猴痘疫苗 JYNNEOS®使用及管理方案

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壹、前言

世界衛生組織(WHO)於 111 年 7 月 23 日宣布猴痘疫情列為國際關注公共衛生緊急事件(PHEIC)；針對猴痘疫情控制，建議以公衛措施為主要手段，包括監測、接觸者追蹤、病患隔離與治療照護，並可對高風險族群接種疫苗。為防治猴痘疫情，衛生福利部已於 111 年 6 月 23 日公告猴痘為第二類法定傳染病，並依專家建議採購猴痘疫苗 JYNNEOS®，有關疫苗使用對象、接種時機/劑量及接種實務，已提經衛生福利部傳染病防治諮詢會預防接種組(ACIP) 111 年第 6、7 次會議、112 年第 1 次臨時會議及 112 年 3 月猴痘防治專家會議討論，為利該疫苗使用與管理，訂定及修訂本方案。

貳、接種對象

一、暴露前預防(PrEP)：

(一) 正痘病毒屬之實驗室操作人員。

(二) 與確診猴痘個案曾有任何形式性接觸之高風險接觸者，但未曾接種過暴露後預防(PEP)疫苗。

(三) 近 6 個月內曾有高風險性行為者，例如：多重性伴侶、性交易服務者、於營業場所發生性行為者、性病患者等。

(四) 照顧猴痘確診個案之醫療照護與清消人員，以及協助疑似猴痘個案檢體採檢或執行猴痘疫苗接種作業人員。

二、暴露後預防(PEP)：「猴痘疫情調查及接觸者追蹤指引之接觸者匡列處置原則」所列高暴露風險接觸者。

三、其他特殊狀況報經疾管署同意者。

參、疫苗簡介

一、疫苗特性與成分：我國儲備之猴痘疫苗 JYNNEOS®，為丹麥 Bavarian Nordic A/S 公司產製之減毒活性非複製型疫苗(live-attenuated, non-replicating)，是第一個獲准用於預防猴痘的疫苗。為單劑型包裝，每瓶 0.5mL 含有 0.5×10^8 IU 至 3.95×10^8 IU 非複製型經修飾之牛痘病毒(non-replicating, live Modified Vaccinia Virus Ankara - Bavarian Nordic)，依據美國 FDA 核可的仿單，疫苗可用於 18 歲以上具猴痘感染風險之成人，預防猴痘感染(仿單如附件 1)。

二、因應 2022 年疫情，美國 FDA 於 2022 年 8 月發布 JYNNEOS ®疫苗的緊急使用授權 (EUA)，除了允許通過皮內接種(0.1ml)方式，提供 18 歲以上具猴痘感染風險之成人接種疫苗，並另允許 18 歲以下具猴痘感染風險者使用疫苗(EUA 如附件 2)。

三、因應國內猴痘本土疫情防治及疫苗接種實務需求，參酌國際間猴痘疫苗接種政策及使用建議與指引，經 112 年 3 月 2 日「猴痘疫情防治專家會議」及 112 年 3 月 22 日「衛生福利部傳染病防治諮詢會預防接種組」會議決議，同意 18 歲以上 PrEP 及 PEP 接種對象以「皮內」注射方式接種猴痘疫苗；如為 18 歲以下經評估符合接種對象，或有嚴重免疫不全者或蟹足腫病史者，不適用皮內注射，應採「皮下」接種。

四、依據國際文獻證據指出，皮內接種與皮下接種 JYNNEOS®疫苗，可以提供相似的免疫保護力，發生嚴重不良反應事件的風險很低。

五、包裝方式：每盒 20 瓶。

六、儲放條件：應於-20±5℃冷儲，於 2-8℃環境解凍後可保存 4 週，請務必標示註明清楚每瓶疫苗解凍時間，以及解凍後可使用期限，且解凍後不能再凍結儲存。惟一旦開封，應在 8 小時內提供接種，如未使用完則須丟棄；

故為提供更多人接種機會，須由衛生局或合作之醫療院所統一安排猴痘疫苗接種事宜，為保障疫苗接種效益與安全及降低疫苗耗損，應以集中接種方式規劃接種作業。

七、副作用：

(一) 在未曾接種第一代天花疫苗族群，可能發生副作用如下：

1. 注射部位反應: 疼痛(85%)、發紅(61%)、腫脹(52%)、硬塊(45%)和搔癢(43%)等。
2. 全身性反應：肌肉疼痛(43%)、頭痛(35%)、疲倦(30%)、噁心(17%)、發冷(10%)等。

(二) 曾接種第一代天花疫苗族群，可能發生副作用如下：

1. 注射部位反應: 發紅(81%)、疼痛(80%)、硬塊(70%)、腫脹(67%)和搔癢(32%)等。
2. 全身性反應：疲倦(34%)、頭痛(28%)、肌肉疼痛(22%)等。

(三) 皮內接種的局部副作用可能比皮下接種更明顯，可能會出現輕度的色素沉澱反應持續數週或數月後逐漸消退，副作用的嚴重程度和持續時間因人而異，但均屬疫苗接種後的正常免疫反應。

八、疫苗接種禁忌與接種前注意事項

(一) 對疫苗成分過敏者

(二) 須注意注射後可能發生之過敏性休克。

(三) 免疫低下或接受免疫抑制劑治療者，對疫苗免疫反應可能較差。

(四) 猴痘疫苗屬非複製型活性減毒疫苗，原則可視為非活性疫苗，可與其他非活性或活性疫苗同時接種，或間隔任何時間接種。另，對於接種 COVID-19 疫苗有較高風險發生心肌炎的 12-39 歲男性，可以考慮在疫苗接種後，等待 4 週，再接種 COVID-19 疫苗；倘有暴露

