

Household transmission investigation protocol for  
2019-novel coronavirus (2019-nCoV) infection

2019新型冠状病毒（2019 nCoV）家庭传播调查方案

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Protocol summary 方案概要

<b>Household transmission investigation protocol for 2019-novel coronavirus infection</b> <b>2019新型冠状病毒感染家庭传播调查方案</b>	
<b>Study population</b> 研究人群	All household contacts of a confirmed 2019-nCoV case 2019 nCoV 确诊病例的所有家庭接触者
<b>Potential output and analysis</b> 潜在产出和分析	<p>Transmissibility in household settings 家庭环境中的传播性</p> <p>Estimates of: 评估:</p> <ul style="list-style-type: none"> <li>Secondary Infection rate (SIR) among close contacts and factors associated with secondary infection 密切接触者的继发感染率 (SIR) 和继发感染相关因素</li> <li>Range of clinical presentation, risk factors for infection, and the extent and fraction of asymptomatic infections 临床表现的范围、感染的危险因素以及无症状感染的程度和比例</li> <li>Serologic response following confirmed 2019-nCoV infection 确认新型冠状病毒感染后的血清学反应</li> </ul> <p>Epidemiological modeling parameters: 流行病学建模参数:</p> <ul style="list-style-type: none"> <li>Reproduction numbers: <math>R_0</math> and <math>R</math> 再生数: <math>R_0</math> 和 <math>R</math></li> <li>Serial intervals specific to household setting 家庭环境下的代际间隔</li> <li>Incubation period 潜伏期</li> <li>Infection attack rates 感染罹患率</li> </ul>
<b>Study design</b> 研究设计	<p>Prospective study of household contacts of confirmed 2019-nCoV cases, ideally before widespread community transmission occurs 2019 nCoV 确诊病例家庭接触的前瞻性研究, 理想情况下是在广泛的社区传播发生之前</p>
<b>Study duration</b> 研究期限	At a minimum, enrolled household contacts will complete four home visits within 28 days of enrolment/follow-up 招募的家庭接触者将在招募/随访的28天内至少完成4次家访
<b>Minimum information and specimens to be obtained from participants</b> 从参与者处获得的最小信息量和标本	<p>Data collection: Epidemiological data including: clinical symptoms, exposures, including contact with confirmed case. 资料收集: 流行病学资料包括: 临床症状、暴露情况, 包括与确诊病例的接触。</p> <p>Specimens: Respiratory (and other) to diagnose current 2019-nCoV infection, serum to inform seroepidemiological Inferences 标本: 诊断2019 nCoV 感染的呼吸道或其他标本, 进行血清流行病学推断的血清标本</p>

## 1 Background 背景

The detection and spread of an emerging respiratory pathogen are accompanied by uncertainty over the key epidemiological, clinical and virological characteristics of the novel pathogen and particularly its ability to spread in the human population and its virulence (case-severity). This is the case for the novel coronavirus (2019-nCoV), first detected in Wuhan city, China in December 2019(1).

新出现的呼吸道病原体的检测和传播伴随着新病原体的关键流行病学、临床和病毒学特征的不确定性，特别是其在人群中传播的能力及其毒力（病例严重程度）。2019年12月在中国武汉市首次被发现的新型冠状病毒（2019 nCoV）正是如此（1）。

Closed settings, such as the household, have a defined population that do not mix readily with the larger surrounding community, and therefore such settings provide a strategic way to track emerging respiratory infections and characterize virus transmission patterns because the denominator can be well defined. Also, exposure is within the setting, and follow-up of household contacts is generally more feasible in this well-defined setting as compared to an undefined one. Household setting studies allow us to determine transmission dynamics (reproduction number and serial interval) of the virus as well as to understand the clinical spectrum of illness in secondary cases (2). Closed settings are also useful to observe chains of transmission in an epidemic as the pool of susceptible, exposed individuals is larger. Therefore, in the case of multiple waves of infection through the closed setting, unique insight into transmission dynamics can be derived in the early epidemic stages.

封闭环境，如家庭，有一个不容易与周围较大的社区混合的明确群体。因此，由于分母非常明确，这样的环境就使我们能够追踪新出现的呼吸道感染和描述病毒传播模式。此外，暴露是在家庭内的；与暴露不明确的情况相比，这种情况下对家庭接触者的随访通常更为可行。家庭环境研究使我们能够确定病毒的传播动力学（再生数和代际间隔），以及了解续发病例的疾病临床谱（2）。由于易感、暴露的个体数量更多，封闭的环境也有助于观察传染病的传播链。因此，通过封闭环境中的多波感染，可以在传染病的早期阶段获得对传播动力学的独特理解。

To date initial surveillance has focused primarily on patients with severe disease, and, as such, the full spectrum of the disease, including the extent and fraction of mild or asymptomatic infection that do not require medical attention are not clear. Infections identified in close contacts may potentially be generalizable to naturally-acquired infections (in contrast to cases presenting for emergency care among which there would be fewer mild cases). Following close contacts with similar levels of exposure to infection from primary cases can also permit identification of the asymptomatic fraction. Principally, follow-up and testing of respiratory specimens and serum of close contacts can provide useful information about newly identified cases, as well as the spectrum of illness and frequency (by for example age) of asymptomatic and symptomatic infection.

迄今为止，最初的监测主要集中在严重疾病患者身上，因此，疾病的全貌，包括不需要医疗护理的轻症或无症状感染的程度和比例尚不清楚。在密切接触者中发现的感染通常归为自然获得性感染（相比之下，需急救的病例中轻症病例较少）。在暴露程度相似的密切接触者中，也可以识别无症状感染者。原则上，对密切接触者呼吸道样本和血清的随访和检测可以提供关于新发现病例的有用信息，以及无症状和有症状感染的疾病谱和频率（例如按年龄）。

With the emergency of a novel coronavirus, initial seroprevalence in the population will be low due to the virus being new in origin. Therefore, surveillance of antibody seroprevalence in a population can allow inferences to be made about the cumulative incidence of infection in the population.

Household transmission studies also can provide the opportunity to follow-up confirmed cases to understand antibody kinetics.

随着一种新型冠状病毒的出现，人群的初始血清阳性率将很低（因为该病毒是新起源的）。因此，监测人群的抗体血清阳性率可以帮助推断人群的累积感染率。家庭传播研究也使我们有机会通过随访确诊病例了解抗体动力学。

The following protocol has been designed to investigate household transmission of 2019-nCoV in any country in which 2019-nCoV infection has been reported and households are exposed. Each country may need to tailor some aspects of this protocol to align with public health, laboratory and clinical systems, according to capacity, availability of resources and cultural appropriateness.

However, using a standardized protocol such as the protocol described below, epidemiological exposure data and biological samples can be systematically collected and shared rapidly in a format that can be easily aggregated, tabulated and analyzed across many different settings globally for timely estimates of 2019-nCoV infection severity and attack rates, as well as to inform public health responses and policy decisions. This is particularly important in the context of a novel respiratory pathogen, such as 2019-nCoV.

以下方案旨在调查任何报告2019 nCoV 感染和家庭暴露的国家其病毒的家庭内传播情况。每个国家可能需要根据能力、资源可及性和文化适宜性，来调整该方案的某些方面，使之与其公共卫生、实验室和临床系统相一致。然而，通过使用一个标准化的方案，例如下面描述的方案，可以系统地收集和快速共享流行病学暴露资料和生物样本，其格式易于汇总、列出和分析全球的资料，及时估计2019-新型冠状病毒感染的严重程度和罹患率，并为公共卫生应对和决策提供信息。这在新型呼吸道病原体（如2019-新型冠状病毒）的背景下尤其重要。

Comments for the user's consideration are provided in purple text throughout the document as the user may need to modify methods slightly because of the local context in which this study will be carried out.

因为根据研究开展的环境，用户可能需要稍微修改方法。因此供使用者考虑的注解在整个文件中以紫色文本提供。

### 1.1 Objectives 目的

There are three primary objectives of this household transmission study:

这项家庭传播研究有三个主要目的：

1. To better understand the extent of transmission within a household by estimating the secondary infection rate<sup>1</sup> for household contacts at an individual level, and factors associated with any variation in the secondary infection risk.  
通过在个体层面上估计家庭接触者的续发感染率<sup>1</sup>，以及与续发感染风险变化相关的因素，更好地了解家庭内的传播程度。
2. To characterize secondary cases including the range of clinical presentation, risk factors for infection, and the extent and fraction of asymptomatic infections.  
描述续发病例的特征，包括临床表现的范围、感染的危险因素以及无症状感染的程度和比例。
3. To characterize serologic response following confirmed 2019-nCoV infection (highly encouraged, but optional depending on laboratory capacity and resources)  
描述2019新型冠状病毒确诊感染后的血清学反应（高度鼓励，但可根据实验室能力和资源选择进行）

Household transmission studies provide rich data that can permit evaluation of secondary objectives such as, but not limited to:

家庭传播研究提供了丰富的数据，可以评估次要目的，例如，但不限于

1. To estimate the serial interval<sup>2</sup> in a household setting.  
估计家庭环境中的代际间隔<sup>2</sup>。
2. To estimate incubation period<sup>3</sup>, duration of infectiousness<sup>4</sup> and duration of detected shedding<sup>5</sup>  
估计潜伏期<sup>3</sup>、传染持续时间<sup>4</sup>和可检测到的排毒时长<sup>5</sup>
3. To characterize duration and severity of 2019-nCoV-associated disease.  
描述2019 nCoV 相关疾病的持续时间和严重程度。
4. Others (context specific/ optional)  
其他（环境特定/可选）

<sup>1</sup> In this context the **secondary infection rate (SIR)** is a measure of the frequency of new cases of 2019-nCoV infection among the household contacts of a primary confirmed case in a defined period of time, as determined by a confirmed 2019-nCoV positive lab result. In simple terms: the proportion of household contacts of a primary case who subsequently become infected with 2019-nCoV

<sup>1</sup>在本文语境中，续发感染率（SIR）是指在根据2019新型冠状病毒阳性实验室结果确定的规定时间内，一个原发病例的家庭接触者中其2019 nCoV 感染新发病例的发生频率。简单地说：一个原发病例的家庭接触者随后感

染2019 nCoV 的比例

<sup>2</sup> The **serial interval** is defined as the period of time from the onset of symptoms in the primary case to the onset of symptoms in a contact case.

