



Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany

TO THE EDITOR:

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臺北市立聯合醫院教研部
李俊秀教學主治醫師
教學主治醫師群
邱婷芳主任
璩大成副總院長

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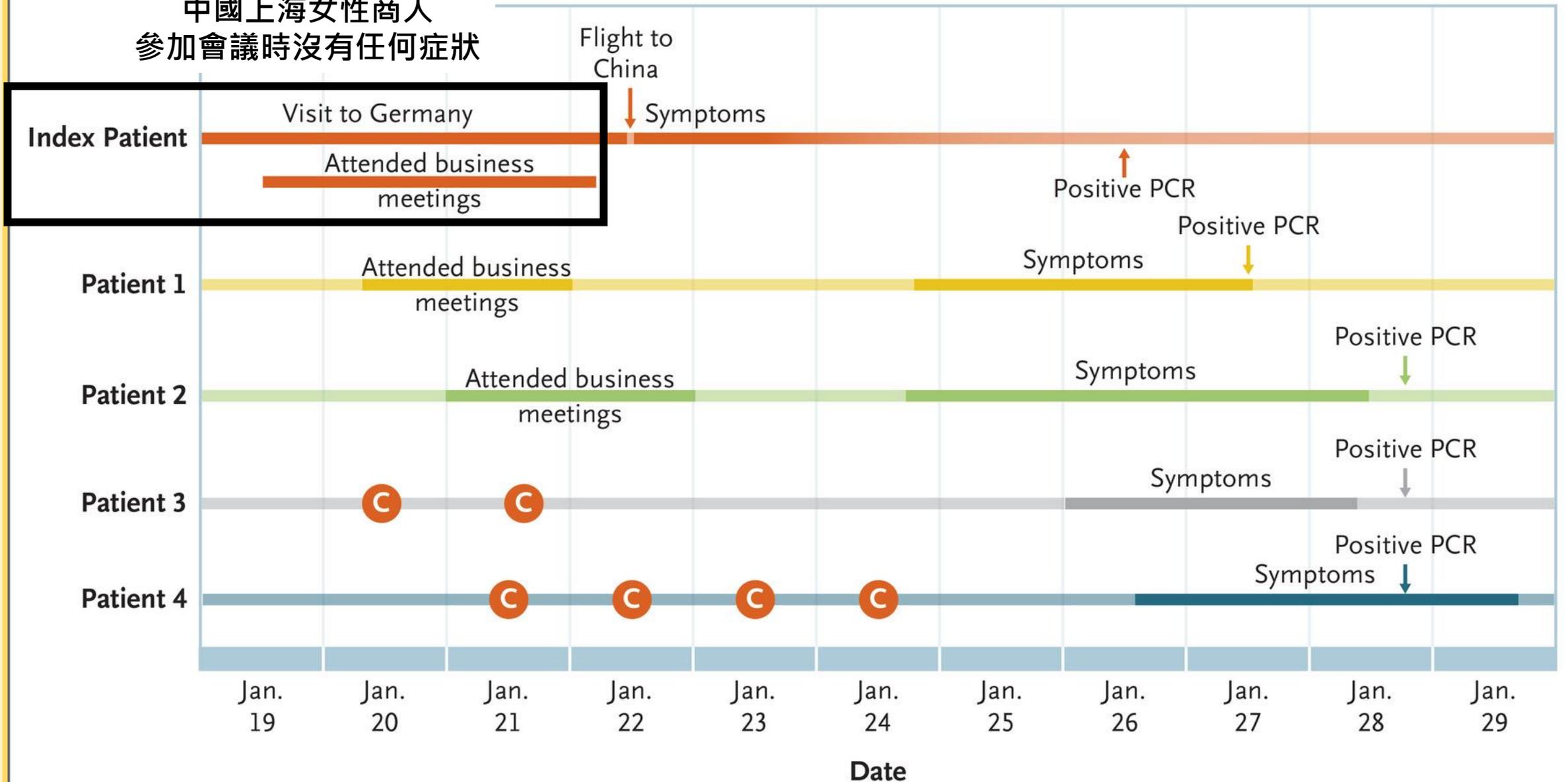
The novel coronavirus (2019-nCoV) from Wuhan is currently causing concern in the medical community as the virus is spreading around the world.¹ Since its identification in late December 2019, the number of cases from China that have been imported into other countries is on the rise, and the epidemiologic picture is changing on a daily basis. We are reporting a case of 2019-nCoV infection acquired outside of Asia in which transmission appears to have occurred during the incubation period in the index patient.