後接種(PEP)之急迫性，建議不須因此延後猴痘疫苗之接種。

九、接種後注意事項

(一) 為預防並即時處理接種後發生率極低的立即型嚴重過敏反應，民眾接種後應於接種單位或附近稍做休息，並觀察至少 15 分鐘，無恙後再離開。

(二) 嚴重疫苗不良事件：

1. 民眾接種後如有持續發燒、嚴重過敏反應如呼吸困難、氣喘、眩昏、心跳加速等不適症狀，應請其儘速就醫，並告知醫師曾接種本疫苗、疫苗接種時間、相關症狀、症狀發生時間，以做為診斷參考。
2. 接種後，若發現有接種後嚴重不良事件之個案發生時，依嚴重疫苗不良事件通報與因應流程(如附件 3)，至「疫苗不良事件通報系統(VAERS)」(https://vaers.cdc.gov.tw/)通報，並由縣市衛生局(所)進行後續追蹤關懷作業。

肆、接種部位

建議接種於上臂三角肌部位，若有其他情形(例如：接種第 2 劑時，仍有第 1 劑局部副作用等不適反應)，經醫師評估可於其他部位接種(例如：前臂掌側等)。

伍、接種時機、方式、劑量與間隔

一、接種時機：

(一)暴露前預防(PrEP)：符合接種對象，且無出現疑似感染猴痘症狀，可進行接種。如為感染猴痘確診個案的高風險接觸者，且未曾接種過暴露後預防(PEP)疫苗者，若無出現疑似猴痘感染症狀，可進行疫苗接種。

(二)暴露後預防(PEP)：高風險接觸者應在最後一次暴露後 4 天內儘速接種，以達最佳預防效果。若在暴露後 4 至 14 天內接種，則可能無法預防發病，但可降低疾病嚴重程度。已出現猴痘症狀，則不建議接種。

二、接種方式、劑量與間隔：

(一)皮內接種*，接種 2 劑，每劑 0.1mL，2 劑間隔須**至少達 4 週以上**; 或

(二)皮下接種，接種 2 劑，每劑 0.5mL，2 劑間隔須**至少達 4 週以上**;

(在疫苗供給有限的情形下， 18 歲以上 PrEP 及 PEP 接種對象優先以皮內方式接種，PrEP 接種對象先以接種 1 劑為原則。)

*注意事項：未滿 18 歲族群，或具蠶足腫病史者，或嚴重免疫不全者**，**不適用皮內注射，應採皮下接種**

**嚴重免疫不全者，包括：晚期或控制不佳的愛滋(HIV)感染者(HIV 感染且 CD4<200 cells /mm3)、白血病、淋巴瘤、全身性惡性腫瘤、放療、器官移植；使用烷化劑(alkylating agents)、抗代謝藥(antimetabolites)、腫瘤壞死因子抑製劑或高劑量皮質類固醇治療；造血幹細胞移植接受者在移植術後 24 個月內，或術後 24 個月以上但患有移植物抗宿主病或疾病復發；自體免疫疾病合併免疫缺陷。

(三) 在疫苗有限情況下，曾接種天花疫苗者，以接種 1 劑為原則。(台灣於 1979 年後停止施打牛痘疫苗)

(四) 2 劑接種方式可不限於相同接種方式(例如：第 1 劑若以皮內接種，第 2 劑可不限於皮內接種，可採皮內或皮下接種)。

陸、接種地點

由衛生局指定之衛生所/健康服務中心或協調轄區醫療院所辦理。

柒、接種作業：

一、接種前置作業：

(一) 為達最大效益，以集中接種為原則，說明如下：

1. 符合暴露後預防(PEP)接種對象，以居住地衛生局安排接種為主，但若同一職場接觸者，得請職場所在地衛生局協助安排接種。請衛生局確認名單後，安排至指定之醫療院所(含縣市衛生所等)接種。
2. 可掌握名單的暴露前預防(PrEP)接種對象，安排接種方式說明如下：

(1)正痘病毒屬之實驗室操作人員、確診個案的高風險接觸者(指與確診猴痘個案曾有任何形式性接觸之高風險接觸者，但未曾接種過 PEP 疫苗者)等，由實驗室或接觸者居住所在地衛生局確認名單後，安排至指定之醫療院所(含縣市衛生所等)**集中接種。**

(2)照顧猴痘確診個案之醫療照護與清消人員，以及協助疑似猴痘個案檢體採檢或執行猴痘疫苗接種作業人員。由醫療院所依符合接種對象人員意願，主動向所在地衛生局提出申請，並由衛生局確認名單後，於指定之醫療院所(含縣市衛生所等)，依各縣市衛生局之作業方式集中接種。

3. 前揭可掌握名單的 PEP 及 PrEP 接種對象，請衛生局於確認接種名單後，將接種名單送所轄疾管署區管中心審核同意後，民眾至指定接種地點完成接種作業，猴痘疫苗申請及使用流程與申請單詳如附件 4、5。
4. 符合 PrEP 接種對象之「近 6 個月內曾有高風險性行為者」，採事前登記及預約方式辦理，並依疫苗可供應量及醫療院所量能，至合作醫療院所(含縣市衛生所等)**集中接種**。

二、疫苗施打前置作業：

(一) -20±5℃的冷凍疫苗須於 2-8℃環境經約 10 至 20 分鐘解凍後方可抽取，回溫至室溫溫度 (8-25℃)方可使用，解凍後，疫苗顏色呈現乳白色、淡黃色至淡白色的懸浮液，請目視檢查有無顆粒物質或變色，若有請勿接種疫苗。

