

1 **Two-millennia fighting against port-imported epidemics, Marseille.**

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15 **ABSTRACT**

16 Marseille port, one of the major Mediterranean Basin trading ports for more than two  
17 millennia, has been the portal of entry of numerous outbreaks of deadly epidemics  
18 including among others, plague, cholera and yellow fever. This long history of  
19 exposure to deadly epidemics gave Marseille some particular expertise in preventing  
20 and fighting port-imported epidemics, with successive lazarettos alternated with  
21 quarantines, paving the way to the Institut Hospitalier Universitaire Méditerranée  
22 Infection where SARS-CoV-2-infected patients were diagnosed, isolated and treated,  
23 following a strategy undertaken by countries where COVID-19 outbreak has been  
24 successfully controlled.

25

## 26 INTRODUCTION

27 After its foundation by Greek sailors coming from Phocée (in modern-day Turkey)  
28 along the Aegean sea around 600 BC [1], Marseille progressively opened to foreign  
29 countries and became one of the major trading ports of the Mediterranean Basin, with  
30 ships connecting the city for centuries with Spain, Greece, Italy, North Africa, North  
31 Europe, the Americas, Middle East, Reunion Island and the East Indies [2,3]; and  
32 then, particularly with sub-Saharan Africa, Atlantic and Pacific Oceans with the  
33 development of steamboats in the 19th century [3,4]; while the opening of the  
34 international Marseille-Provence [5] airport in 1922 extended the geographical  
35 connections with the Americas and Oceania; as illustrated by the 2019 traffic of  
36 around 10 million travelers to more than 120 different destinations in 34 different  
37 countries. World openness exposed Marseille and neighbor Provence area to port-  
38 imported epidemics, as traced by historical texts as old as the description of the  
39 Roman proconsul Julius Caesar [6] ; historical sculptural and pictorial representations  
40 of epidemics [7,8]; archaeological and anthropological data issued from the  
41 uncovering of numerous multiple burials in Provence [9–11]; completed by  
42 paleomicrobiological studies which illuminated ancient plague, as an example [12].

43 Facing deadly port-imported outbreaks of what are now understood as  
44 epidemics of infectious diseases, Marseille developed two alternate and  
45 complementary strategies of quarantines and lazarettos, to prevent and fight these  
46 epidemics; culminating with the 2017 opening of the Institut Hospitalier Universitaire  
47 (IHU) Méditerranée Infection, where SARS-CoV-2-infected patients were diagnosed,  
48 isolated and treated. We are here shortly reviewing the fact that the IHU did not

49 fortuitously open in Marseille but was indeed built in one particular historical  
50 background of port-imported epidemics in Marseille.

51 **Marseille, a 2,000-year-old Mediterranean Sea port.**

52 Since its foundation, Marseille resolutely turned its economy towards the  
53 Mediterranean Sea rather than the surrounding lands [13], following its initial role as  
54 a Phocaeen portal of entry to Northwestern Europe [14]. The Greek geographer  
55 Strabon stated that "They possess a country which, although planted with olive-trees  
56 and vines, is, on account of its ruggedness, too poor for grain; so that, trusting the  
57 sea rather than the land, they preferred their natural fitness for a seafaring life" [15].  
58 The geographic area of influence of the Massaliotes extended over the entire  
59 Mediterranean Basin and probably in the Atlantic Ocean [13]. From the 6th century  
60 BC, Marseille became a port of prime importance as well as a transit port through  
61 which products from all over Europe were exchanged such as copper, tin, gold,  
62 ambergris, yellow and other Hellenistic luxury goods [14]. The hold of Marseille on  
63 the Mediterranean maritime trade saw some halting, especially during the Gallic  
64 Wars (capitulation to the Roman proconsul Julius Caesar in 49 BC): the first "plague"  
65 outbreak was mentioned during the siege of Marseille by the Roman legions [6].  
66 During this Antiquity, Greek medical tradition, deeply rooted in Marseille, impressed  
67 Julius Caesar and served as a model for the Roman Empire. Accordingly, along the  
68 first century of our era, Romans came to Marseille rather than to Athens, to learn  
69 medicine [14]. The 11th-12th century crusades reopened the maritime routes to the  
70 Middle East and Marseille was a major port to embark pilgrims as well as for  
71 commercial tights with modern-day Syria; which may have contributed to smallpox  
72 spreading in Europe [16]. In the 13th century, Marseille had installed caravanserais

73 in Oran, Béjaïa, Tlemcen and Tunis for the traffic of pepper, perfumes, dye plants,  
74 alum or wax, all goods imported through Marseille port [14]. One step forward in 1669  
75 (under the reign of King Louis XIV), Marseille was granted with trade monopoly and  
76 custom duty exemption with the so-called Barbary coast (for cereals, coral, leather,  
77 textiles and oil) and trade monopoly with the so-called "Levant" (for Black gall,  
78 cereals, spices, leather, skins, cottons and silks) [17].