本篇重點: 2019-nCoV新型冠狀病毒在潛伏期就具有傳染力



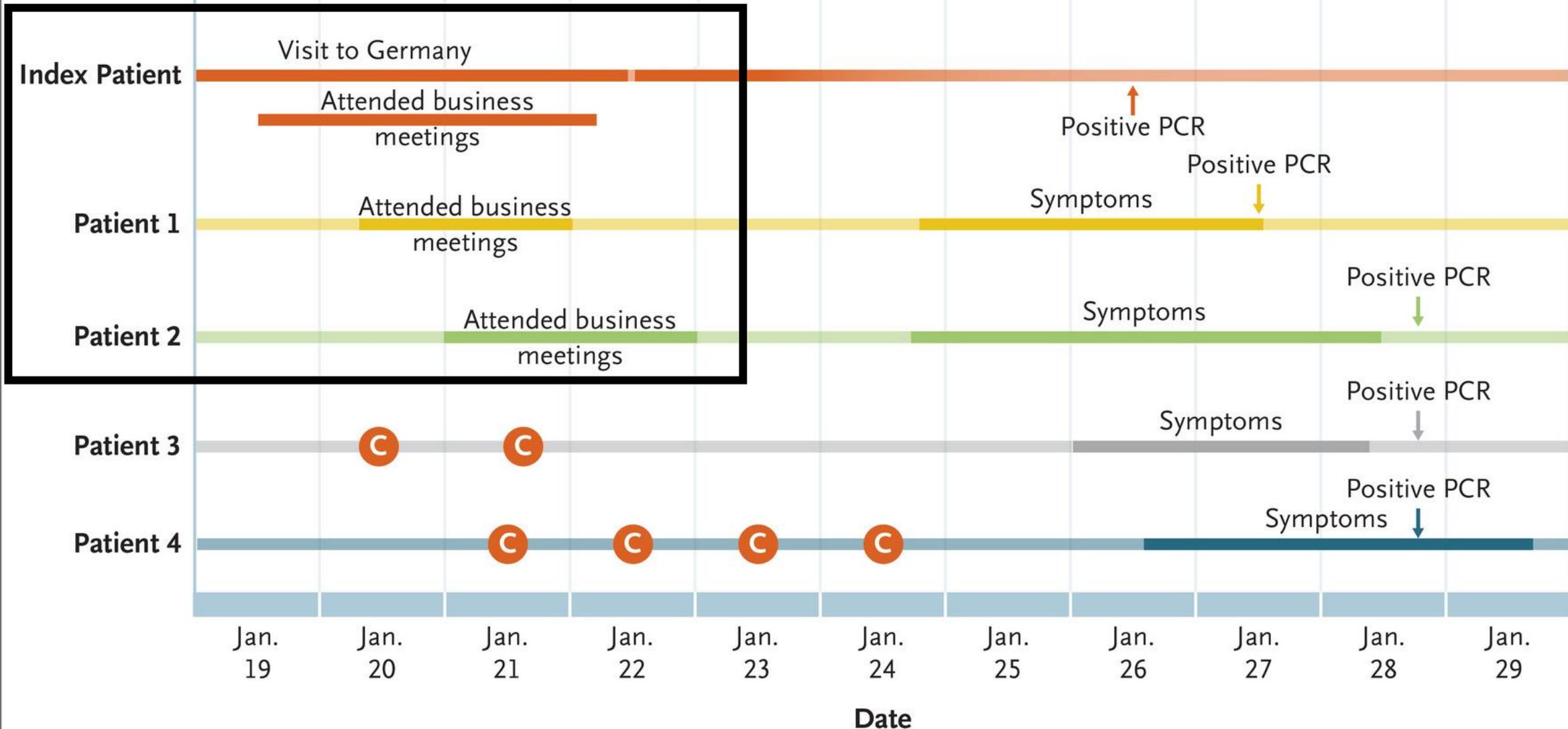
C Contact with Patient 1

中國上海女性商人
參加會議時沒有任何症狀



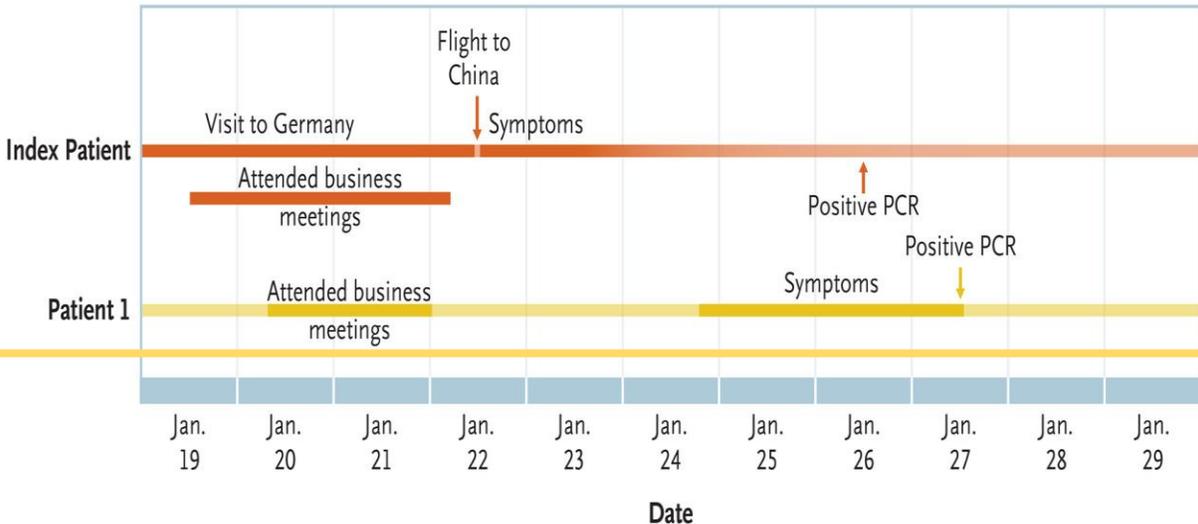
與指標個案在會議中接觸者
病人1, 病人2

C Contact with Patient 1





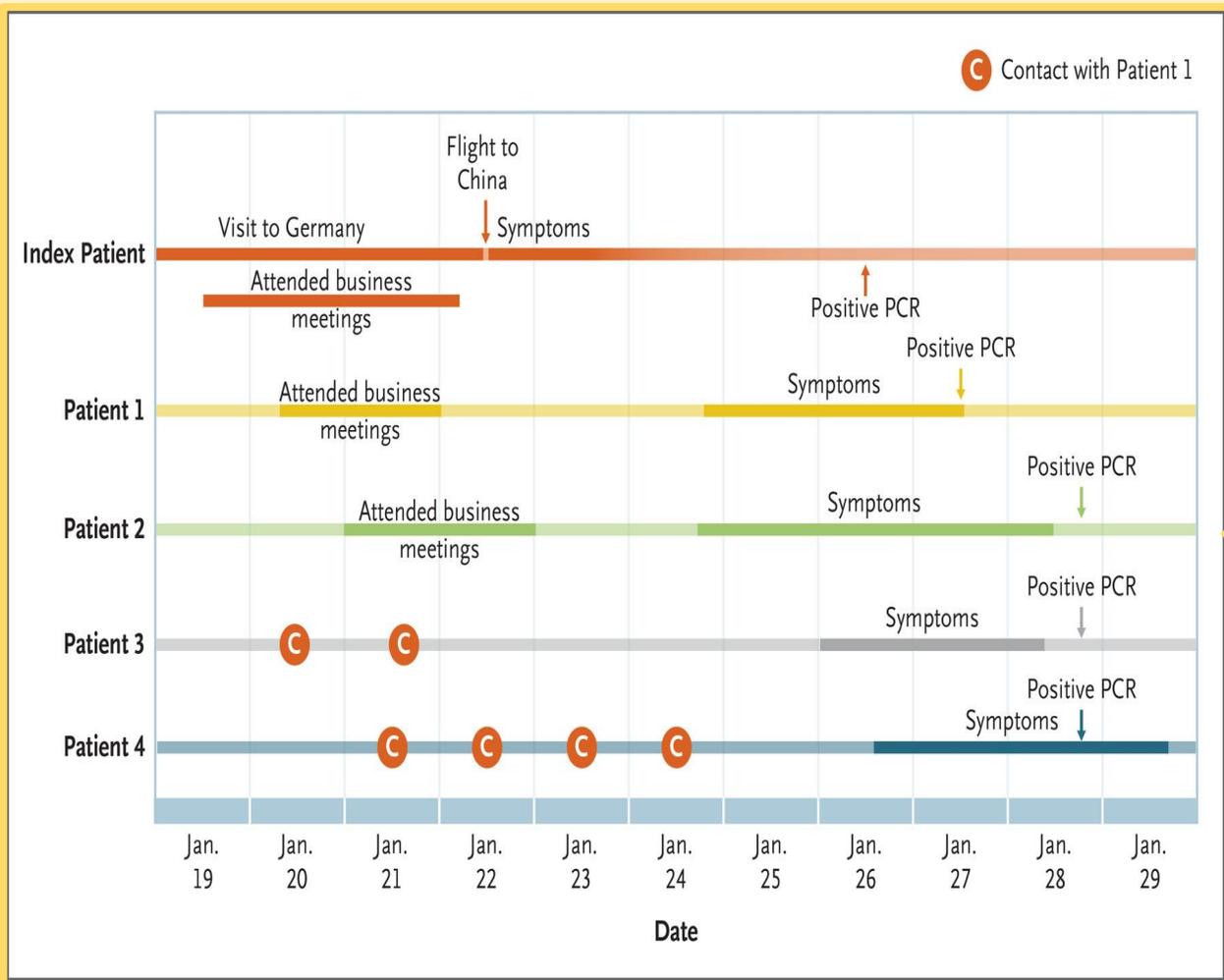
C Contact with Patient 1



中國上海女性，因商業活動1/19-22到德國開會，在德國期間沒有任何症狀，返回中國後才開始感到不適出現症狀，01/26確診新型冠狀病毒感染。

病人1: 33歲德國男性，1/24(五)開始有喉嚨痛、畏寒以及肌肉疼痛症狀，1/25發燒(39.1oC)並伴有咳嗽有痰，1/26下午症狀改善後，1/27(一)返回工作。因上海女性已確診並被通報，因此，個案1，33歲德國男(病人1)在德國接受進一步檢查。