(二) 抽取及注射方式說明如下：

1. 皮下注射：以無菌針具(建議可選用 1mL 空針 23-25 號針頭)抽取 0.5 mL 之疫苗進行皮下注射。
2. 皮內注射：以無菌針具(0.5mL 28G 針頭，建議長度約 13mm) 抽取約 0.1mL 之疫苗進行皮內注射，每瓶疫苗(0.5mL)，約可提供 3-4 人使用。

(三) 抽取疫苗前，請輕搖瓶身 30 秒。

三、接種流程(如附件 6)：

(一) 本國籍接種者應攜帶健保卡及身分證件、外籍人士應攜帶健保卡或居留證，接種前應詳閱猴痘疫苗接種須知，並填寫猴痘疫苗接種同意書(附件 7)，並經醫師評估可接種後，進行接種作業。

(二) 接種後，接種單位應當日儘速將接種資料上傳至「全國性預防接種資訊管理系統(NIIS)」或交付所在地衛生局完成資料(紙本或制式可匯入檔案)傳送，俾利衛生局掌握個案接種情形並進行後續施打劑次之追蹤。

捌、疫苗供應與管理

一、 有關猴痘疫苗撥配作業，由疾管署慢性組依疫苗可供應量、不同階段接種作業原則、各縣市猴痘疫情現況與接種服務量能、儲存溫度設備等情形，進行疫苗整體統籌調撥與分配作業。囿於疫苗包裝規格，合約廠商

疫苗配送以盒為單位，衛生局或合作醫療院所收到後應立即以-20±5℃冷儲。

二、 縣市衛生局辦理轄區內疫苗申請、分配、調撥及管理與查核等相關事宜。

三、 疾管署區管中心掌握所轄縣市衛生局及合作醫療院所猴痘疫苗庫存情形及管理與查核等相關事宜，如有疫苗庫存量不足，請以 Email 向疾管署慢性組申請撥配疫苗，由疾管署慢性組通知合約物流公司以-20±5℃配送疫苗至縣市衛生局指定疫苗儲放地點，儲放地點須備妥有-20±5℃冷凍儲存設備，或可配合在效期內執行猴痘疫苗接種之合作醫療院所為原則。

四、 有關前揭縣市衛生局指定之疫苗儲放地點(衛生局或合作醫療院所)，須經所轄疾管署區管中心審核同意後配送；猴痘疫苗至縣市衛生局指定疫苗儲放地點後，衛生局應至「全國性預防接種資訊管理系統」(NIIS 系統)進行點收撥入作業。

五、 如疾管署區管中心所轄縣市衛生局與合作醫療院所有互相調撥疫苗需求，得以 2-8℃溫度執行疫苗配送及調撥作業。

六、 疫苗解凍後於 2-8℃環境可保存 4 週且不能再凍結儲存，未使用完則須丟棄，解凍後請務必標示註明清楚每瓶疫苗解凍時間，以及解凍後可使用期限。一旦開封，應在 8 小時內提供接種，如未使用完亦須丟棄；若有疫苗未開封即丟棄情形，接種單位應立即陳報疾管署，為確保疫苗效益，請衛生局確實掌握接種對象，避免前述情形發生。

七、 請接種單位於接種當日立即將接種資料與疫苗使用量上傳登錄至 NIIS 系統，以利即時掌握庫存量。

八、 毀損疫苗處理：

(一) 倘有其他特殊原因(例如：疫苗損毀或內容物不足等異常無法使用情

形)致疫苗耗損，請接種單位儘速通知轄區衛生局，由衛生局回報疾管署，已解凍之疫苗則報廢。

(二) 如非因前述原因所致疫苗短少或毀損，則由衛生局依照「公費疫苗毀損賠償等級」研判處置(如附件 8)。

玖、其他注意事項：

有關疫苗接種異常情形與建議處理方式，說明如下，

	異常情形說明	建議處理方式
1	接種在不正確的部位(例如：皮下接種的部位不是上臂三角肌，或皮內接種的部位不是上臂三角肌或前臂掌側)。	**無須**重新接種。
2	不正確的接種方式(例如：進行皮內接種時，不慎以皮下方式接種 0.1 mL)	**請重新接種。**立即以原劑量，重新進行皮內接種。重新接種部位建議距離原部位約 5 公分以上，或接種於另一隻手。
3	其他不正確的接種方式(例如：皮下接種，不慎以肌肉注射方式接種)	**無須**重新接種。
4	**皮內**接種時，接種劑量低於原應接種之劑量(0.1 mL)(例如：如接種者移動，或疫苗出現滲漏情形等)	**請重新接種。**立即以原劑量，重新進行皮內接種。重新接種部位建議距離原部位約 5 公分以上，或接種於另一隻手。
5	**皮下**接種時，接種劑量低於原應接種之劑量(0.5 mL)(例如：如接種者移動，或疫苗出現滲漏情形等)	**請重新接種。**立即以原劑量，重新進行皮下接種。重新接種部位建議距離原部位約 5 公分以上，或接種於另一隻手。
6	接種劑量高於原應接種之劑量（例如，皮內接種劑量大於 0.1 mL）。	**無須**重新接種。請告知接種者可能發生的不良反應。
7	皮內接種且過程「未」發生滲漏，於完成接種後，接種部位無形成蒼白圓形隆起	**請重新接種。** 於注射部位下針推藥時，如表皮未隆起(肉眼未看到皮膚表面因被藥液撐大而出現可見之毛細孔)，應即時將針頭往後拉並向上