<sup>2</sup> 代际间隔是指从原发病例出现症状到接触病例出现症状的时间段。

<sup>3</sup> **Incubation period** is defined as the period of time between an exposure resulting in infection and the onset of clinical symptoms of disease.

<sup>3</sup> 潜伏期是指从导致感染的暴露到出现疾病临床症状之间的时间段。

<sup>4</sup> The **duration of infectiousness** is the time which virus is shed and able to be transmitted regardless of clinical symptoms

<sup>4</sup> 传染持续时间是指在不考虑临床症状的情况下病毒排出和传播的时间。

<sup>5</sup> It is currently not known how long **detectable 2019-nCoV virus shedding** lasts; information from this study would help to clarify the duration of shedding among individuals with confirmed infection.

<sup>5</sup> 目前尚不清楚2019 nCoV 可检测到的排毒持续时间有多久；这项研究的信息将有助于阐明确诊感染者的排毒持续时间。

## 2 Study procedures 研究程序

### 2.1 Study design 研究设计

The household transmission investigation is a case-ascertained prospective study of all identified household contacts of a laboratory confirmed 2019-nCoV infection (see 2.2 Study population). It is intended to provide rapid and early information on the clinical, epidemiological and virological characteristics of 2019-nCoV.

家庭传播调查是一项病例确诊前瞻性研究，目标人群为实验室确诊的2019-nCoV感染者其所有已确认的家庭接触者（见2.2研究人群）。本研究旨在提供有关2019-nCoV的临床、流行病学和病毒学特征的快速和早期信息。

This investigation should be conducted following the identification of a laboratory-confirmed 2019- nCoV infection in any country. It should also ideally be conducted before widespread community transmission occurs. That is, within the early phases of an epidemic following the identification of a laboratory confirmed 2019-nCoV infection.

在任何国家，这项调查应在实验室确诊2019-nCoV感染后进行。理想情况下，还应在广泛的社区传播发生之前进行。也就是说在发现实验室确诊的2019-nCoV感染后的流行早期阶段进行。

### 2.2 Study population 研究人群

The study population is derived from the identification of any laboratory confirmed 2019-nCoV infection. This is distinct from a household cohort study in which a group of disease-free households are recruited and then followed over time. Every effort should be made to include all identified household contacts of cases of a laboratory confirmed 2019-nCoV infection.

研究人群来源于任何实验室确诊的2019-nCoV感染。这与招募无疾病家庭并进行跟踪的家庭队列研究不同。应尽一切努力将实验室确诊的2019-nCoV感染病例的所有已确认家庭接触者包括在内。

For the purpose of this investigation, primary cases will be identified through surveillance of individuals who are diagnosed with laboratory confirmed 2019-nCoV infection. 2019-nCoV case definitions for reporting are available on the [WHO website](#), although they are subject to further updates as more information becomes available.

在本次调查中，将通过监测被实验室确诊为2019-nCoV感染的个人来确定原发病例。[WHO网站](#)上提供了2019-nCoV报告病例定义，但随着更多信息的出现，定义将进一步更新。

**COMMENT:** All WHO guidance material for 2019-nCoV is available on the [WHO website](#). This currently includes case definitions, laboratory guidance, infection prevention and control and travel guidance.

注解：WHO网站上提供了关于2019-nCoV的所有WHO指导材料。目前包括病例定义、实验室指南、感染预防和控制以及旅行指南。

For the purpose of this investigation, a **household** is defined as a group of people (2 or more) living in the same residence. In practice, the technical definition may vary due to social, political and cultural practices.

在本次调查中，**家庭**被定义为居住在同一住所的一组人（2人或2人以上）。实际上，由于社会、政治和文化习俗的不同，定义可能有所不同。

Definitions of a household which may be used (but are not limited to):

可使用的家庭的定义（但不限于）：

- - Two or more people living together in a domestic residence (residential institutions, such as boarding schools, dormitories, hostels or prisons will be excluded).

两人或两人以上共同居住在一个家庭住所内（不包括寄宿学校、宿舍、宾馆或监狱等寄宿机构）。

- - A dwelling or group of dwellings with a shared kitchen or common opening onto a shared household space.

共用厨房或共用家庭空间的普通住宅或住宅群。For the purpose of this investigation, a **household contact** is defined as a person who has resided in the same household as the primary 2019-nCoV case while the case was symptomatic.

在本次调查中，家庭接触者是指在2019 nCoV 原发病例有症状时与其居住在同一家庭的人。

COMMENT: For the purposes of comparability between investigations, it is important that whichever definition of a household contact is well detailed in any reporting on the investigation.

注解：为了使调查之间具有可比性，在调查报告中要对家庭接触的定义进行详细说明，这一点很重要。

### 2.3 Exclusion criteria 排除标准

Households may need to be excluded (or not, if it is possible to tease out the transmission dynamics)

家庭可能需要排除在外（如果有可能梳理出传播动力学则不需排除）

if:

如果：

- Date of onset is the same for more than one family member

多个家庭成员的发病日期相同

### 2.4 Study duration 研究时长

The investigation can continue for as long as is determined feasible by the country implementing the investigation. However, ideally, enrolled household contacts will complete **four home visits within 28 days of enrolment/follow-up**. Specimens, and information on risk factors and symptoms will be collected from primary cases and from each of his/her household contacts. The duration of follow-up may vary depending on further secondary objectives.



只要实施调查的国家确定可行，调查就可以持续性进行。然而，理想情况下，入组的家庭接触者将在入组/随访的28天内完成4次家访。将从原发病例和他/她的每个家庭接触者中收集样本、危险因素和症状信息。随访时间可能不同，取决于进一步的次要目标。

**Study enrolment could be extended as far as desired, however the most valuable period in order to use data for targeted public health action is in the early phases of the epidemic.**

研究入组可以根据需要延长，但利用数据采取有针对性的公共卫生行动的最有价值时期是在流行的早期阶段。

## 2.5 Data collection 数据收集

Information on primary cases and their close contacts should be sought through a combination of face-to-face or telephone interview of the case (or family members if the case is too ill to be interviewed), household members, self-reporting, interview of health care providers and/or review of medical records where required.

应通过与病例（或其家庭成员，如果病例病情严重无法面谈）和家庭的面谈或电话访谈、自我报告、采访医疗卫生人员和/或审核病历（如有需要）相结合的方式得到关于原发病例及其密切接触者的信息。

An investigation questionnaire can be found in Appendix 1 of this document. These forms are not exhaustive, but outline the data collection required for insight into the epidemiology of 2019-nCoV and may be updated further. This will still need to be adapted based on the local setting, and outbreak characteristics.

调查问卷见本文件附录1。这些表格并非详尽无遗，但概述了深入了解2019-nCoV流行病学所需的资料收集，并可能进一步更新。问卷仍然需要根据当地环境和暴发特征进行调整。

Once a case of 2019-nCoV infection has been identified and recruited into the investigation, a home visit will need to be conducted to identify all eligible household contacts, to collect relevant socio- demographic and clinical information and to allow molecular confirmation of secondary infections and establish baseline antibody status, (or at a minimum to collect serum to test seroprevalence once serology capacity is available).

一旦发现2019-nCoV感染病例并将其纳入调查，就需要进行家访，以确定所有符合条件的家庭接触者，收集相关的社会人口学和临床信息，对续发感染进行分子学确认，并建立抗体基线状态（或如有血清学检测能力，至少收集血清以检测血清阳性率）。

## 2.6 Follow up of cases and contacts 病例和接触者随访

For the purposes of this investigation, data and specimens will be collected through home visits from cases and contacts on the day of recruitment (Day 1), followed by home visits on day 7, day 14, and day 28 if possible.

在本次调查中，在招募当天（第1天）通过家访收集资料和样本，如可能，接下来在第7天、第14天和第28天进行家访。

**COMMENT: For surveillance, follow up needs to be more frequent. The specimen collection schedule for the household transmission investigation described here, is added on top of normal follow up of contacts.**

注解：为了监测，需要更频繁的随访。本文所述的家庭传播调查样本收集时间表，是在对接触者的正常随访基础上增加的。

For cases, data will be collected using **Form 1a** for the first visit, followed by **Forms 2, 3 and 4**. For contacts, data will be collected using **Form 1b** for the first visit, followed by **Forms 2, 3 and 4**.

对于病例，在第一次家访时使用表1a收集数据，随后使用表2、3和4收集。对于接触者，第一次家访将使用表格1b收集数据，然后是表格2、3和4。

Symptom diaries (template available in Appendix 1 of this protocol) will be provided for all household contacts to complete for up to 28 days after the administration of the baseline questionnaire, with a minimum of 14 days, to record presence or absence of various signs or symptoms. A proxy may fill out the symptom diaries on behalf of those unable to complete the form themselves.

症状日志（本方案附录1中提供的模板）将提供给所有家庭接触者，在进行基线调查问卷后28天（最少也应完成14天的）内完成，以记录是否存在各种症状或体征。委托人可以代表不能自己填写表格的人填写症状日志。

Any household contact with clinical symptoms within 14 days of the last exposure/contact with the primary case should be considered as a symptomatic contact and so a possible/suspected case, and therefore managed as such.