79

### 80 **Port-imported epidemics, Marseille.**

81

82 The advantageous location of Marseille made the city a crossroad in the  
83 Mediterranean Basin, yet permanently exposed to port-imported outbreaks: at least 6  
84 of 60 outbreaks affecting Marseille throughout two millennia (Table1) [18] have been  
85 port-imported outbreaks, (including plague, cholera, yellow fever, smallpox and  
86 modern-day COVID-19) and spread throughout Marseille and eventually the  
87 surrounding Provence; while at least 29 outbreaks were contained in the lazarettos  
88 [19,20], and some epidemics including cholera, smallpox and typhus were imported  
89 via terrestrial routes, most often following armies [21]. Indeed, as for plague most  
90 epidemics followed men and the goods they transported [22] to the Mediterranean  
91 region; as illustrated by the plague epidemics of Marseille in 1347 and 1720 [23–25].  
92 The contamination of the Mediterranean basin resulted from the fact that it was  
93 situated at the end of the Silk Road and Fur roads [26], embarking many goods, men  
94 and dromedaries [27]; and was further favored by pilgrimage routes, as it was the  
95 case for the cholera epidemic in Marseille in 1865 brought by pilgrims returning from  
96 Mecca [18], and by wars and military campaigns, as with epidemics of typhus, an  
97 illness which had been named "camp fever" [28].

98 Plague, the deadly zoonosis caused by *Yersinia pestis* [12,29], affected Marseille  
99 22 times [6,30] during the first pandemic (541-767) and the second one (1346-19<sup>th</sup>  
100 century [24,26]), both occurring in France through maritime introduction of the  
101 zoonosis in Marseille. The Frank chronicler Gregory of Tours described in 588 the  
102 arrival of plague in Marseille by the goods sold by a ship sailing from Spain [31].  
103 Then, the so-called Black Death (1346-1352) [26] was acknowledged to have been  
104 brought by Genoese ships on November 1st, 1347 into the rifle-rafle street before  
105 ravaging the entire city [20]: plague will remain endemic for three centuries  
106 throughout Europe, as quoted by Jean-Noël Biraben: “From that point onward, and  
107 until 1670, the plague raged every year in Europe, sometimes in vast territories,  
108 sometimes only in certain localities, but without skipping a single annual link in this  
109 long and painful chain” [32]. On May 25th, 1720, a ship sailing back from Lebanon  
110 entered the port of Marseille and spread the deadliest plague outbreak that the city  
111 has ever experienced, lasting until 1722 and claiming life for nearly half of the  
112 population [33]. The very last cases of plague in Marseille were diagnosed in 1919-  
113 1920 [30], in echo to the “plague of rag-pickers” in Paris in 1920 [34].

114 Cholera, a deadly toxic infection by *Vibrio cholerae* [35], reached the city of Arles  
115 in 1832 and Marseille in 1834, during the second cholera pandemic where the first  
116 case was diagnosed on 7th December. Two outbreaks in 1835 totalized 3,441 deaths  
117 out of 7,073 attacks (Lethality, 48.6%) [18] mainly in areas served by water from the  
118 main outlet of the Huveaune aqueduct [20]. In 1865, a large cholera epidemic broke  
119 out during annual pilgrimage to Mecca and spread in Africa following the pilgrims'  
120 return path [18] . According to Laugier and Olive [18] eight boats from Alexandria,  
121 Egypt (in the midst of a cholera outbreak) (i.e. about 1,025 passengers) arrived in  
122 Marseille port on June 15th-20th, 1865, without any sanitary control. Sporadic cases

123 declared on June 15th-26th, before the epidemic broke out on July 22th, 1865 first in  
124 the unhealthy and marine quarters located near the port. Accordingly, 19 of 30  
125 patients received at the Hôtel-Dieu hospital were sailors. This epidemic lasted for 166  
126 days and claimed 2,037 victims. Finally, two additional outbreaks were recorded in  
127 June-October 1884 and July-December 1885 for a total of 3,052 deaths, following the  
128 displacement of people from Toulon where cholera had been diagnosed in June  
129 1884 [20]. During these last episodes, a new hospital was specifically set up at the  
130 Pharo Hospital. In total, Marseille suffered 10 cholera epidemics as part of the  
131 second, third, fourth and fifth pandemics between 1834 and 1885 [36].