	異常情形說明	建議處理方式
		挪動，以調整針尖深度。 經調整並注入藥液後，如下針處仍無出現蒼白隆起之圓形，建議重新執行一次相同劑量(0.1 mL)之皮內接種，第二次接種部位可選擇同一側肢體，但需距離原部位約 5 公分以上，或在另一側肢體接種。 若再次皮內接種，表皮仍未出現蒼白隆起之圓形，則改採「皮下」方式接種 0.5 mL 劑量，並加強衛教接種者觀察可能產生的不良反應。
8	第 1 劑和第 2 劑猴痘疫苗接種日期的間隔天數低於建議的 4 週	**一般人不需重複接種。** 因特殊情況可容許提前 4 天接種之寬限期，以猴痘疫苗為例則為 24 天。 嚴重免疫不全者若第 1 劑和第 2 劑接種日期的間隔天數低於 24 天，才需於提早接種之第 2 劑日期起算，再間隔至少 28 天，重新接種一劑，其餘則不予補接種。

接種單位於執行疫苗接種工作發現前揭接種異常情事，應立即依建議處理方式辦理，並追蹤個案狀況提供必要之醫療協助，並填寫「預防接種異常事件通報及調查表」(附件 9)通報轄區衛生局(所)，由衛生局(所)釐清異常狀況後，通報所屬疾管署區管中心，並由區管中心協同權責組共商因應措施。

附件 1

英文仿單

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use JYNNEOS safely and effectively. See full prescribing information for JYNNEOS.

JYNNEOS (Smallpox and Monkeypox Vaccine, Live, Non-replicating) suspension for subcutaneous injection Initial U.S. Approval: 2019

----------RECENT MAJOR CHANGES----------
Dosage and Administration (2.2) 03/2023

----------INDICATIONS AND USAGE----------
JYNNEOS is a vaccine indicated for prevention of smallpox and monkeypox disease in adults 18 years of age and older determined to be at high risk for smallpox or monkeypox infection. (1)

----------DOSAGE AND ADMINISTRATION----------
For subcutaneous injection only.
Administer two doses (0.5 mL each) 4 weeks apart. (2.1, 2.2)

----------DOSAGE FORMS AND STRENGTHS----------
Suspension for injection. Each dose (0.5 mL) is supplied in a single-dose vial. (3)

----------ADVERSE REACTIONS----------
- In smallpox vaccine-naïve healthy adults, the most common (> 10%) solicited injection site reactions were pain (84.9%), redness (60.8%), swelling (51.6%), induration (45.4%), and itching (43.1%); the most common solicited systemic adverse reactions were muscle pain (42.8%), headache (34.8%), fatigue (30.4%), nausea (17.3%) and chills (10.4%). (6.1)
- In healthy adults previously vaccinated with a smallpox vaccine, the most common (> 10%) solicited injection site reactions were redness (80.9%), pain (79.5%), induration (70.4%), swelling (67.2%), and itching (32.0%); the most common solicited systemic adverse reactions were fatigue (33.5%), headache (27.6%), and muscle pain (21.5%). (6.1)
- The frequencies of solicited local and systemic adverse reactions among adults with HIV-infection and adults with atopic dermatitis were generally similar to those observed in healthy adults. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact Bavarian Nordic at toll-free phone 1-800 675-9596 or VAERS at 1-800-822-7967 or www.vaers.hhs.gov.

See 17 for PATIENT COUNSELING INFORMATION

Revised: 03/2023

FULL PRESCRIBING INFORMATION: CONTENTS*

* Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

JYNNEOS is a vaccine indicated for prevention of smallpox and monkeypox disease in adults 18 years of age and older determined to be at high risk for smallpox or monkeypox infection.

2 DOSAGE AND ADMINISTRATION

For subcutaneous injection only.

2.1 Dose and Schedule

Administer two doses (0.5 mL each) of JYNNEOS 4 weeks apart.

2.2 Preparation and Administration

Allow the vaccine to thaw and reach room temperature before use.
Once thawed, the vaccine may be kept at +2°C to +8°C (+36°F to +46°F) for 4 weeks.
Do not refreeze.

When thawed, JYNNEOS is a milky, light yellow to pale white colored suspension.
Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit.
If either of these conditions exists, the vaccine should not be administered.

Swirl the vial gently before use for at least 30 seconds.
Withdraw a dose of 0.5 mL into a sterile syringe for injection.

Administer JYNNEOS by subcutaneous injection, preferably into the upper arm.

3 DOSAGE FORMS AND STRENGTHS

JYNNEOS is a suspension for injection. Each dose (0.5 mL) is supplied in a single-dose vial.

5 WARNINGS AND PRECAUTIONS

5.1 Severe Allergic Reactions

Appropriate medical treatment must be available to manage possible anaphylactic reactions following administration of JYNNEOS.

Persons who experienced a severe allergic reaction following a previous dose of JYNNEOS or following exposure to any component of JYNNEOS may be at increased risk for severe allergic reactions after JYNNEOS. The risk for a severe allergic reaction should be weighed against the risk for disease due to smallpox or monkeypox.

5.2 Altered Immunocompetence

Immunocompromised persons, including those receiving immunosuppressive therapy, may have a diminished immune response to JYNNEOS.

5.3 Limitations of Vaccine Effectiveness

Vaccination with JYNNEOS may not protect all recipients.

6 ADVERSE REACTIONS

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a vaccine cannot be directly compared with rates in the clinical trials of another vaccine, and may not reflect the rates observed in practice. There is the possibility that broad use of JYNNEOS could reveal adverse reactions not observed in clinical trials.