在最后一次暴露于/接触原发病例的14天内，任何有临床症状的家庭接触者都应被视为有症状接触者，是可能/疑似病例，因此这样管理。

The table below provides an overview of the follow-up procedures

下表概述了后续随访程序

	<b>Purpose of form</b> 表格目的	<b>Collecting from whom?</b> 被收集者	<b>When should it be collected?</b> 何时收集
<b>Confirmed cases</b> 确诊病例			
<b>Form 1a</b> <b>表格1a</b>	Minimum data reporting form 最小资料报告表	For <b>confirmed</b> cases 确诊病例	As soon as possible after laboratory confirmation of a case ( <b>Day 1</b> ) 当病例实验室确诊（第1天）后尽快收集
<b>Forms 2, 3 and 4</b> <b>表格2/3/4</b>	Case <b>follow-up</b> forms 病例随访表	For <b>confirmed</b> cases (outcomes) 确诊病例（结果）	At home visits ( <b>Days 7, 14 and 28</b> ) respectively 分别在第7天/14天/28天家访
<b>Household contacts</b> 家庭接触者			
<b>Form 1b</b> <b>表格1b</b>	Contact data reporting form 接触者资料报告表	For households contacts 家庭接触者	As soon as possible, ideally within 24 hours after laboratory confirmation of the primary case ( <b>Day 1</b> ) 尽快，理想情况是在原发病例实验室确诊后的24小时内（第1天）收集。
<b>Forms 2, 3 and 4</b> <b>表格2/3/4</b>	Contact <b>follow-up</b> forms 接触者随访表	For households contacts (outcomes) 家庭接触者（结果）	At home visits ( <b>Days 7, 14 and 28</b> ) respectively 分别在第7天/14天/28天家访时
Symptom diaries 症状日志	Record presence or absence of various signs or symptoms.	For confirmed cases (if possible) and households contacts	For up to 28 days after the administration of the baseline questionnaire (Form 1b), with a <b>minimum of 14 days</b>

	记录有无各种症状或体征。	确诊病例（如可能）及家庭接触者	在进行基线调查问卷（表格1b）后的28天，至少14天
<b>Confirmed cases and household contacts</b>			
<b>确诊病例及家庭接触者</b>			
Laboratory results report 实验室结果报告	Track and summarize all laboratory results (and methods used) 追踪和汇总所有实验室结果（和使用的方法）	For confirmed cases and households contacts 确诊病例和家庭接触者	This table will need to be filled/ updates to at each specimen collection time point above 需要在上述每个样本采集时间点填写/更新此表

## 2.7 Specimen collection 样本采集

COMMENT: The following is intended to guide minimum specimen collection from confirmed cases and their household contacts. It may be more useful to collect respiratory specimens from study participants at a more frequent interval to provide more detailed insight into the duration of shedding and the serial interval (not just the symptomatic serial interval).

注解：以下内容旨在指导从确诊病例及其家庭接触者中收集的最少样本。以更频繁的间隔收集研究参与者的呼吸道样本更为有用，以便更详细地了解排毒持续时间和代际间隔（不仅仅是症状代际间隔）。

### 2.7.1 Confirmed cases 确诊病例

All baseline respiratory and serum samples (as directed by specimen collection guidance in the country) should be collected from confirmed cases, as soon as possible after laboratory confirmation. Liaise with the relevant local public health laboratory or the nearest relevant laboratory to determine which specimens have already been collected for confirmed cases and if they are of sufficient quality and quantity for this investigation.

应在实验室确诊后尽快从确诊病例处采集所有基线的呼吸道和血清样本（按照国家样本采集指南的指示）。与当地相关公共卫生实验室或最近的相关实验室联系，确定哪些样本已经为确诊病例收集了，以及这些标本是否有足够的质量和数量来进行此调查。

Follow-up samples (and other samples) may include upper respiratory tract samples, clotted blood, but also oral fluid, urine, feces and should be collected at a frequency described in Figure 1. Lower respiratory tract samples can also be collected, if feasible but recommended infection prevention and control precautions should be in place prior to collection (see 2.9.3 Prevention of 2019-nCoV infection in investigation personnel). Appropriate PPE should be worn when specimens are being collected from confirmed cases.<sup>6</sup>

后续样本（及其他样本）可包括上呼吸道样本、凝血血液、唾液、尿液、粪便，并应按图1所述的频率采集。如果可行，也可以采集下呼吸道样本，但在采集前应采取建议的感染预防和控制预防措施（见2.9.3调查人员中2019-nCoV感染的预防）。从确诊病例中采集标本时，应穿戴适当的个人防护用品。

### 2.7.2 Household contacts 家庭接触者

All baseline upper respiratory specimens (nasopharyngeal/oropharyngeal swab) and serum samples should be collected at the initial home visit. Respiratory specimens should be collected for molecular testing, as well as serum samples for serology, from all members of the household, regardless of symptoms, together with the administration of the baseline questionnaire. At the day 7 and day 14 visits, respiratory samples (and other relevant specimens) will be collected from all members of the household for virologic testing,

regardless of symptoms, and at the day 28 visit, serum sample, (and other potentially relevant specimens) could be collected from all household contacts – see Figure 1

所有基线上呼吸道样本（鼻咽/口咽拭子）和血清样本应在首次家访时采集。应收集所有家庭成员的呼吸道样本进行分子检测，并收集血清样本进行血清学检测，不论症状如何，同时进行基线问卷调查。在第7天和第14天家访时，从所有家庭成员中采集呼吸道样本（和其他相关样本）进行病毒学检测，无论症状如何，在第28天家访时，可从所有家庭接触者中采集血清样本（和其他潜在相关样本）-见图1

Paired serological samples from all household contacts allow for confirmation of seroconversion, and are useful to confirm the secondary-infection attack rate and the proportion of infections that are asymptomatic. They can be taken regardless of symptoms.

来自所有家庭接触者的成对的血清学样本可以确认血清阳转率，并且有助于确认续发感染的罹患率和无症状感染的比例。不管症状如何均可以采集。

Other specimens (as described for confirmed cases) may be collected according to clinical presentation, resources and observed patterns of viral shedding (described earlier) and may be collected by research staff depending on resources, logistics and training.

其他样本（如确诊病例所述）可根据临床表现、资源和观察到的排毒模式（如前所述）收集，并可由研究人员根据资源、物流和培训情况进行收集。

### 2.7.3 Note on serology 血清学注意事项

Paired clotted blood samples should be taken for serology and handled and separated correctly by the laboratory. Paired serological samples from confirmed cases are needed to aid the development of serological testing, to determine an accurate secondary-infection attack rate.

血清学检查应采集成对的血样，由实验室正确处理和分离。确诊病例的血清学样本需成对采集，以帮助开展血清学检测，确定准确的续发感染率。

Serum samples should be taken on all 2019-nCoV confirmed cases.

所有2019-nCoV确诊病例均应采集血清样本。

- - An acute baseline clotted blood sample should be taken as soon as possible, and ideally no later than 7 days after symptom onset.

应尽快采集急性期基线血样，最好不迟于症状出现后7天。

- - A follow up (or convalescent) clotted blood sample should be taken:

应采集后续（或恢复期）凝血血样：

o at least 14 days after the base line sample,

基线样本采集后至少14天，

o OR 28 days after symptom onset if an acute sample couldn't be taken when the case was symptomatic.

或在症状出现后28天，如果在有症状的情况下不能采集急性期样本。

Figure 1: Timeline of data and specimen collection in the household transmission study

图1：家庭传播研究中的数据和样本收集时间表

Day since recruitment 入组后天数	0 (±1)...	7	...	14	...	28
Home visit and data collection 家访和数据收集						
Respiratory sample 呼吸道样本		(optional) 可选		(optional) 可选		(optional) 可选
Serum sample (dependent on country) 血清样本（依国家而定）			(optional) 可选		Highly encouraged 强烈建议	
Other specimens (if relevant) 其他样本（如相关）	(optional- situation dependent) 可选-依情况而定					
Symptom diaries 病例日志					Highly encouraged 强烈建议	

Legend:

图例:

**Blue boxes** indicate activities which are needed for the study

蓝色方框指出研究所需的活动

**Light blue boxes** indicate when serum collection (or symptom diaries) is highly encouraged, but not essential according to resources and capacity.

浅蓝色方框中显示何时强烈建议血清采集（或症状日志），但根据资源和能力而不是必需的。

**Green boxes** indicate where additional specimens could be collected above the minimum specimen requirements of this study to increase information available. Please note that this could also include collecting specimens from household contacts when they first become symptomatic.

绿色方框表示在本研究最低样本要求以上可采集的额外样本，以增加可用信息。请注意，也可能包括采集家庭接触者首次出现症状时的样本。

## 2.8 Specimen transport 样本运输

All those involved in collection and transporting specimens should be trained in safe handling practices and spill decontamination procedures. or details regarding the transport of samples collected and infection control advice, please refer to case management algorithm and laboratory guidance in the country or WHO laboratory guidance, available on the [WHO website](#).

所有参与采集和运输样本的人员都应接受安全处理操作和泄漏消杀程序的培训。或有关采集的样本运输和感染控制建议的详细信息，请参阅[WHO网站](#)上提供的国家病例管理办法和实验室指南或WHO实验室指南。

For each biological sample collected, the time of collection, the conditions for transportation and the time of arrival at the study laboratory will be recorded. Specimens should reach the laboratory as soon as possible

after collection. If the specimen is not likely to reach the laboratory within 72 hours, specimens should be frozen, preferably at  $-80^{\circ}\text{C}$ , and shipped on dry ice. It is, however, important to avoid repeated freezing and thawing of specimens. The storage of respiratory and serum specimens in domestic frost-free freezers should be avoided, owing to their wide temperature fluctuations. Serum should be separated from whole blood and can be stored and shipped at  $4^{\circ}\text{C}$  or frozen to  $-20^{\circ}\text{C}$  or lower and shipped on dry ice.

