovakia, Andorra, Azerbaijan, San Marino, Malta, Faroe Islands, Belarus, Montenegro Georgia, Kosovo, Jersey, Guernsey, Liechtenstein, Gibraltar, Isle of Man, Monaco and Holy See (See [www.countries-of-the-world.com](http://www.countries-of-the-world.com)).

### 2) Origin and Spread of SARS- CoV- 2 In Europe

In late December 2019, a number of local health authorities reported clusters of patients with pneumonia of unknown cause, which were epidemiologically linked to a seafood market in Wuhan, Hubei Province, China. The novel Corona virus (SARS-CoV-2) Severe Acute respiratory Syndrome Coronavirus-2, was identified by local hospital using a surveillance mechanism for pneumonia of unknown etiology" that was established in the wake of the 2003 SARS outbreak with the aim of allowing timely identification of novel pathogens On 30 January 2020, the World Health Organization (WHO) declared that COVID-19 is a public health emergency of international conference. The first fatal

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case was reported on 11 the January 2020. The massive migration of Chinese during the New Year fuelled the epidemic. Cases in other provinces of China, other countries Thailand, Japan, and South Korea in quick succession were reported in people who were returning from China Wuhan. This epidemic started from city of Wuhan in China has spread to around 180 countries of the world today. The 2019 novel Corona virus had spread to Europe, with two cases confirmed in France, that national health minister announced on third week of January. The patients were diagnosed in Bordeaux and in the Paris area, said Agnes Buzyn. She noted that both parties had participated to China, where the fatal infection originated and has killed dozens. The Corona virus patients in Europe has started from the unit and has reached million today, only around 464,859 confirmed cases and 30,098 deaths due to Corona disease in Europe so far. According to the Corona virus COVID-19 global cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University & Medicine Corona virus resource Center, Italy has topped the list with 110,574 confirmed cases of COVID-19 in Europe so far, 110,238 in Spain, 81,728 in Germany and 56,989 confirmed cases in France.

### 3) Epidemiology

Since December 2019, multiple cases occur unexplainable pneumonia was successively reported in some hospital in Wuhan city, with a history exposure to a large seafood market in Wuhan city, Hubei province, china. It has been confirmed to be an acute respiratory infection caused by a novel coronavirus. So far, this disease has rapidly spread from Wuhan to china's other areas, and 180 countries and regions. The COVID-19 epidemic that started in Asia has spread on many continents today, while in Europe the epidemic was confirmed in the third week of January in the European countries France where two travelers returned from china showed signs of infection and found positive in diagnosis. And then in many countries of Europe, there was a possibility of infection in COVID-19 patients, most of these people came back from china, who has diag based on

symptoms. Was diagnosed and most of these passengers were found to be SARS-COV-2 positive, kept in quarantine and in just three weeks, the most terrible form of this epidemic was found in Europe, thousands of people were seen in Italy till last week. More than 110000 people were found positive and more than 12000 people lost their lives more than Asia, this epidemic has spread to European countries.

### 4) Johns Hopkins University Center for Systems Science and Engineering JHU CSSE Dashboard

Today we have come in fifth generation where transportation has also become very fast and unlimited, similarly the spread of diseases has also become very fast, information has to move even faster. This is where map based dashboard become crucial. Through this, information and statistics about the epidemic can be obtained soon and by analyzing the data obtained, timely prevention and control measures can be taken. This system provides global data about the epidemic. Johns Hopkins experts in global public health, infectious disease, and emergency preparedness have been at the forefront of the international response to COVID-19. This website is a resource to help advance the understanding of the virus, inform the public, and brief policymakers in order to guide a response, improve care, and save lives. JHU CSSE dashboard developed by Lauren Gardener (epidemiologist) and her team from the JHU CSSE, the dashboard went viral with hundreds of new article and shares on social media (Figure:1). JHU CSSE dashboard provides pure information about COVID-19 in just one click. Viewers can see the day and time of the most recent data update and data sources. The dashboard's five authoritative data sources include World Health Organization (WHO), US Centers for Disease Control and prevention, National Health Commission of the people's republic of China, European Centre for Disease prevention and Control, and the Chinese online medical resource DXY.cn.



**Figure1:** Johns Hopkins University CSSE is tracking the Spread of SARS-COV-2 in Near Real Time With A Map-Centric Dashboard (Prevention),

Using (Argis Online) That Pulls Relevant Data from the [WHO](#), [ECDC](#), [CDC](#) (Centers for Disease Control and

ECDC, (European Centre For Disease Prevention and Control), Chinese Centre for Disease Control and Prevention (CCDC0), NHC (National Health Commission), and Dingxiangyuan (Dxy Andchina)

**Screenshot date: 2 April 2020**

According to the CSSE dashboard data, the number of such confirmed cases in European countries is Italy (110574), Spain (110238), Germany (81728), France(56989), UK(33718), Switzerland(18267),Turkey(15679), Belgium(15348), Netherlands (14697), Austria(11199), Portugal(9034), Israel(6857), Norway(5119), Czech republic(3604), Ireland(34470, Denmark (33550, Russia (41490, Poland(1011), Romania(2738), Luxembourg(2319), Finland(1615), Greece (1544), Iceland(1319),Croatia(1011), Slovenia(897), Estonia(858), Ukraine(942), Lithuania(696), Armenia(736), Hungary (623), Bosnia and Herzegovina(543), Bulgaria(477), Latvia(493), Andorra(428), Slovakia(426), Moldova(505), Kazakhstan (448), North Macedonia(384), Azerbaijan Cyprus(400),Albania(277), San Marino(236), Uzbekistan(221), Malta (196), Belarus(204), Georgia(148),Kyrgyzstan(130),Montenegro(160),Liechtenstein(75),HolySee(7).