The overall clinical trial program included 22 studies and a total of 7,859 individuals 18 through 80 years of age who received at least 1 dose of JYNNEOS (7,093 smallpox vaccine-naïve and 766 smallpox vaccine-experienced individuals).

Solicited Adverse Reactions

Solicited Adverse Reactions in Smallpox Vaccine-Naïve Individuals:

The safety of JYNNEOS in smallpox vaccine-naïve individuals was evaluated in Study 1 [1], a randomized, double-blind, placebo-controlled study conducted in the US in which vaccinia-naïve adults ages 18 to 40 years received either two doses of JYNNEOS (N=3003), or two injections of Tris-Buffered Saline (placebo, N=1002) four weeks apart.

In the total study population, the mean age was 28 years; 47.9% of the subjects were men; 77.4% were white/Caucasian, 17.8% black/African American, 1.9% Asian, 0.5% American Indian/Alaska Native, 0.4% Native Hawaiian/Other Pacific, 1.9% other racial groups; and 11.4% of subjects were of Hispanic/Latino ethnicity. The demographic compositions of JYNNEOS and placebo groups were similar.

In Study 1, subjects were monitored for local and systemic adverse reactions using diary cards for an 8-day period starting on the day of each vaccination. The frequencies of solicited local and systemic adverse reactions following any dose of JYNNEOS are presented in Table 1.

Table 1: Percentages of Subjects with Solicited Local Injection Site Reactions and Systemic Adverse Reactions within 8 Days of Administration of Any Dose of JYNNEOS in Adults 18 to 40 Years of Age, Study 1[x]

Reaction	JYNNEOS N=2943 %	Placebo N=980 %
Local (Injection site)	--	--
Pain	84.9	19.1
Pain, Grade 3[a]	7.4	1.0
Redness	60.8	17.7
Redness ≥ 100 mm	1.5	0.0
Swelling	51.6	5.6
Swelling ≥ 100 mm	0.8	0.0
Induration	45.4	4.6
Induration ≥ 100 mm	0.3	0.0
Itching	43.1	11.7
Itching, Grade 3[b]	1.6	0.2
Systemic	**--**	**--**
Muscle Pain	42.8	17.6
Muscle Pain, Grade 3[b]	2.6	0.7
Headache	34.8	25.6
Headache, Grade 3[b]	2.4	2.1
Fatigue	30.4	20.5
Fatigue, Grade 3[b]	3.0	1.3
Nausea	17.3	13.1
Nausea, Grade 3[b]	1.5	1.2
Chills	10.4	5.8
Chills, Grade 3[b]	1.0	0.3
Fever[c]	1.7	0.9
Fever, Grade ≥ 3[c]	0.2	0.0

[X] NCT01144637

[a] Grade 3 pain defined as spontaneously painful

[b] Grade 3 itching, muscle pain, headache, fatigue, nausea and chills defined as preventing routine daily activities [c] Fever defined as oral temperature ≥ 100.4°F (≥ 38°C), Grade ≥ 3 fever defined as ≥ 102.2°F (≥ 39.0°C) N=number of subjects

In Study 1, the majority of solicited local and systemic adverse reactions reported with JYNNEOS had a median duration of 1 to 6 days. In general, there were similar proportions of subjects reporting solicited local or systemic reactions of any severity after Dose 2 of JYNNEOS compared with Dose 1, with the exception of injection site pain, which was more commonly reported following Dose 1 (79.3%) than Dose 2 (69.9%).

Solicited Adverse Reactions in Persons Previously Vaccinated with a Smallpox Vaccine:

Three studies (Study 2, Study 3, and Study 4, [2-4]) conducted in the US and Germany evaluated the safety of JYNNEOS in 409 persons previously vaccinated with a smallpox vaccine who received one or two doses of JYNNEOS (mean age 39 years, range 20-80 years; 59% women; 98.8% white/Caucasian; 0.7% Asian; 0.5% black/African American). Subjects were monitored for local and systemic adverse reactions using diary cards for an 8-day period starting on the day of each

vaccination. Across all three studies, solicited local adverse reactions reported following any dose of JYNNEOS were redness (80.9%), pain (79.5%), induration (70.4%), swelling (67.2%), and itching (32.0%) at the injection site; solicited systemic adverse reactions reported following any dose of JYNNEOS were fatigue (33.5%), headache (27.6%), muscle pain (21.5%), nausea (9.8%), chills (0.7%), and fever (0.5%).

Solicited Adverse Reactions in HIV-infected Individuals:

The safety of JYNNEOS in HIV-infected individuals was evaluated in Study 5 [5], an open label trial conducted in the US that included 351 HIV-infected smallpox vaccine-naïve subjects, 131 HIV-infected subjects who previously received smallpox vaccine, 88 non-HIV-infected smallpox vaccine-naïve subjects and 9 non-HIV-infected subjects who had previously received a smallpox vaccine. The racial/ethnic and gender compositions of HIV-infected smallpox vaccine-naïve subjects and those who had previously received smallpox vaccine were similar and overall were 17.0% women; 45.8% white/Caucasian; 0.4% Asian; 33.2% black/African American; 19.0% Hispanic/Latino ethnicity; the HIV-infected smallpox vaccine-naïve group tended to be younger (mean age 37 years) compared to those who had previously received a smallpox vaccine (mean age 45 years). Subjects had CD4 counts ≥ 200 and ≤ 750 cells/μL at study entry.

Solicited local and systemic adverse reactions were reported at similar or lower frequencies in HIV-infected smallpox vaccine-naïve subjects as compared to those seen in non-HIV-infected smallpox vaccine-naive individuals in this study.