病人1在01/27當日已沒有發燒，自述沒有任何慢性病，14天內也沒有出國旅遊，當天接受兩套鼻咽及一套痰液採檢，PCR顯示新型冠狀病毒陽性。隔天的痰液檢查PCR仍顯示帶有高病毒量。



1/28

病人2(與中國上海女性有接觸史)

病人3(與病人1有接觸史)

病人4(與病人1有接觸史)

都被檢驗出新型冠狀病毒陽性。

到現在病人2, 病人3, 病人4都還沒有嚴重臨床症狀。

- 病人1

在德國被不帶有症狀的指標個案傳染新型冠狀病毒
病程短且症狀沒有特別(non-specific)

- 沒有症狀就開始具有傳染力，值得注意
- 復原期，痰液仍然檢測出高病毒量



- 目前病人1, 2, 3, 4都屬輕症，但因為公衛因素安排住院。
- 因為目前為流感流行季節，因此之後輕症新型冠狀病毒患者是否都需要住院，或者可以在社區由適當的治療準則進行治療，需要進一步研究。

CORRESPONDENCE

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The novel coronavirus (2019-nCoV) from Wuhan is currently causing concern in the medical community as the virus is spreading around the world. Since its identification in late December 2019, the number of cases from China that have been imported into other countries is on the rise, and the epidemiologic picture is changing on a daily basis. We are reporting a case of 2019-nCoV infection acquired outside of Asia in which transmission appears to have occurred during the incubation period in the index patient.

A 33-year-old otherwise healthy German businessman (Patient 1) became ill with a sore throat, chills, and myalgias on January 24, 2020. The following day, a fever of 39.1°C (102.4°F) developed, along with a productive cough. By the evening of the next day, he started feeling better and went back to work on January 27.

Before the onset of symptoms, he had attended meetings with a Chinese business partner at his company near Munich on January 20 and 21. The business partner, a Shanghai resident, had visited Germany between Jan. 19 and 22. During her stay, she had been well with no signs or symptoms of infection but had become ill on her flight back to China, where she tested positive for 2019-nCoV on January 26 (index patient in Figure 1).

On January 27, she informed the company about her illness. Contact tracing was started, and the above-mentioned colleague was sent to the Division of Infectious Diseases and Tropical Medicine in Munich for further assessment. At presentation, he was afebrile and well. He reported no previous or chronic illnesses and had no history of foreign travel within 14 days before the onset of symptoms. Two nasopharyngeal swabs and one sputum sample were obtained and were found to be positive for 2019-nCoV on quantitative reverse-transcriptase–polymerase-chain-reaction (qRT-PCR) assay. Follow-up qRT-PCR assay revealed a high viral load of 108 copies per milliliter in his sputum during the following days, with the last available result on January 29.

On January 28, three additional employees at the company tested positive for 2019-nCoV (Patients 2 through 4 in Figure 1). Of these patients, only Patient 2 had contact with the index patient; the other two patients had contact only with Patient 1. In accordance with the health authorities, all the patients with confirmed 2019-nCoV infection were admitted to a Munich infectious diseases unit for clinical monitoring and isolation. So far, none of the four confirmed patients show signs of severe clinical illness.

This case of 2019-nCoV infection was diagnosed in Germany and transmitted outside of Asia. However, it is notable that the infection appears to have been transmitted during the incubation period of the index patient, in whom the illness was brief and nonspecific.

The fact that asymptomatic persons are potential sources of 2019-nCoV infection may warrant a reassessment of transmission dynamics of the current outbreak. In this context, the detection of 2019-nCoV and a high sputum viral load in a convalescent patient (Patient 1) arouse concern about prolonged shedding of 2019-nCoV after recovery. Yet, the viability of 2019-nCoV detected on qRT-PCR in this patient remains to be proved by means of viral culture.

Despite these concerns, all four patients who were seen in Munich have had mild cases and were hospitalized primarily for public health purposes. Since hospital capacities are limited — in particular, given the concurrent peak of the influenza season in the northern hemisphere — research is needed to determine whether such patients can be treated with appropriate guidance and oversight outside the hospital.