10	Austria	11199	158	1749	9292
11	Portugal	9034	209	68	8757
12	Israel	6857	36	338	6483
13	Norway	5119	47	32	5040
14	Sweden				
15	Czech Republic	3604	40	61	3503
16	Ireland	3447	85	5	3357
17	Denmark	3355	123	1089	2143
18	Russia	4149	34	281	3834
19	Poland	1011	7	88	916
20	Romania	2738	116	267	2355
21	Luxembourg	2319	29	80	2210
22	Finland	1615	19	300	1296
23	Greece	1544	53	61	1430
24	Iceland	1319	4	284	1031
25	Serbia				
26	Croatia	1011	7	88	916
27	Slovenia	897	17	70	810
28	Estonia	858	11	45	802
29	Ukraine	942	23	19	900
30	Lithuania	696	9	7	680
31	Armenia	736	7	43	686
32	Hungary	623	26	43	554
33	Bosnia and Herzegovina	543	16	27	500
34	Bulgaria	477	12	30	435
35	Latvia	493	0	31	462
36	Andorra	428	15	10	403
37	Slovakia	426	1	5	420
38	Moldova	505	6	23	476
39	Kazakhstan	448	3	28	417
40	North Macedonia	384	11	17	356
41	Azerbaijan Cyprus	400	5	26	369
42	Albania	277	16	76	186
43	San Marino	236	28	13	195
44	Uzbekistan	221	2	25	194
45	Malta	196	0	2	194
46	Belarus	204	4	53	147

**1) Confirmed, Deaths, Recovered, and Active Cases in European Countries**

SNO	Countries/Region	Confirmed	Deaths	Recovered	Active Cases
1	Italy	110574	13155	16847	80572
2	Spain	110238	10003	26743	73495
3	Germany	81728	997	19775	61556
4	France	56989	4032	10935	42022
5	UK	33718	2921	135	30662
6	Switzerland	18267	505	4013	13749
7	Turkey	15679	277	333	15069
8	Belgium	15348	1011	2495	11842
9	Netherlands	14697	1339	250	13108

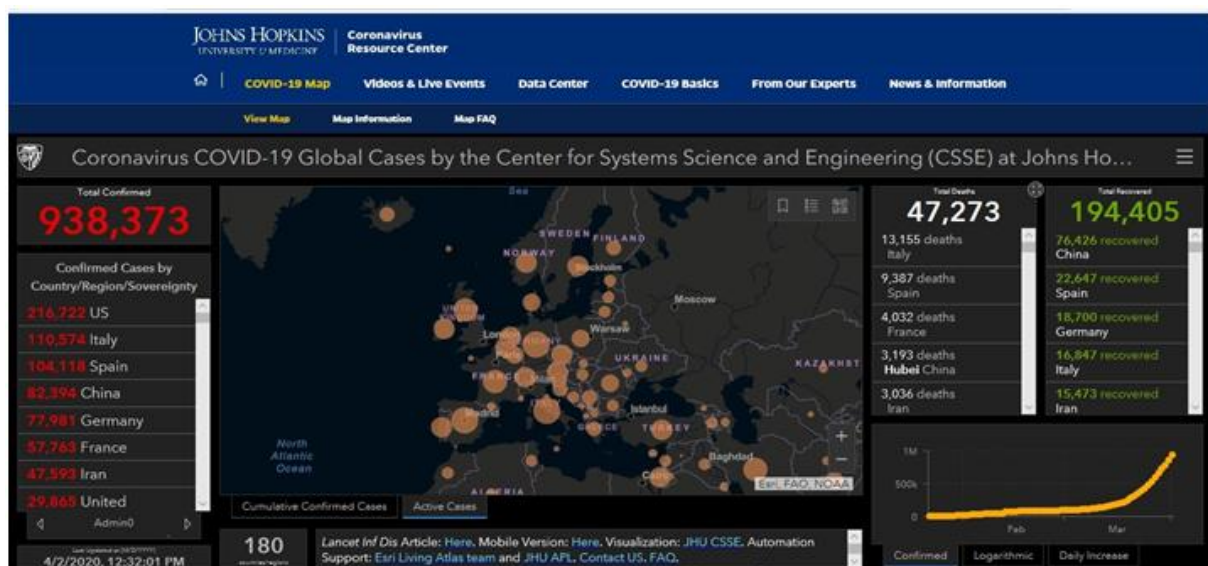


Figure 2:

COVID-19 Active Cases on CSSE Map Johns Hopkins University CSSE is tracking the spread of SARS-COV-2 In Near Real Time With A Map-Centric Dashboard using (Argis Online) that Pulls Relevant Data from the WHO,US,CDC (Centers for Disease Control and Prevention), ECDC (European Centre for Disease Prevention And Control), Chinese Centre for Disease Control and PREVENTION (CCDC0), NHC (National Health Commission), and Dingxiangyuan (DXY AND CHINA).

Screenshot date: 2 April 2020



## 2. Conclusions

The outbreak of COVID-19 has spread to more than 50 countries and regions of Europe, more outbreak are being seen in Southern Europe, Italy and Spain, where Italy becomes the second epicenter after china. The new virus outbreak has challenged the economic, medical and public health infrastructure of European countries to some extent, of other countries especially Italy, where the worst outbreak of this epidemic was seen. This epidemic has affected the countries of Europe where medical facilities were commendable, presenting a fighting challenge among them, especially Italy, where this epidemic is challenging the health system of the country to its extreme. This epidemic has affected the countries in Europe whose population density is higher, like Italy, Spain, France, United Kingdom etc. Complete lockdown and social distancing are the only way seems out to be effective to control the spread of this dreadful disease.

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