In HIV-infected subjects with previous smallpox vaccine exposure, fever and chills were reported in 1.5% and 8.4% of subjects respectively. Frequencies of other solicited local and general adverse reactions in this population were similar to those reported in Studies 2-4 in non-HIV-infected subjects who had previously received smallpox vaccination.

Solicited Adverse Reactions in Individuals with Atopic Dermatitis:

The safety of JYNNEOS in smallpox vaccine-naïve subjects with currently active or a history of atopic dermatitis (AD) was evaluated in a multicenter, open-label clinical study (Study 6 [6]) conducted in the US and Mexico that included 350 subjects with AD and 282 subjects without AD. In the overall study the mean age of subjects was 27 years (range 18-42 years), and subjects were 59.0% women, 39.4% white/Caucasian, 10.9% Asian, 9.0% black/African American, 2.2% Other, and 38.4% Hispanic/Latino ethnicity. Demographic compositions were similar between subjects with and without AD. In subjects with AD, solicited local and systemic adverse reactions were reported at similar frequencies as those in subjects without AD in this study, with the exception of redness (61.2% with AD vs. 49.3% without AD), swelling (52.2% with AD vs. 40.8% without AD), chills (15.9% with AD vs. 7.8% without AD) and headache (47.2% with AD vs. 34.8% without AD).

Serious Adverse Events

The integrated analyses of serious adverse events (SAEs) pooled safety data across 22 studies, which included a total of 7,093 smallpox vaccine-naïve subjects and 766 smallpox vaccine-

experienced subjects who received at least 1 dose of JYNNEOS and 1,206 smallpox vaccine-naïve subjects who received placebo only. SAEs were monitored from the day of the first study vaccination through at least 6 months after the last study vaccination.

Among the smallpox vaccine-naïve subjects, SAEs were reported for 1.5% of JYNNEOS recipients and 1.1% of placebo recipients. Among the smallpox vaccine-experienced subjects enrolled in studies without a placebo comparator, SAEs were reported for 2.3% of JYNNEOS recipients. Across all studies, a causal relationship to JYNNEOS could not be excluded for 4 SAEs, all non-fatal, which included Crohn's disease, sarcoidosis, extraocular muscle paresis and throat tightness.

Cardiac Adverse Events of Special Interest

Evaluation of cardiac adverse events of special interest (AESIs) included any cardiac signs or symptoms, ECG changes determined to be clinically significant, or troponin-I elevated above 2 times the upper limit of normal. In the 22 studies, subjects were monitored for cardiac-related signs or symptoms through at least 6 months after the last vaccination.

The numbers of JYNNEOS and placebo recipients, respectively, with troponin-I data were: baseline level (6,376 and 1,203); level two weeks after first dose (6,279 and 1,166); level two weeks after second dose (1,683 and 193); unscheduled visit, including for clinical evaluation of suspected cardiac adverse events (500 and 60).

Cardiac AESIs were reported to occur in 1.3% (95/7,093) of JYNNEOS recipients and 0.2% (3/1,206) of placebo recipients who were smallpox vaccine-naïve. Cardiac AESIs were reported to occur in 2.1% (16/766) of JYNNEOS recipients who were smallpox vaccine-experienced. The higher proportion of JYNNEOS recipients who experienced cardiac AESIs was driven by 28 cases of asymptomatic post-vaccination elevation of troponin-I in two studies: Study 5, which enrolled 482 HIV-infected subjects and 97 healthy subjects, and Study 6, which enrolled 350 subjects with atopic dermatitis and 282 healthy subjects. An additional 127 cases of asymptomatic post-vaccination elevation of troponin-I above the upper limit of normal but not above 2 times the upper limit of normal were documented in JYNNEOS recipients throughout the clinical development program, 124 of which occurred in Study 5 and Study 6. Proportions of subjects with troponin-I elevations were similar between healthy and HIV-infected subjects in Study 5 and between healthy and atopic dermatitis subjects in Study 6. A different troponin assay was used in these two studies compared to the other studies, and these two studies had no placebo controls. The clinical significance of these asymptomatic post-vaccination elevations of troponin-I is unknown.

Among the cardiac AESIs reported, 6 cases (0.08%) were considered to be causally related to JYNNEOS vaccination and included tachycardia, electrocardiogram T wave inversion, electrocardiogram abnormal, electrocardiogram ST segment elevation, electrocardiogram T wave abnormal, and palpitations.

None of the cardiac AESIs considered causally related to study vaccination were considered serious.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

All pregnancies have a risk of birth defect, loss, or other adverse outcomes. In the US general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively. Available human data on JYNNEOS administered to pregnant women are insufficient to inform vaccine-associated risks in pregnancy.

The effect of JYNNEOS on embryo-fetal and post-natal development was evaluated in four developmental toxicity studies conducted in female rats and rabbits. In two studies, rats were administered a single human dose of JYNNEOS (0.5 mL) once prior to mating and on one or two occasions during gestation. In the third study, rats were administered a single human dose of JYNNEOS (0.5 mL) on two occasions during gestation. In the fourth study, rabbits were administered a single human dose of JYNNEOS (0.5 mL) once prior to mating and on two occasions during gestation. These animal studies revealed no evidence of harm to the fetus *[*see *Data]*.