对于采集的每个生物样本，应记录采集时间、运输条件和到达研究实验室的时间。样本采集后应尽快送达实验室。如果样本不可能在72小时内送达实验室，则应将样本冷冻，最好在 $-80^{\circ}\text{C}$ 下，并用干冰运输。然而，重要的是避免样本反复冻融。应避免将呼吸道和血清样本存放在家用无霜冷冻柜中（因为其温度波动较大）。血清应与全血分离，并可在 $4^{\circ}\text{C}$ 下储存和运输，或冷冻至 $-20^{\circ}\text{C}$ 或更低温度，然后使用干冰运输。

Transport of specimens within national borders should comply with applicable national regulations. International transport of specimens should follow applicable international regulations as described in the [WHO Guidance on Regulations for the Transport of Infectious Substances 2013- 2014](#).

在国内运输样本应符合适用的国家条例。样本的国际运输应遵循[WHO 2013-2014传染物质运输条例指南](#)中所述的适用国际条例。

## 2.9 Ethical considerations 伦理考量

Ethical requirements will vary by country. In some countries, this investigation may fall under public health surveillance (emergency response) acts and may not require ethical approval from an Institutional Review Board.

伦理要求因国家而异。在一些国家，本项调查可能归于公共卫生监督（应急响应）法案下，无需取得机构审查委员会的伦理批准。

### 2.9.1 *Informed consent* 知情同意书

The purpose of the investigation will be explained to all known contacts of a confirmed 2019-nCoV infected patient. Informed consent will be obtained from all cases and contacts willing to participate in the investigation before any procedure is performed as part of the investigation by a trained member of the investigation team. Consent for children under the legal age of consent will be obtained from a parent or legal guardian. Each participant must be informed that participation in the investigation is voluntary and that s/he is free to withdraw, without justification, from the investigation at any time without consequences and without affecting professional responsibilities.

向所有接触已确诊的2019 nCoV 感染患者的接触者说明这项调查的目的。作为调查的一部分，在调查组经培训的成员执行任何流程之前，向所有愿意参加调查的病例和接触者获取知情同意书。获取未满法定年龄儿童的同意书将得到其父母或法定监护人的许可。必须告知每位参与者，该调查是自愿的，她/他可以在任何情况下随时自愿退出调查，而不会产生任何后果，也不会影响任何职业责任。

COMMENT: The age of consent may vary by country. Check the requirements of local, regional or national authorities.

注：知情年龄可能因国家而异，核实当地、地区或国家主管部门的要求。

Informed consent will seek approval to collect blood, respiratory samples and epidemiological data for the intended purpose of this investigation, that samples may be shipped outside of the country for additional testing and that samples may be used for future research purposes.



知情同意书旨在获取用于该调查预期目的血液、呼吸道样本和流行病学数据的收集许可，即该样本可运送至国外进行进一步检测，并可用于未来研究。

### 2.9.2 Risks and benefits for subjects 受试者的风险及收益

This investigation poses minimal risk to participants, involving the collection of a small amount of blood and respiratory specimens. The direct benefit to the participant is the possibility for early detection of 2019-nCoV infection which would allow for appropriate monitoring and treatment. The primary benefit of the study is indirect in that data collected will help improve and guide efforts to understand transmission of 2019-nCoV and prevent further spread of 2019-nCoV.

这项调查对参与者构成的风险是最小的，包括收集少量血液及呼吸道样本。对参与者的直接优点是可以较早的发现2019 nCoV，从而可以进行适当的监测及治疗。该项研究的主要优点是间接的，因为所收集到的数据将有助于提高并指导对2019 nCoV 传播的理解，防止2019 nCoV 的进一步传播。

### 2.9.3 Prevention of 2019-nCoV infection in investigation personnel

#### 预防调查人员感染2019 nCoV

All personnel involved in the investigation need to be trained in infection prevention and control procedures (standard contact, droplet or airborne precautions, as determined by national or local guidelines). These procedures should include proper hand hygiene and the correct use of surgical or respiratory face masks, if necessary, not only to minimize their own risk of infection when in close contact with 2019-nCoV infected patients, but also to minimize the risk of spread among contacts of 2019-nCoV infected patients. WHO technical guidance on infection prevention and control specific to 2019-nCoV can be found on the WHO website.

所有参与调查的人员均需接受感染预防及控制流程的培训（由国家或当地准则中明确的标准接触、飞沫或空气传播的预防措施）。这些流程应包括必要时恰当的手部消毒及正确使用外科或呼吸防护口罩，不仅要降低与感染2019 nCoV 病人密切接触时其自身感染的风险，亦可降低感染2019 nCoV 病人的接触者的传播风险。在世卫组织的网站上查阅关于2019 nCoV 的具体感染预防及控制措施的技术指南。

## 3 Laboratory testing 实验室检测

Laboratory guidance for 2019-nCoV can be found on the WHO website.

在世卫组织的网站上查阅关于2019 nCoV 的实验室指南。

Several assays that detect the novel coronaviruses detected in Wuhan, China have been recently developed and the protocols or SOPs can also be found on the WHO website.

目前已经开发出了在中国武汉检测到的新型冠状病毒的多个试验方法，其方案或SOP可参见世卫组织网站。

## 4 Statistical analyses 统计分析

### 4.1 Sample size 样本量

This investigation is intended to be implemented to provide rapid and early information on the clinical, epidemiological and virological characteristics of 2019-nCoV. Larger studies will undoubtedly permit more robust analysis of potential factors affecting the secondary infection risk, more precise estimation of the asymptomatic fraction, and more detailed characterization of serologic responses following infection

这项调查的目的是为2019 nCoV 的临床、流行病学和病毒学特征提供快速且早期的信息。大规模的研究必定能够提供对影响继发感染风险的潜在因素更稳健的分析，对无症状比例进行更精确的估计，以及对感染后的血清学反应更加详细的特征说明。

## 4.2 Epidemiological parameters 流行病学参数

The table below provides an overview of the epidemiological parameters that can be measured as part of this investigation

作为调查一部分，下表概述了本调查相关的流行病学参数。

Parameter 参数	Definition (in bracket: “simplified” expression of it) 定义（括号内：它的“简 化”表达）	Form and questions where to get the data to calculate the parameters concerned 表格及问题：从何处获 取数据以计算相关参数	Comments, limitations 意见，局限性
Course of disease 病程	A description of the distribution of cases by time, person and place 按照时间、人员和地点描 述病例分布	Form 1: Q3, Q4, Q5 Form 2: Q3 Form 3,4,5 表格1: Q3、Q4、Q5 表格2: Q3 表格3、4、5	*Location will need to be supplemented by notification data to recognize geospatial trends *需要发布位置数据，以识别 地理空间趋势
Symptomatic proportion of cases (asymptomatic fraction) 病例的症状性比例 (无症状比例)	The proportion of cases who show symptoms or signs of 2019-nCoV infection 病例比例显示了感染2019 新型冠状病毒的症状或迹 象	Form 1: Q6 Form 2: Q5 Form 3,4,5 Form 6 表格1: Q6 表格2: Q5 表格3、4、5 表格6	*The numerators of interest are the numbers of those contacts reporting various signs and symptoms of infection (e.g. fever, cough) and the number/proportion of those contacts reporting no signs or symptoms (i.e. the asymptomatic fraction); the denominator is the total number of cases. *分子是那些报告出现各种感 染迹象及症状（例如，发热， 咳嗽）的接触者的数量，以及 那些报告未出现任何迹象或症 状的接触者的数量/比例（即 无症状部分）；分母是总病例 数。



Parameter 参数	Definition (in bracket: “simplified” expression of it) 定义（括号内：它的“简 化”表达）	Form and questions where to get the data to calculate the parameters concerned 表格及问题：从何处获 取数据以计算相关参数	Comments, limitations 意见，局限性
Secondary infection rate (also called secondary infection incidence)  续发感染率  (也称为续发感染 发病率)	A measure of the frequency of new cases of 2019-nCoV infection among the close contacts of confirmed cases in a defined period of time (The rate of contacts being infected. Assessed through serological assays on paired samples)  特定时间内，在已确诊病 例的密切接触者中，感染 2019新型冠状病毒的新病 例的发生频率的测定  (接触者被感染的比例， 通过双份样本的血清学检 测进行评估)	Form 3,4,5  表格3、4、5	*The numerator will be determined as the number of household contacts with confirmed 2019-nCoV infection, while the denominator will be determined as the total number of household contacts.  *分子为确诊的感染2019新型 冠状病毒的家庭接触者的数 量，分母确定为家庭接触者总 数。  *represents an overall risk of infection among household contacts for a defined time period.  *表示在特定时间内家庭接触 者的感染总风险。
Clinical presentation  临床表现	The range of clinical symptoms in cases and contacts.(Severity)  病例及接触者的临床症状 范围（严重性）	Form 1: Q6  表格1: Q6  Form 2: Q5  表格2: Q5	*In-hospital clinical studies will enhance understanding of clinical course, severity and risk determinants, as well as case fatality.  *住院期间的临床研究将提高 对临床病程、严重性、风险决 定因素及病例死亡的理解。
Serological response to infection  对感染的血清学反 应	Change in serum level of specific antibodies to 2019- nCoV (Increase in titre)  对2019nCoV的特异性抗体 的血清水平的变化  (滴度增加)	Form 3,4,5  表格3、4、5	*This will only be able to be calculated with the addition of laboratory data  *这只能在添加实验室数据的 情况下进行计算。  *Will be supplemented by findings of clinical studies and first few outbreak studies to confirm that seroconversion following an infection is anticipate  *通过临床研究结果及最初几 次爆发的研究加以补充，以明 确可以预估感染后的血清阳性 率。