132 Smallpox has become an endemic disease in Europe and in Marseille in particular,  
133 with regular epidemic flushes; after its introduction in Europe in the sixth century [37].  
134 This viral disease caused by Variola major and minor was responsible for a lethality  
135 rate of 70 to 100% for cholera gravis [38,39]. From 1827 to 1829, a major epidemic  
136 struck Marseille, with a balance of 1,507 victims out of 120,000 inhabitants (1.2%). In  
137 1874, a new epidemic caused 1,017 victims, particularly among ragmen [18]. Rags  
138 imported from North Africa and the Middle East were seen as a vector for  
139 transmission of the disease [40,41]. In 1885-86, Marseille experienced a large  
140 smallpox epidemic with 2,381 victims. The last 38 cases of smallpox were diagnosed  
141 in Marseille in 1952 after the maritime repatriation of one soldier from Indochina [42]  
142 which claimed 38 cases [43].

143 In Marseille, yellow fever, a non-contagious deadly flavivirus infection vectorized by  
144 the mosquito *Aedes aegypti* [44], was confined to lazaretto. In August 1802, a ship  
145 named "La Colombia" came from La Havana (Cuba) and Providence (USA) with a  
146 clean patent. After a 10-day quarantine, three cases of yellow fever occurred among  
147 the crew, 2 sailors died while the third one was treated in the lazaretto [45]. In

148 October and November, 1,804 cases were reported among crews of five Danish  
149 ships and one Swedish ship [18]. In 1821, a Danish schooner left the port of  
150 Barcelona which suffered an epidemic of yellow fever, to sail to Malaga where it  
151 brought contagion. The schooner then left the port of Malaga on August 26th to arrive  
152 at the Pomègues island, Marseille on September 7, 1821 [46]. In total, three yellow  
153 fever epidemics including 34 cases have been identified in Marseille in between 1802  
154 and 1821 [20].

155 As for COVID-19, the emergence in Marseille area of a new SARS-CoV-2 variant  
156 named Marseille-1 coincided during summer 2020 with a rise of SARS-CoV-2  
157 diagnoses among patients who had traveled by ferry between North Africa (Tunisia  
158 and Algeria) and Marseille, after the resumption of passenger ship traffic with France  
159 [47]. Three dozens of patients who had traveled or worked on ships of a passenger  
160 ferry company that sailed between Maghreb and Marseille were found to be infected.  
161 Further investigations by sequencing and analyzing SARS-CoV-2 genomes led us to  
162 assume that the ancestors of this viral variant originated in sub-Saharan Africa [47].  
163 We recently detected in Marseille the SARS-CoV-2 20I/501Y.V1 “English” variant that  
164 currently predominates in UK and has started to spread in Europe [48]. We first  
165 identified this variant in family members returning from England using whole-genome  
166 sequencing. We then identified it in two students returning from Lebanon and a  
167 young woman who stayed in Dubai, United Arab Emirates, using a specific in-house  
168 real-time RT-PCR assay.

169 In order to protect itself from these epidemics, the city of Marseille will set up  
170 several defense systems against diseases.

171

172 **Quarantine in Marseille port.**



173

174 To halt the epidemics raging across the Mediterranean basin (mainly plague), and  
175 especially those ones that came from the East, an area for a long time suspected of  
176 being the source of many epidemics, Marseille had developed over the centuries, a  
177 system of prevention and control of infectious diseases, which had been taken as an  
178 example by other European cities [49]. The quarantine system in Europe was born  
179 [50] in 1377 in Dubrovnik, Croatia in the frame of the second plague pandemic [51].  
180 The Republic of Venice was the first to set up a permanent hospital for plague victims  
181 in 1423 on the island of Santa Maria Di Nazareth. This system will be reproduced in  
182 several port cities of Europe including Genoa in 1467 and Marseille in 1476 [49]. The  
183 lazaretto became the place where the quarantine was carried out to isolate people,  
184 animals or goods suspected of being infected [52]. The duration of the quarantine  
185 was usually 40 days (from the Italian “quaranta” meaning forty) [53]. This duration  
186 could refer to Hippocrates who explained that an acute illness manifests itself in 40  
187 days; or to Pythagorean mathematics in which the number 4 is of particular  
188 importance. Finally, in the Christian Middle Ages, the number 40 refers to the number  
189 of days of fasting of Jesus in the desert and is strongly associated with the idea of  
190 purification [49,54]. The quarantine system in Marseille lasted from 1620 to 1830 [54].  
191 Other decisions had been taken such as fumigation, vinegar disinfection of letter and  
192 movables, lighting big fires to purify the air (believed to be infected by pestilential  
193 miasma), slaughter of dogs suspected of dispersing the contagious tatters of plague  
194 victims, reinforced police service and capital execution for looters and smugglers  
195 [55]. In parallel, Marseille took political decisions to fight against epidemics: in 1546-  
196 1547, the city contracted a debt of 2.600 ecus to fight the epidemic. During the  
197 epidemic of 1586 the parliament of Aix took drastic measures to prevent the spread