Data

Animal Data
Developmental toxicity studies were conducted in female rats and rabbits. In one study, female rabbits were administered a single human dose of JYNNEOS (0.5 mL) by the subcutaneous route on three occasions: prior to mating, and on gestation days 0 and 14. Three studies were conducted in female rats administered a single human dose of JYNNEOS (0.5 mL) by the subcutaneous route on two or three occasions: prior to mating, and on gestation days 0 and 14; or prior to mating, and on gestation day 0; or on gestation days 0 and 6. No vaccine-related fetal malformations or variations and adverse effects on female fertility or pre-weaning development were reported in these studies.

8.2 Lactation

Risk Summary

It is not known whether JYNNEOS is excreted in human milk. Data are not available to assess the effects of JYNNEOS in the breastfed infant or on milk production/excretion.

The development and health benefits of breastfeeding should be considered along with the mother's clinical need for JYNNEOS and any potential adverse effects on the breastfed child from JYNNEOS or from the underlying maternal condition. For preventive vaccines, the underlying condition is susceptibility to disease prevented by the vaccine.

8.4 Pediatric Use

Safety and effectiveness of JYNNEOS have not been established in individuals less than 18 years of age.

8.5 Geriatric Use

Forty-two smallpox vaccine-experienced adults 65 to 80 years of age received at least one dose of JYNNEOS (Study 4).

Clinical studies of JYNNEOS did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects.

11 DESCRIPTION

When thawed, JYNNEOS (Smallpox and Monkeypox Vaccine, Live, Non-replicating) is a milky, light yellow to pale white colored suspension for subcutaneous injection.

JYNNEOS is a live vaccine produced from the strain Modified Vaccinia Ankara-Bavarian Nordic (MVA-BN), an attenuated, non-replicating orthopoxvirus. MVA-BN is grown in primary Chicken Embryo Fibroblast (CEF) cells suspended in a serum-free medium containing no material of direct animal origin, harvested from the CEF cells, purified and concentrated by several Tangential Flow Filtration (TFF) steps including benzonase digestion. Each 0.5 mL dose is formulated to contain 0.5×10^8 to 3.95×10^8 infectious units of MVA-BN live virus in 10 mM Tris (tromethamine), 140 mM sodium chloride at pH 7.7. Each 0.5 mL dose may contain residual amounts of host-cell DNA (≤ 20 mcg), protein (≤ 500 mcg), benzonase (≤ 0.0025 mcg), gentamicin (≤ 0.400 mcg) and ciprofloxacin (≤ 0.005 mcg).

JYNNEOS is a sterile vaccine formulated without preservatives. The vial stoppers are not made with natural rubber latex.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

JYNNEOS is an attenuated, live, non-replicating smallpox and monkeypox vaccine that elicits humoral and cellular immune responses to orthopoxviruses. Vaccinia neutralizing antibody responses in humans were evaluated to establish the effectiveness of JYNNEOS for prevention of smallpox and monkeypox.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

JYNNEOS has not been evaluated for carcinogenic or mutagenic potential, or for impairment of male

fertility in animals. Developmental toxicity studies conducted in rats and rabbits vaccinated with JYNNEOS revealed no evidence of impaired female fertility *[see Use in Specific Populations (8.1)]*.

13.2 Animal Toxicology and/or Pharmacology

The efficacy of JYNNEOS to protect cynomolgus macaques (*Macaca fascicularis*) against a monkeypox virus (MPXV) challenge was evaluated in several studies. Animals were administered Tris-Buffered Saline (placebo) or JYNNEOS (1×10^8 $TCID_{50}$) sub-cutaneously on day 0 and day 28. On day 63, animals were challenged with MPXV delivered by aerosol (3×10^5 pfu), intravenous (5×10^7 pfu) or intratracheal (5×10^6 pfu) route. Across all studies, 80-100% of JYNNEOS-vaccinated animals survived compared to 0-40% of control animals.

14 CLINICAL STUDIES

14.1 Vaccine Effectiveness

Vaccine effectiveness against smallpox was inferred by comparing the immunogenicity of JYNNEOS to a licensed smallpox vaccine (ACAM2000) based on a Plaque Reduction Neutralization Test (PRNT) using the Western Reserve strain of vaccinia virus and was supported by efficacy data from animal challenge studies. *[see Nonclinical Toxicology (13.2)]*

Vaccine effectiveness against monkeypox was inferred from the immunogenicity of JYNNEOS in a clinical study and from efficacy data from animal challenge studies.
[see Nonclinical Toxicology (13.2)]

14.2 Immunogenicity

Study 7 [7] (N=433) was a randomized, open-label study conducted at US military facilities in South Korea to compare the immunogenicity of JYNNEOS to ACAM2000 in healthy smallpox vaccine-naïve adults 18 through 42 years of age. Subjects were randomized to receive either two doses of JYNNEOS (N=220) administered 28 days apart or one dose of ACAM2000 (N=213). In the total study population, the mean age was 24 years and 23 years in subjects receiving JYNNEOS and ACAM2000, respectively; 82.3% and 86.4% of the subjects were men; 57.3% and 63.8% were white/Caucasian, 21.8% and 18.8% black/African American, 6.4% and 5.6% Asian, 3.6% and 2.8% American Indian/Alaska Native, 2.3% and 1.4% Native Hawaiian/Other Pacific, 8.6% and 7.5% other racial groups, and 24.5% and 18.8% of Hispanic/Latino ethnicity (JYNNEOS and ACAM2000, respectively).

The primary immunogenicity endpoint was geometric mean titer (GMT) of vaccinia neutralizing antibodies assessed by PRNT at “peak visits” defined as two weeks after the second dose of JYNNEOS and four weeks after the single dose of ACAM2000. Analyses of antibody responses were performed in the per-protocol immunogenicity (PPI) population, consisting of individuals who received all vaccinations and completed all visits up until the peak visit without major protocol violations pertaining to immunogenicity assessments. Table 2 presents the pre-vaccination and “peak visit” PRNT GMTs from Study 7.