<p>Incubation period 潜伏期</p>	<p>The time period between 2019-nCoV exposure and the appearance of the first sign or symptom of the disease  (from infection to disease)  从2019新型冠状病毒暴露到该疾病的首次迹象或症状出现的时间间隔（从感染到疾病）</p>	<p>Form 6 表格6</p>	
<p>Serial interval distribution 代际间隔分布</p>	<p>The time between onset of symptoms in the case to onset of symptoms in the close contact  从病例中的症状发作到密切接触者的症状发作的时间间隔</p>	<p>Form 1: Q6 表格1: Q6  Form 2: Q5 表格2: Q5  Form 3,4,5 Q6 表格3、4、5: Q6  Form 6</p>	<p>*Will be greatly enhanced by information from first few outbreaks where transmission chains may be more identifiable and prolonged  *可从初期几次爆发的信息中获得极大加强，因为初期爆发的传播链更为清晰及持久</p>
<p>Generation time distribution 传代时间分布</p>	<p>Time between infection in the case and infection in the close contact  病例感染及密切接触者感染的时间间隔</p>	<p>Form 3,4,5 表格3、4、5</p>	<p>*Will be greatly enhanced by information from first few outbreaks where transmission chains may be more identifiable and prolonged  *可从初期几次爆发的信息中获得极大加强，因为初期爆发的传播链更为清晰及持久</p>

<p>Population groups most at risk</p> <p>高危人群</p>	<p>Determining the groups who are most vulnerable to 2019-nCoV infection (e.g. age groups, gender, occupation)</p> <p>Aiden:</p> <p>明确最易受到2019 nCoV感染的群体</p> <p>(例如, 年龄群体, 性别, 职业)</p>	<p>Form 1: Q4, Q5</p> <p>表格1: Q4、Q5</p> <p>Form 2: Q3, Q4</p> <p>表格2: Q3、Q4</p>	<p>*May only be an early signal, other sources of information will need to be used to inform decision making (line listing of cases and other clinical case series)</p> <p>*可能仅是一个早期信号, 需要其他来源的信息用于指导决策 (病例列表和其他临床病例系列)</p> <p>*This may be biased from this study, as we are recruiting on the basis of being detected and confirmed to have 2019-nCoV and healthcare seeking behaviour may vary between population groups</p> <p>*这可能与这项研究有偏差, 因为我们是在检测到并确认出现2019新型冠状病毒的基础上进行招募的, 并且不同人群寻求医疗救治的行为可能有所不同。</p>
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<p>Genomic data 基因组数据</p>		<p>Form 3,4,5 表格3、4、5</p>	<p>*An alternate means to estimate the reproduction number *预估再生数据的另一种方法 *May supplement other transmission data to inform transmission parameter estimates, although likely to be delayed beyond the initial public health response phase. *可以补充其他传播数据，以告知估计传播参数，尽管这可能延迟到公共卫生最初响应阶段后。</p>
<p>Basic reproduction number R0 基本再生数R0</p>	<p>A measure of the number of infections produced, on average, by an infected individual in the early stages of the epidemic, when 在流行病早期，当实际上所有接触者均易感时，衡量感染者平均生成的感染数量</p>	<p>Form 2: Q5 表格2: Q5 Form 3,4,5 表格3、4、5 Form 6 表格6</p>	<p>*Can be calculated using different approaches; identifying clusters and cluster size (using epi methods and</p>

	<p>virtually all contacts are susceptible. (average number of infections/disease arising from one infection)</p> <p>(一次感染引起的平均感染/疾病数量)</p> <p>Reminder: Basic reproductive ratio (R0) – everyone is susceptible and there is no control, maximum value that R can take is equal to the transmission potential.</p> <p>提示：基本再生率 (R0) - 每个人均易感，无控制措施，R可以承受的最大数值等于传播潜在性。</p>		<p>potentially genetic information to identify how many secondary cases are occurring), and using the epidemic curve and how steep it is</p> <p>*可以采用不同方法进行计算；识别聚集及聚集大小（使用流行病学方法和潜在的基因信息，以识别正发生的继发性案例数量），并采用传染曲线及其斜率。</p> <p>*R can be calculated using multiple sources of information incident case notifications, incident hospitalisation by age (as a potentially more stable alternative) or genomic data, all of which will be taken together as an estimate of transmissibility.</p> <p>*可以采用多种信息来源计算R，包括病例发布信息、按年龄分类的发病住院（作为一种可能更稳定的替代性方法）或者基因组数据，所有这些均综合起来以作为估计传播率。</p>
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<p>Reproductive ratio (R)</p> <p>再生率(R)</p>	<p>Ever-changing quantity of the amount of secondary cases produced by a primary case across time and space</p> <p>(i.e. context-specific)</p> <p>由一个原发病例在时间和空间上生成的续发病例的数量不断变化</p> <p>(即特异性)</p>	<p>Form 2: Q5</p> <p>表格2: Q5</p> <p>Form 3,4,5</p> <p>表格3、4、5</p> <p>Form 6</p> <p>表格6</p>	<p>*Not the main aim of household transmission studies, but if the study is continued and transformed into a long-term “cohort” study we may be able to calculate it.</p> <p>*非家庭传播研究的主要目的，但是如果继续研究，并转为成长期“队列”研究，我们也许可以计算它。</p>
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## 5 Reporting of findings 发现报告

### 5.1 Reporting 报告

Any investigation of this nature should include reporting on the following information:

- (1) the number of households, the number of household contacts included;
- (2) the number of PCR-confirmed 2019-nCoV cases among the household contacts;
- (3) the number of symptomatic household contacts;
- (4) the number of household contacts with serologic evidence of 2019-nCoV infection. If sample size permits, these numbers should be stratified by age.

任何这种性质的调查应包括报告以下信息:

- (1) 户数，包括的家庭接触人数；
- (2) 家庭接触者中经PCR确诊的2019年NCov病例数；
- (3) 有症状的家庭接触者人数；
- (4) 有2019-NCov感染血清学证据的家庭接触者人数。如果样本量允许，这些数字应该按年龄分层。

It is also important to fully document the study design, including the definition of households and household contacts, the approach to ascertainment of primary cases and secondary cases, the duration of follow-up, and the laboratory methods used to ensure that data can be pooled to increase power in estimating epidemiological parameters.

同样重要的是，要充分记录研究的设计，包括家庭和家庭接触者的定义，确定主要病例和续发病例的方法，随访的持续时间，以及为确保数据能够汇集以提高估计流行病学参数的能力而使用的实验室方法。

Ideally, information would be collected in a standardized format according to the questionnaires and tools in this generic protocol to assist with data harmonization and comparison of results (see forms in Appendix A).

理想的情况是，按照本通用方案中的调查表和工具，以标准化格式收集信息，以协助数据协调和结果比较（见附录A中的表格）。

If the data is shared by the implementing organization to WHO or any agency or institution providing support for data analysis, data shared will include only the study identification number and not any personally identifiable information.

如果执行组织将数据共享给世卫组织或任何为数据分析提供支持的机关或机构，共享的数据将仅包括研究识别号，而不包括任何可识别个人身份的信息。

## 6 References 参考文献

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[https://www.who.int/csr/don/05-january-2020-pneumonia-of-unknown-cause-china/en/?fbclid=IwAR2v89e9lp70O6GTra13FIPHCLw4WJ8kL20Uylx5zZNtWAYvbR0sEATr\\_rg](https://www.who.int/csr/don/05-january-2020-pneumonia-of-unknown-cause-china/en/?fbclid=IwAR2v89e9lp70O6GTra13FIPHCLw4WJ8kL20Uylx5zZNtWAYvbR0sEATr_rg)  
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### 6.1 References for 2019-nCoV 2019-新型冠状病毒参考文献

WHO Disease Outbreak News 世界卫生组织疫情暴发新闻

<https://www.who.int/csr/don/en/>

Surveillance and case definitions 监测和病例定义

[https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-\(2019-ncov\)](https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-(2019-ncov))

Laboratory guidance 实验室指南

<https://www.who.int/health-topics/coronavirus/laboratory-diagnostics-for-novel-coronavirus>

Clinical management 临床管理

[https://www.who.int/internal-publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/internal-publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected)

Infection prevention and control 预防感染和控制

[https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected)

Risk communications 风险沟通

[https://www.who.int/publications-detail/risk-communication-and-community-engagement-readiness-and-initial-response-for-novel-coronaviruses-\(ncov\)](https://www.who.int/publications-detail/risk-communication-and-community-engagement-readiness-and-initial-response-for-novel-coronaviruses-(ncov))



## 7 Acknowledgments 致谢

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该通用方案是根据流感血清流行病学标准化联合会(CONSISE)的题为“X国甲型大流行性流感(HxNy)家庭传播调查方案”和“流感家庭传播的前瞻性研究”的方案而制定。CONSISE是一个全球伙伴关系,旨在制定流感调查规程和标准化血清流行病学,为大流行性流感、人畜共患流感和季节性流感的公共卫生政策提供信息。建立这一国际伙伴关系是基于2009年甲型H1N1流感大流行期间的需要,以提供更好的(标准化的,确证的)血清流行病学数据,进而估计大流行性流感病毒的感染发病率和严重程度,并为政策决定提供信息。

WHO staff: Isabel Bergeri, Kaat Vandemaele, Maria Van Kerkhove, Ann Moen, Wenqing Zhang, Aspen Hammond, Julia Fitzner, John Watson, Anne Perrocheau, Yuka Jinnai, Stéphane Huggonnet, Oliver Morgan, Sooyoung Kim, Rebecca Grant and John Watson (US CDC). 世卫组织工作人员: Isabel Bergeri, Kaat Vandemaele, Maria Van Kerkhove, Ann Moen, 张文庆, 阿斯彭哈蒙德, 朱莉娅菲茨纳, 约翰沃森, 安妮佩罗肖, 尤卡金奈, 斯蒂芬·休贡内, 奥利弗·摩根, 索扬·金, 丽贝卡·格兰特和约翰·沃森

Outside WHO, a large number of extra non-WHO individuals were involved in the creation and revision of this protocol as part of the WHO expert working Group on Pandemic Influenza Special Investigation Studies (by alphabetical order). These include: Silke Buda (RK Institute, Germany), Cheryl Cohen (MoH South Africa), Ben Cowling (Hong Kong University), Jeffery Cutter (MoH Singapore), Vernon Lee (MoH Singapore), Rodrigo Fasce (NIC Chile), Gail Garson (GOARN Operational support team- Research sub-group chair, United Kingdom), Jean-Michel Heraud (Institut Pasteur de Madagascar), Peter Horby (ISARIC, United Kingdom), Sue Huang (NIC, Institute of Environmental Science and Research, New Zealand), Arunkumar Govindakarnavar (Manipal Institute of Virology Manipal, Academy of Higher Education), Bryan Kim (WHO GOARN operational support team, Switzerland), Vernon Lee (MoH Singapore), Adrian Marcato (University of Melbourne, Australia), Jodie McVernon (Peter Doherty Institute, Australia), Richard Pebody (Public Health England, United Kingdom), Melissa Rolf (US CDC), Hassan Zaraket (American University of Beirut, Lebanon), Lei Zhou (China CDC).