198 of the disease such as prohibiting the flight of inhabitants [20]. This measure will  
199 henceforth be systematically applied and even pushed further in 1720 with the  
200 construction of the 27-km-long plague wall to protect the nearby Comtat Venaissin  
201 from contagion [17,56]. In order to fortify safety related to maritime routes, bills of  
202 health were reinforced during the reign of King Louis XIV [57]. Every ship arriving at  
203 the port of Marseille had to anchor on Pomègues Island and the captain of the vessel  
204 had to present the bill of health issued by the health authorities of the last port visited  
205 attesting to the good health of the crew members. Once the ship had arrived, the  
206 duration of the quarantine (performed at the lazaretto) for people was set by health  
207 officers [17]. It was of 14-18 days for a “clean” bill, 25 days for a suspicion of  
208 contagion and 32-35 days for confirmed contagion on board. Quarantine periods  
209 were even longer for goods, up to 60 days [54]. In the situation of proven plague on  
210 board, the ship was directed to the Jarre island, south of Marseille [17]. This system  
211 proved to be extremely effective as it is estimated that between 1700 and 1829,  
212 plague was declared 29 times inside the lazaretto without ever getting beyond these  
213 walls [20,58]. Bypassing included corruption of local elected officials (as in 1720) [54],  
214 smuggling, illegal landing of people [55], counterfeiting of the bill of health or false  
215 declaration [59]. During the 19th century, arrival of cholera and yellow fever makes  
216 quarantine practically ineffective and anti-contagionists make pressure for a reduction  
217 of health measures [49]. Quarantine measures were charged with creating a false  
218 sense of security, being ineffective, no longer being in phase with the new, faster  
219 means of communication (a 12-day quarantine for a 6-day trip [54]) and harming  
220 maritime trade [60]. In the 19th century in Marseille, the sanitary measures were  
221 sometimes boiled down to simple fumigation of passengers and their personal effects  
222 before disembarking. These measures were completely abandoned at the end of the

223 19th century with the arrival of prophylaxis medicine against contagious diseases  
224 such as plague, cholera or yellow fever [61].

225

### 226 **From Lazarettos to Hospitals for the contagious in Marseille.**

227

228 In parallel to quarantine measures, lazarettos or infirmaries were built to carry out the  
229 quarantine by grouping together people who were ill or suspected of being ill  
230 (sometimes without any medical care) in a place, closed, supervised and relatively  
231 isolated from the rest of the city [54]. The assumed social goal was to sacrifice a  
232 small group of people for the benefit of the greater common good [62]. In 1476,  
233 Marseille converted the leprosy into a hospital dedicated to plague victims, which was  
234 to be considered as the first lazaretto [49]. The second lazaretto, erected in 1526  
235 near the cove “des ours” at the northern edge of the city, then moved to the south of  
236 the Marseille harbor (current Catalan district), today called “vieilles infirmeries” [17].  
237 Furthermore, Marseille (with Toulon) became one of the Exclusive entry points in  
238 France from 1622 for all ships coming from Muslim countries and from 1669 for all  
239 ships coming from Levant because they were the only cities to oppose an effective  
240 sanitary defense system for people and goods coming from these countries said to  
241 be “susceptible to contagion” [63,64]. Finally, facing the construction of Fort Saint-  
242 Nicolas at the entrance of the port of Marseille, the lazaretto was transferred in 1663  
243 to the west of the city to become the lazaretto of Saint-Martin d'Arenc which will  
244 operate for nearly two centuries [17] (figure1). Between 1823 and 1828, Caroline  
245 hospital was built on the Ratonneau island to replace Arenc lazaretto, located on the  
246 mainland and considered too close to the city [65]. The Caroline hospital was a  
247 compromise between the contagionist and aerial theories that were in vogue in the

248 19th century. Indeed, it was built on an island in order to better isolate patients but its  
249 architecture was made for it to act as an air purifier : to let air circulate between the  
250 different rooms [54]. From the 19th century the lazaretto gradually turned into a place  
251 to isolate and provide health care to patients. The so-called Lazarettos-Hospitals like  
252 Caroline hospital will no longer be coercive places where patients were locked up but  
253 a place of study of infectious diseases and medical progress. The sanitary  
254 administration of Marseille was abolished in 1849 under the pressure of anti-  
255 contagionists during the second pandemic of cholera [54,65].

256 Beyond the lazarettos, the patients were also grouped together in hospitals in order  
257 to also deal with other epidemics. The first healthcare facilities were built under the  
258 impetus of religious communities or rich lords at the beginning of the 13th century,  
259 with Sainte Marthe, Saint Canna or Saint-Michel Hospital. In the 14th century the  
260 general hospitals of Saint-Esprit and Saint Jacques de Galice were funded [66]. In  
261 1593 the reunion of these two hospitals will give birth to the Hotel-Dieu, the first  
262 hospital administered by lay people [67]. This hospital occupied a special place in the  
263 history of infectious diseases in Marseille as being linked to the great epidemics of  
264 plague and cholera that the city will experience. Until the 20th century, the Hotel-Dieu  
265 accommodated the poorest patients in the city because the rich preferred to be  
266 treated at home, so the mortality observed in this hospital was not representative of  
267 the general mortality in Marseille. For example in 1835, only 12% of patients were  
268 registered in the hospitals [18].

269 In the frame of the third (current) plague pandemic which probably started in 1772 in  
270 the Chinese province of Yunnan [68,69], plague returned to Marseille in 1903 [70].  
271 This epidemic gave rise to the organization of a special service hosting plague  
272 victims in the Entremond property intended to become the Salvator hospital five

273 years later. A pavilion hosting a plague service for contagious patients was built  
274 inside Salvator hospital to isolate patients and contacts. During the 1919-1920  
275 plague epidemics, 79 patients suffering bubonic plague with a few secondary  
276 pulmonary forms, were isolated and treated by serotherapy [71,72]. Noteworthy, one  
277 patient suffered from *Streptococcus pneumoniae* and *Y. pestis* co-infection found in  
278 the pus of the bubo and the sputum [73], similarly to what was described by S.  
279 Kitasato (from the blood) when the plague bacillus was discovered in 1894 [74]. The  
280 last case was diagnosed in 1936 in Marseille [75].

281 Finally, the new IHU Méditerranée Infection building erected in 2013-2016 on the  
282 Marseille University Medical Campus opened in December, 2016 to welcome  
283 infectious and tropical disease patients into a brand-new, access-controlled building  
284 featuring a daycare facility, and 75 hospital one-bed rooms entirely and specifically  
285 dedicated to contagious patients; all in a baseline biosafety level 2, upgradeable to a  
286 biosafety level 3 by sectors of 7 rooms [76]; where COVID-19 patients and contacts  
287 were taken onto consideration in 2020-2021.

288

## 289 **CONCLUSIONS**

290 Marseille was exposed for two millennia to epidemics that crossed the Mediterranean  
291 basin. Since its foundation it had been staying the first port of France for centuries,  
292 this importance in the maritime trade has also subjected the city to the danger of  
293 epidemics from the East and Africa like plague or cholera or the Americas like yellow  
294 fever. This long coexistence with infectious diseases has made Marseille a veritable  
295 social laboratory for the fight against the epidemic scourge. The quarantine system  
296 has been taken as an example throughout Europe for its efficiency, then its gradual

297 conversion into a Lazaretto-Hospital enabled doctors of Marseille to perpetuate the  
298 long tradition of medical excellence by specializing in study of infectious diseases.  
299 Nowadays, IHU Méditerranée Infection is part of this rich history, renewing it with the  
300 conceptual and technical tools of our time, a modern approach to contagion including  
301 medical research, dissemination of knowledge and their valorization through tools  
302 and innovative protocols.

303

304

305 **Acknowledgements.** This manuscript has been edited by a native English speaker.