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## Appendices 附录

### Appendix A: Sample questionnaires - Household transmission investigation protocol for 2019-novel coronavirus (2019-nCoV) infection

#### 附录A：样本调查问卷—2019-新型冠状病毒(2019-nCoV)感染家庭传播调查方案

Form 1a : Report Form for cases - Day 1

表1a: 病例报告表-第1天

Form 1b : Report Form for household contacts - Day 1

表1b: 家庭接触者报告表-第1天

Form 2: Report Form for cases and household contacts – Day 7

表2: 病例和家庭接触者报告表-第7天

Form 3: Report Form for cases and household contacts – Day 14

表3: 病例和家庭接触者报告表-第14天

Form 4: Report Form for cases and household contacts – Day 28

表4: 病例和家庭接触者报告表-第28天

Form 5: Laboratory results

表5: 实验室结果

Form 6: Symptom diary

表6: 症状日志

**Household transmission investigation protocol for 2019-novel coronavirus (2019-nCoV) infection**  
**2019-新型冠状病毒(2019-nCoV)感染家庭传播调查方案**

**Form 1a : Report Form for cases - Day 1表1a: 病例报告表-第1天**

Unique Primary Case ID / Household Number 原发病例唯一编号/家庭编号

**1. Current Status 现状**  Alive 存活  Dead 死亡

**2. Data Collector Information 数据收集人信息**

Name of data collector 收集人姓名	
Data collector Institution 收集人单位	
Data collector telephone number 收集人电话	
Mobile number 移动电话	
Email 邮箱	
Form completion date (DD/MM/YYYY) 表格完成日期 (日月年)	__/__/__
Date of interview with informant (DD/MM/YYYY) 与通知人的面谈日期 (日月年)	__/__/__

**3. Interview respondent information (if the persons providing the information is not the primary case) 面谈者信息 (如果该面谈者不是原发病例)**

First name 名字	
Surname 姓氏	
Sex 性别	<input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女 <input type="checkbox"/> Not known 未知
Date of Birth (DD/MM/YYYY) 出生日期 (日月年)	__/__/__
Relationship to primary case 与原发病例关系	
Respondent address 面谈者住址	
Telephone (mobile) number 电话 (手机) 号	

**4. Primary case Identifier Information 原发病例标识信息**

First name 名字	
Surname 姓氏	
Sex 性别	<input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女 <input type="checkbox"/> Not known 未知
Date of Birth (DD/MM/YYYY) 出生日期 (日月年)	__/__/__
Telephone (mobile) number 电话 (手机) 号	
Age (years, months) 年龄 (年, 月)	
Email 邮箱	
National social number/ identifier (if applicable) 社会代码/标识 (如适用)	
Country of residence 居住国	
Nationality 国籍	
Ethnicity (optional) 民族 (选填)	
Responsible Health Centre 责任医疗中心	
Nursery/School/College if appropriate 幼儿园/学校/大学如适用 Work/ Stay home etc 工作/在家等	

**5. Household information 家庭信息**

Location of household / Address of primary case 家庭位置/原发病例住址	
Household size (number of people who usually live in the house, this will be varied depending on culture) 家庭大小 (常驻人员数量, 该项会依据文化有所不同)	
Number of rooms in house 房间数量	

Number of bedrooms 卧室数量	
Age of each household member 每位家庭成员的年龄	_____
	_____
	_____
	_____

**6a. Primary case symptoms from onset of illness 原发病例自发病起症状**

Date of first symptom onset* (DD/MM/YYYY)首次发现症状日期 (日月年)	___/___/___ <input type="checkbox"/> Asymptomatic 无症状的 <input type="checkbox"/> Unknown未知
Fever (≥38 °C) or history of fever*高烧(38 °C及以上)或有过发烧史	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知 If yes, specify maximum temperature from onset of illness: 如是, 请详细说明发病初期最高温度;
Date of first health facility visit (including traditional care)* (DD/MM/YYYY)前往第一家医疗机构的日期 (包括中药治疗) (日月年)	___/___/___ <input type="checkbox"/> NA不适用 <input type="checkbox"/> Unknown未知
Total number of visits to health facilities since onset of illness发病后前往医疗机构的次数	
Total number of health facilities visited since onset of illness发病后前往的医疗机构总数	用 Unknown 未知

**6b. Respiratory symptoms呼吸道症状**

Sore throat* 咽喉痛	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知 If Yes, date (DD/MM/YYYY): ___/___/___ 如是, 日期 (日月年)
Cough*咳嗽	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知 If Yes, date (DD/MM/YYYY): ___/___/___ 如是, 日期 (日月年)
Runny nose*流鼻涕	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Shortness of breath*呼吸急促	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知 If Yes, date (DD/MM/YYYY): ___/___/___ 如是, 日期 (日月年)

**6c. Other symptoms 其他症状**

Chills寒颤	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Vomiting呕吐	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Nausea恶心	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Diarrhoea腹泻	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Headache头痛	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Neurological signs If Yes, specify 神经系统症状, 如有, 详细说	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Rash皮疹	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Conjunctivitis结膜炎	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Muscle ache肌肉痛	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Joint ache关节痛	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Loss of appetite食欲不振	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Nose bleed流鼻血	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Fatigue疲劳	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
General malaise全身不适	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Seizures抽搐	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知

Altered consciousness意识混乱	<input type="checkbox"/> Yes是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown未知
Other symptoms其他症状	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, specify: <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详 如是，请列出：

7. Primary case pre-existing condition(s)原发病例已有的疾病	
Obesity肥胖	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Cancer癌症	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Diabetes糖尿病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
HIV/other immune deficiency艾滋病 / 其他免疫缺陷	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Heart disease心脏病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Asthma (requiring medication)哮喘 (需要药物治疗)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Chronic lung disease (non-asthma)慢性肺疾病 (非哮喘)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Chronic liver disease慢性肝病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Chronic haematological disorder慢性血液病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Pregnancy怀孕	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, specify trimester: <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third <input type="checkbox"/> NA Estimated delivery date (DD/MM/YYYY) __/__/__ <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详 如果是，请指出哪三个月 <input type="checkbox"/> 前三个月 <input type="checkbox"/> 中间三个月 <input type="checkbox"/> 后三个月 <input type="checkbox"/> 不适用 预计生产日期 (年/月/日) __/__/__
Chronic kidney disease慢性肾病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Chronic neurological impairment/disease慢性神经功能障碍/疾病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Organ or bone marrow recipient器官或骨髓接受者	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详
Other pre-existing condition(s)其它已有的疾病	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, specify:  <input type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不详 如果是，请列出

<p>Primary case was vaccinated for influenza in the 12 months prior to onset of illness 原发病例在发病的12 月内接种了流感疫苗</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown          If Yes, date of vaccination, (DD/MM/YYYY) ___/___/___          Country of vaccination:  <input type="checkbox"/>是 <input type="checkbox"/>否 <input type="checkbox"/>不详          如果是，接种日期(年/月/日) ___/___/___          接种国家:</p>
<p>Primary case was vaccinated with pneumococcal vaccine 原发病例接种了肺炎球菌疫苗          If Yes, date (DD/MM/YYYY) 如是，日期（日/月/年）</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown          (DD/MM/YYYY) ___/___/___  <input type="checkbox"/>是 <input type="checkbox"/>否 <input type="checkbox"/>不详          (年/月/日)</p>

<b>8. Case specimen collection (Day 1- baseline) 病例标本采集（第1天-基线）</b>	
<p>Date baseline respiratory sample collected (DD/MM/YYYY) 基线呼吸样本收集的日期 (年/月/日)</p>	<p>(DD/MM/YYYY) ___/___/___  <input type="checkbox"/> NA          日期(年/月/日) ___/___/___  <input type="checkbox"/>不适用</p>
<p>What type of respiratory sample was collected? 收集了哪种呼吸道样本?</p>	<p><input type="checkbox"/> Nasal swab <input type="checkbox"/> Throat swab <input type="checkbox"/> Nasopharyngeal swab  <input type="checkbox"/> Others  <input type="checkbox"/>鼻拭子 <input type="checkbox"/>咽拭子 <input type="checkbox"/>鼻咽拭子 <input type="checkbox"/>其他</p>
<p>Has baseline serum been taken? 是否收集了基线血清?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown          If yes, specify date (DD/MM/YYYY):  <input type="checkbox"/>是 <input type="checkbox"/>否 <input type="checkbox"/>不详          如果是，请列出日期(年/月/日) ___/___/___</p>
<p>Which laboratory was the specimen sent to? 标本被送到哪个实验室?</p>	
<p>Date sent to other laboratory with coronavirus expertise (if applicable) (DD/MM/YYYY) 送到其它冠状病毒专业实验室的日期（如果有）(年/月/日)</p>	<p>___/___/___</p>
<b>9. Laboratory results reporting 实验结果报告</b>	
<p>Please impute laboratory results once they become available in the “Laboratory results report” 一旦“实验室结果报告”中提供了实验室结果，请填写这些结果。</p>	

Household transmission investigation protocol for 2019-novel coronavirus (2019-nCoV)  
infection 新型冠状病毒 (2019-nCoV) 感染：家庭传播调查方案

Form 1b : Report Form for household contacts - Day 1

表1b：家庭接触者报告表——第1天

Unique Primary Case ID / Household Number 原发病例唯一编号 / 家庭编号	
1. Current status 现状	<input type="checkbox"/> Alive 生存 <input type="checkbox"/> Dead 死亡
2. Data Collector Information 数据收集人员信息	
Name of the data collector 数据收集人员姓名	
Data collector Institution 数据收集人员所属机构	
Data collector telephone number 数据收集人员的电话号码 (座机)	
Mobile number 数据收集人员的手机号码	
Email 数据收集人员的电子邮箱地址	
WeChat number 数据收集人员的微信号	
Form completion date (YYYY/MM/DD) 填表日期 (年/月/日)	(YYYY/MM/DD) ____/____/____ (年/月/日)
Date of interview with informant (YYYY/MM/DD) 采访日期 (年/月/日)	(YYYY/MM/DD) ____/____/____ (年/月/日)
3. Contact identifier information 家庭接触者的标识信息	



Surname, First name 姓名	
Sex 性别	<input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女 <input type="checkbox"/> Not known 不详
Date of Birth (YYYY/MM/DD) 出生日期 (年/月/日)	(YYYY/MM/DD) ____/____/____ (年/月/日)
Relation to confirmed case 与确诊病例关系	
Telephone (mobile) number 电话 (手机) 号	
Age (years, months) 年龄 (年, 月)	
Email 电子邮箱	
WeChat number 微信号	
ID number 身份证号	
Country of residence 常住国家	
Nationality 国籍	
Ethnicity (optional) 民族 (可不填)	
Responsible Health Centre 社区医院	
Nursery/School/College if appropriate Work/ Stay home etc 幼儿园/学校/大学 (如适用) 或, 工作单位, 居家等 (如适用)	

4. Household information 家庭信息	
Location of household / Address of contact if different to address of primary case 住址 ( 如果有别于原发病例 )	
Date of last contact with the confirmed case (YYYY/MM/DD) 最近一次与原发病例的接触日期 ( 年/月/日 )	(YYYY/MM/DD) ____/____/____ ( 年/月/日 )
Does the contact share a room (or usually does) with the primary case? 这位接触者通常跟原发病例住同一间卧室吗 ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Number of days during the time the case was ill at home that were spent in contact with case (refer to household contact definition) 原发病例在家中生病期间 , 接触者与病例接触的天数 ( 参考家庭接触者的定义 )	
Did the contact take care of the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前 , 接触者是否照顾过原发病例 ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Did the contact hug the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前 , 接触者是否拥抱过原发病例 ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Did the contact kiss the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前 , 接触者是否亲吻过原发病例 ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Did the contact shake hands with the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前 , 接触者是否与原发病例握过手 ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Did the contact share a meal with the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前 , 接触者是否与原发病例一起吃过饭 ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详

<p>Did the contact eat from the same plate with hands with the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前，接触者是否与原发病例一起用手从同一个碗/盘子里吃过饭？</p>	<p><input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详</p>
<p>Did the contact share a drinking cup/glass with the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前，接触者是否与原发病例一起从同一个杯子里喝过东西？</p>	<p><input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详</p>
<p>Did the contact share utensils with the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前，接触者是否与原发病例用过同样的餐具？</p>	<p><input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详</p>
<p>Did the contact sleep in the same room as the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前，接触者是否与原发病例睡在同一个房间里？</p>	<p><input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详</p>
<p>Did the contact share a toilet with the case during the time he/she was ill at home before hospitalization? 在原发病例生病后、住院前，接触者是否与原发病例用同一个厕所？</p>	<p><input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详</p>
<p>5a. Contact symptoms 接触者症状</p>	
<p>Has the contact experienced any respiratory symptoms (sore throat, cough, running nose, shortness of breath) in the period from 10 days before onset in the confirmed case until the Present? 从原发病例有症状之前的10天算起，到目前为止，接触者是否有任何呼吸道症状（咽喉肿痛，咳嗽，流鼻涕，呼吸急促）？</p>	<p><input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否</p> <p>If no, please skip to next section 5c 如“否”，请直接跳到问题5c</p>
<p>Date of first symptom onset (YYYY/MM/DD) 症状开始的日期（年/月/日）</p>	<p>(YYYY/MM/DD) ____/____/____ (年/月/日)</p> <p><input type="checkbox"/> Asymptomatic 无症状</p>

	<input type="checkbox"/> Unknown 不详
Fever ( $\geq 38^{\circ}\text{C}$ ) or history of fever 是否有发热或发热史 ( 体温高于等于38摄氏度 ) ?	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 如“是”，最高体温：_____摄氏度
5b. Respiratory symptoms 接触者的呼吸道症状	
Sore throat 咽喉肿痛	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，症状开始日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
Coughing 咳嗽	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，症状开始日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
Runny nose 流鼻涕	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，症状开始日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
Shortness of breath 呼吸急促	<input type="checkbox"/> Yes 是 No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，症状开始日期： (YYYY/MM/DD) ____/____/____

	( 年/月/日 )
5c. Other symptoms 接触者的其它症状	
Chills 寒颤	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Vomiting 呕吐	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Diarrhoea* 腹泻	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Headache* 头疼	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Neurological signs* 神经系统症状	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If Yes, specify 如“是”，请说明什么症状：
Rash* 皮疹	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Conjunctivitis* 结膜炎	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Muscle aches* 肌肉酸痛	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Joint ache	<input type="checkbox"/> Yes 是

关节酸痛	<input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Loss of appetite 缺乏食欲	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Nose bleed 流鼻血	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Fatigue 疲劳	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
General malaise 全身不适	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Seizures 抽搐	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Altered consciousness 意识改变	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Other symptoms* 其它症状	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If Yes, specify 如“是”，请说明什么症状：

6. Contact pre-existing condition(s)

接触者已有疾病

Obesity 肥胖	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
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Cancer 癌症	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Diabetes 糖尿病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
HIV/other immune deficiency HIV感染或其它免疫系统缺陷	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Heart disease 心脏疾病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Asthma (requiring medication) 哮喘 ( 需要药物治疗 )	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Chronic lung disease (non-asthma) 慢性肺部疾病 ( 哮喘除外 )	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Chronic liver disease 慢性肝脏疾病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Chronic haematological disorder 慢性血液疾病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Pregnancy 怀孕	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, specify trimester: 如果是，请勾选怀孕阶段： <input type="checkbox"/> First 孕早期 <input type="checkbox"/> Second 孕中期

	<input type="checkbox"/> Third 孕晚期 <input type="checkbox"/> NA 不适用 Estimated delivery date 预计生产日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
Chronic kidney disease 慢性肾脏疾病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Chronic neurological impairment/disease 慢性神经系统缺陷或疾病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Organ or bone marrow recipient 曾接受器官或骨髓移植	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详
Other pre-existing condition(s) 其它先前已有疾病	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，接种日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 ) Place of vaccination 接种地点：
Contact was vaccinated for influenza in the 12 months prior to onset of illness in the case 接触者在病例发病前12个月内曾接种过流感疫苗	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，接种日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
Contact was vaccinated with pneumococcal vaccine If yes, date 接触者曾接种过肺炎球菌疫苗	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详



如是，请填写接种日期：	If yes, date: 如“是”，接种日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
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7. Contact specimen collection (Day 1- baseline) 接触者样本采集 ( 第一日：基线 )	
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Date baseline respiratory sample collected* 基线呼吸道样本采集日期	采集日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 ) <input type="checkbox"/> NA 不适用
--	--

What type of respiratory sample was collected? 采集的呼吸道样本类型	<input type="checkbox"/> Nasal swab 鼻腔拭子 <input type="checkbox"/> Throat swab 咽喉拭子 <input type="checkbox"/> Nasopharyngeal swab 鼻咽拭子 <input type="checkbox"/> Others 其它
--	--

Has baseline serum been taken? 是否采集了基线血清？	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详 If yes, date: 如“是”，采集日期：
--	---

Which laboratory was the specimen sent to? 样本被送往哪个实验室？	
---	--

Date sent to other laboratory with coronavirus expertise (if applicable) 样本被送往其它冠病毒专业的实验室的日期？ ( 如适用 )	送检日期： (YYYY/MM/DD) ____/____/____ ( 年/月/日 )
---	---

8. Laboratory results reporting 实验室结果报告	
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Please impute laboratory results once they become available in the “Laboratory results report” 请在实验室结果出具后，填写实验室结果报告
--

Household transmission investigation protocol for 2019-novel coronavirus (2019-nCoV) infection

2019新型冠状病毒(2019-nCoV)感染家庭传播调查方案

Form 2: Report Form for cases and household contacts – Day 7

表2: 感染病例及家庭接触者报告表 – 第7日

10. Respiratory specimen collection (Day 7) 呼吸道样本采集 ( 第7日 )	
Unique Primary Case ID / Household number 原发病例唯一编号/家庭编号	<input type="checkbox"/> NA 不适用
Date of sample collection 样本采集日期	( 年/月/日 ) ____ / ____ / ____
What type of respiratory specimen was collected? 样本类型	<input type="checkbox"/> Nasal swab 鼻拭子 <input type="checkbox"/> Throat swab 咽喉拭子 <input type="checkbox"/> Nasopharyngeal swab 鼻咽拭子 <input type="checkbox"/> Others 其他
Who collected the respiratory specimen? 采样人员	<input type="checkbox"/> Study staff/research urse 研究人员/护士 <input type="checkbox"/> Self-collected 自我采样
Which laboratory was the specimen sent to? 样品送往哪个实验室 ?	
Date sent to other laboratory with coronavirus expertise (if applicable) 样本被送往其它冠病毒专业的实验室的日期 ? ( 如适用 )	( 年/月/日 ) ____ / ____ / ____ Specify laboratory: 实验室名称 :
11. Laboratory results reporting 实验室检测结果	
Please impute laboratory results once they become available in the “Laboratory results report” 请在实验室结果出具后 , 填写实验室结果报告	