306

307

308 Table 1. Two-millennia epidemics recorded in Marseille.

Disease	Day and Month	Year(s)	Cases	Victims	Microbiological/paleomicrobiological confirmation	Reference(s)
Cholera	December 9-10	1834-1835	1874	865	No	20
Cholera	July 3	1835	5199	2470	No	20
Cholera	July 9	1837	?	1526	No	20
Cholera	August 8	1849	?	2252	No	20
Cholera	June 15-20	1854	?	3069	No	20
Cholera	August 25	1855	?	1328	No	20
Cholera	June 27	1865	?	2037	No	20
Cholera	July 5	1866	?	1097	No	20
Cholera	June 26	1884	?	1784	?	20
Cholera	July 14	1885	?	1259	?	20
Cholera	?	1892	?	?	?	20
Cholera	?	1893	?	?	?	20
Cholera	?	1911	?	?	?	20
COVID-19	February 24	2020 - Present	21.268*	552*	Yes	APHM Data
Diphtheria	?	1861	?	?	No	18
Diphtheria	?	1886	?	559	?	20
Influenza	?	1837	?	?	No	20
Influenza	?	1848	?	?	No	20
Influenza	?	1889-1890	?	2662	?	18
Measle	?	1808	?	?	No	18
Measle	?	1823	120	3	No	18
Measle	?	1852	?	?	No	20
Plague	?	49 BC	?	?	No	6
Plague	?	503	?	?	No	6
Plague	?	588	?	?	No	6
Plague	?	591	?	?	No	6
Plague	November 11	1347-1350	?	?	Yes	6
Plague	?	1476	?	?	No	6
Plague	?	1484	?	?	No	6
Plague	?	1505-1507	?	?	No	6
Plague	?	1527	?	?	No	6
Plague	?	1530	?	?	No	6
Plague	?	1547	?	≈ 8.000	No	6
Plague	?	1556	?	?	No	6
Plague	?	1557-1558	?	?	No	6
Plague	?	1580-1581	?	≈ 30.000	No	6
Plague	November 13-15	1586-1587	?	?	No	6
Plague	February 12	1630	?	≈ 10.000	No	6
Plague	June	1649-1650	?	?	No	6
Plague	May 25	1720	?	≈ 50.000	Yes	17, 23, 25, 77
Plague	?	1903	19	4	Yes	78
Plague	?	1913	1	1	?	78
Plague	August 11	1919	22	4	Yes	78
Plague	June 4	1920	62	22	Yes	78
Smallpox	?	1807-1808	?	?	No	18
Smallpox	November	1827-1829	?	1504	No	18
Smallpox	?	1852	?	?	No	18
Smallpox	?	1874-1875	?	1017	No	18
Smallpox	?	1878	?	534	No	18
Smallpox	?	1885-1886	?	2381	?	18
Smallpox	January 14	1952	38	?	Yes	18
Typhoid Fever	?	1852	?	?	No	20
Typhoid Fever	?	1853	?	?	No	20
Typhoid Fever	?	1857	?	?	No	18
Typhoid Fever	?	1858	?	?	No	18
Typhoid Fever	?	1859	?	?	No	18
Typhoid Fever	?	1860	?	?	No	18
Typhoid Fever	?	1862	?	?	No	18
Typhoid Fever	?	1863	?	?	No	18
Typhus	March	1810	25	8	No	18
Typhus	?	1856	?	?	No	18
Yellow Fever	August	1802	3	2	No	18
Yellow Fever	October and November	1804	?	?	No	18
Yellow Fever	September	1821	29	20	No	18

309

310 \* data provided by Assistance Publique – Hôpitaux de Marseille (the public University

311 Hospital System in Marseille), taking into account the number of cases and deaths in

312 the South-East region (including Marseille).



313 **Figure 1.** Localization of the main lazarettos and hospitals intended to fight  
314 infectious diseases in Marseille (Map from 1922) from 1476 to 2016. Source  
315 gallica.bnf.fr / Bibliothèque nationale de France.



- A) Lazaretto « Notre-Dame-de-la-Pitié » 1476- ?
- B) Lazaretto « des Ources » 1526- ?
- C) Lazaretto « des Catalans » 16th
- D) Lazaretto « D'Arenc » 1663-1850
- E) Hospital and Lazaretto Caroline 1850-1926
- F) Hospital Hôtel-Dieu 1593-2006
- G) Hospital of Pharo (Temporary Hospital for Cholera) 1884- ?
- H) Hospital Salvator 1908-Present
- I) IHU Méditerranée Infection 2016- Present

★ Hospital      ★ Lazaretto

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