12. Outcome (Day 7) 结果 ( 第7日 )	
Outcome 结局	<input type="checkbox"/> Alive 生存 <input type="checkbox"/> Dead 死亡

	<input type="checkbox"/> NA 不适用 <input type="checkbox"/> Unknown 不详
Outcome current as of date 结局发生日期	( 年/月/日 ) ____ / ____ / ____ <input type="checkbox"/> Unknown 不详 <input type="checkbox"/> NA 不适用
Hospitalization 住院情况	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详  If yes, date of first hospitalization 若确认住院，入院日期： ( 年/月/日 ) ____ / ____ / ____ <input type="checkbox"/> Unknown不详  If yes, specify reason for hospitalisation: 若确认住院，请明确入院原因：

Household transmission investigation protocol for 2019-novel coronavirus (2019-nCoV) infection

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Form 3: Report Form for cases and household contacts – Day 14

表3: 感染病例及家庭接触者报告表 – 第14日

13. Respiratory specimen collection (Day 14) 呼吸道样本采集 (第14日)	
Unique Primary Case ID / Household number 原发病例唯一编号/家庭编号	<input type="checkbox"/> 不适用
Date of sample collection 样本采集日期	( 年/月/日 ) ____ / ____ / ____
What type of respiratory specimen was collected? 样本类型	<input type="checkbox"/> Nasal swab 鼻拭子 <input type="checkbox"/> Throat swab 咽喉拭子 <input type="checkbox"/> Nasopharyngeal swab 鼻咽拭子 <input type="checkbox"/> Others 其他
Who collected the respiratory specimen? 采样人员	<input type="checkbox"/> Study staff/research nurse 研究人员/护士 <input type="checkbox"/> Self-collected 自我采样
Which laboratory was the specimen sent to? 样品送往哪个实验室?	
Date sent to other laboratory with coronavirus expertise (if applicable) 样本被送往其它冠状病毒专业的实验室的日期? ( 如适用 )	( 年/月/日 ) ____ / ____ / ____ Specify laboratory: 实验室名称 :
14. Laboratory results reporting 实验室检测结果	
Please impute laboratory results once they become available in the “Laboratory results report” 请在实验室结果出具后，填写实验室结果报告	

15. Outcome (Day 14) 结果 (第14日)	
Outcome 结果	<input type="checkbox"/> Alive 生存 <input type="checkbox"/> Dead 死亡

	<input type="checkbox"/> NA 不适用 <input type="checkbox"/> Unknown 不详
Outcome current as of date 结果发生日期	( 年/月/日 ) ____ / ____ / ____ <input type="checkbox"/> Unknown 不详 <input type="checkbox"/> NA 不适用
Hospitalization 住院情况	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详  If yes, date of first hospitalization 若确认住院，入院日期： ( 年/月/日 ) ____ / ____ / ____ <input type="checkbox"/> Unknown不详  If yes, specify reason for hospitalisation: 若确认住院，请明确入院原因：

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Form 4: Report Form for cases and household contacts – Day 28

表4: 感染病例及家庭接触者报告表 – 第28日

16. Respiratory specimen collection (Day 28) 呼吸道样本采集 ( 第28日 )	
Unique Primary Case ID / Household number 原发病例唯一编号/家庭编号	<input type="checkbox"/> 不适用
Date of sample collection 样本采集日期	( 年/月/日 ) ____ / ____ / ____
What type of respiratory specimen was collected? 样本类型	<input type="checkbox"/> Nasal swab 鼻拭子 <input type="checkbox"/> Throat swab 咽喉拭子 <input type="checkbox"/> Nasopharyngeal swab 鼻咽拭子 <input type="checkbox"/> Others 其他
Who collected the respiratory specimen? 采样人员	<input type="checkbox"/> Study staff/research urse 研究人员/护士 <input type="checkbox"/> Self-collected 自我采样
Which laboratory was the specimen sent to? 样品送往哪个实验室 ?	
Date sent to other laboratory with coronavirus expertise (if applicable) 样本被送往其它冠病毒专业的实验室的日期 ? ( 如适用 )	( 年/月/日 ) ____ / ____ / ____ Specify laboratory: 实验室名称 :
17. Laboratory results reporting 实验室检测结果	
Please impute laboratory results once they become available in the “Laboratory results report” 请在实验室结果出具后，填写实验室结果报告	

18. Outcome (Day 28) 结果 ( 第28日 )	
Outcome 结果	<input type="checkbox"/> Alive 生存 <input type="checkbox"/> Dead 死亡

	<input type="checkbox"/> NA 不适用 <input type="checkbox"/> Unknown 不详
Outcome current as of date 结果发生日期	( 年/月/日 ) ____ / ____ / ____ <input type="checkbox"/> Unknown 不详 <input type="checkbox"/> NA 不适用
Hospitalization 住院情况	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否 <input type="checkbox"/> Unknown 不详  If yes, date of first hospitalization 若确认住院，入院日期： ( 年/月/日 ) ____ / ____ / ____ <input type="checkbox"/> Unknown不详  If yes, specify reason for hospitalisation: 若确认住院，请明确入院原因：

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Form 5: Laboratory results

表5: 实验室结果

This table will need to be completed for every specimen collection at each point in the follow-up, depending on the chosen specimen collection schedule.

依照选定的样本收集时间表，在随访中每次样本采集均需填写此表。

19a. Molecular testing methods and results: 分子检测方法及其结果	
Lab identification number 实验样本编号	
Date sample collected 样本收集日期	( 年/月/日 ) ____ / ____ / ____
Date sample received 样本接收日期	( 年/月/日 ) ____ / ____ / ____
Type of sample 样本类型	<input type="checkbox"/> Nasal swab 鼻拭子 <input type="checkbox"/> Throat swab 咽喉拭子 <input type="checkbox"/> Nasopharyngeal swab 鼻咽拭子 <input type="checkbox"/> Others, specify: 其他，请指明：
Type of test 检测类型	<input type="checkbox"/> PCR 聚合酶链式反应 <input type="checkbox"/> Whole genome sequencing 全基因组测序 <input type="checkbox"/> Partial genome sequencing 部分基因组测序 <input type="checkbox"/> Other, specify 其他，请指明：
Result 检测结果	<input type="checkbox"/> 2019-nCoV 2019-新冠病毒 <input type="checkbox"/> Others, specify: 其他，请指明：



Date of result 取得结果日期 ( 年/月/日 )	( 年/月/日 ) ____ / ____ / ____
Specimen shipped to other laboratory for confirmation - Date (DD/MM/YYYY) 样本送至其他实验室检查确认 - 日期 ( 年/月/日 ) ____ / ____ / ____	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否  ( 年/月/日 ) ____ / ____ / ____

19b. Serology testing methods and results 血清检测方法及其结果	
Lab identification number 实验样本编号	
Date sample collected 样本收集日期	( 年/月/日 ) ____ / ____ / ____
Date sample received 样本接收日期	( 年/月/日 ) ____ / ____ / ____
Type of sample 样本类型	<input type="checkbox"/> Serum 血清 <input type="checkbox"/> Others, specify: 其他, 请指明:
Result (2019-nCoV antibody titres) 结果 ( 2019 新冠病毒抗体滴度 )	
Date of result 取得结果日期 ( 年/月/日 )	( 年/月/日 ) ____ / ____ / ____
Specimen shipped to other laboratory for confirmation - Date (DD/MM/YYYY) 样本送至其他实验室检查确认 - 日期 ( 年/月/日 ) ____ / ____ / ____	<input type="checkbox"/> Yes 是 <input type="checkbox"/> No 否  ( 年/月/日 ) ____ / ____ / ____

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Form 6: Symptom diary

表6: 症状日志

Each household contact will be asked to record the presence or absence of various signs or symptoms each day for up to 28 days after the administration of the baseline questionnaire (minimum 14 days).

自基线问卷调查后28天内（至少14天），要求每个家庭接触者每天记录是否出现各种体征或症状。

With 2019-nCoV, the extent of clinical presentation and spectrum remains unclear, so symptom diaries may be broadened to include vomiting, diarrhea, abdominal pain, etc., as relevant and may need to be altered to include symptom data for longer than 14 days.

当新冠病毒的临床表现和疾病谱尚不清楚，故日志记录的症状可拓展包括呕吐、腹泻、腹痛等相关症状，并需延长记录时间（超过14天）。

If no symptoms are experienced, ensure that None is selected in the second column.

如果没有任何症状，请在第二列中选“无”选项。

Day 天数	Symptoms 症状						
	No symptoms (check if none experience) 无症状 (请在这一栏中 标出)	Fever ≥38°C 发烧（超 过38度）	Sore throat 咽喉痛	Cough 咳嗽	Running nose 流鼻涕	Shortness of breath 呼吸急促	Other symptoms: specify 其他：请 指明
0	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
1	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
2	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
3	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	

4	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
5	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
6	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
7	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
8	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
9	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
10	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
11	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
12	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
13	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
14	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
15	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
16	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
17	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	

18	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
19	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
20	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
21	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
22	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
23	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
24	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
25	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
26	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
27	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	
28	<input type="checkbox"/> None 无症状	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	<input type="checkbox"/> Yes 有 <input type="checkbox"/> No 无	

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