Table 2: Comparison of Vaccinia-Neutralizing Antibody Responses Following Vaccination with JYNNEOS or ACAM2000 in Healthy Smallpox Vaccine-Naïve Adults 18 through 42 Years of Age, Study 7[x], Per Protocol Set for Immunogenicity[y]

Time Point	JYNNEOS[a] (N=185) GMT[b] [95% CI]	ACAM2000[a] (N=186) GMT[b] [95% CI]
Pre-Vaccination	10.1 [9.9, 10.2]	10.0 [10.0, 10.0]
Post-Vaccination "Peak Visit"[y]	152.8[c] [133.3, 175.0]	84.4[c] [73.4, 97.0]

[x] NCT01913353

[y] Per Protocol Set for Immunogenicity included subjects who received all vaccinations, completed all visits up until the specified "peak visits" (two weeks after the second dose of JYNNEOS or 4 weeks after the single dose of ACAM2000) without major protocol violations pertaining to immunogenicity assessments.

[a] JYNNEOS was administered as a series of two doses given 28 days apart, and ACAM2000 was administered as a single dose.

[b] GMT of vaccinia-neutralizing antibody titers assessed by plaque reduction neutralization test (PRNT) using the Western Reserve vaccinia strain. Values below the assay lower limit of quantitation (LLOQ) of 20 were imputed to a titer of 10; the proportions of subjects with pre-vaccination titers less than the assay lower limit of detection were 98.9% among subjects randomized to JYNNEOS and 97.8% among subjects randomized to ACAM2000, respectively.

[c] Non-inferiority of the "peak visit" PRNT GMT for JYNNEOS compared to ACAM2000 was demonstrated as the lower bound of the 1-sided 97.5% CI for the GMT ratio (JYNNEOS/ACAM2000) was > 0.5.

N: Number of subjects in the specified treatment group; GMT: Geometric Mean Titer; 95% CI: 95% confidence interval, lower limit and upper limit.

PRNT GMTs were also evaluated at pre-specified time points post-vaccination and prior to the "peak visits". The PRNT GMTs at two and four weeks after the first dose of JYNNEOS (prior to the second dose), were 23.4 (95% CI: 20.5, 26.7) and 23.5 (95% CI: 20.6, 26.9), respectively. The PRNT GMT at two weeks after the single dose of ACAM2000 was 23.7 (95% CI: 20.9, 26.8).

15 REFERENCES

1. Study 1: NCT01144637
2. Study 2: NCT00316524
3. Study 3: NCT00686582
4. Study 4: NCT00857493
5. Study 5: NCT00316589
6. Study 6: NCT00316602
7. Study 7: NCT01913353

16 HOW SUPPLIED/STORAGE AND HANDLING

16.1 How Supplied

- Package of 10 single-dose vials
  (Package NDC number: 50632-001-03; Vial NDC number: 50632-001-01)

- Package of 20 single-dose vials
  (Package NDC number: 50632-001-02; Vial NDC number: 50632-001-01)

16.2 Storage Conditions

Keep frozen at -25°C to -15°C (-13°F to +5°F). Store in the original package to protect from light. Do not re-freeze a vial once it has been thawed.
Once thawed, the vaccine may be kept at +2°C to +8°C (+36°F to +46°F) for 4 weeks.
Do not use the vaccine after the expiration date shown on the vial label.

17 PATIENT COUNSELING INFORMATION

- Inform vaccine recipient of the potential benefits and risks of vaccination with JYNNEOS.
- Inform vaccine recipient of the importance of completing the two dose vaccination series.
- Advise vaccine recipient to report any adverse events to their healthcare provider or to the Vaccine Adverse Event Reporting System at 1-800-822-7967 and www.vaers.hhs.gov.

Manufactured for: Bavarian
Nordic A/S Philip Heymans
Alle 3 2900 Hellerup
Denmark

附件 2 美國 FDA 緊急使用授權資訊 (EUA)

FDA NEWS RELEASE

Monkeypox Update: FDA Authorizes Emergency Use of JYNNEOS Vaccine to Increase Vaccine Supply

For Immediate Release:

August 09, 2022

Español (/news-events/press-announcements/actualizacion-de-la-viruela-del-mono-la-fda-autoriza-el-uso-de-emergencia-de-la-vacuna-jynneos-para)

Today, the U.S. Food and Drug Administration issued an emergency use authorization (EUA) for the JYNNEOS vaccine to allow healthcare providers to use the vaccine by intradermal injection for individuals 18 years of age and older who are determined to be at high risk for monkeypox infection. This will increase the total number of doses available for use by up to five-fold. The EUA also allows for use of the vaccine in individuals younger than 18 years of age determined to be at high risk of monkeypox infection; in these individuals JYNNEOS is administered by subcutaneous injection.

"In recent weeks the monkeypox virus has continued to spread at a rate that has made it clear our current vaccine supply will not meet the current demand," said FDA Commissioner Robert M. Califf, M.D. "The FDA quickly explored other scientifically appropriate options to facilitate access to the vaccine for all impacted individuals. By increasing the number of available doses, more individuals who want to be vaccinated against monkeypox will now have the opportunity to do so."

JYNNEOS, the Modified Vaccinia Ankara (MVA) vaccine, was approved (https://www.fda.gov/vaccines-blood-biologics/jynneos) in 2019 for prevention of smallpox and monkeypox disease in adults 18 years of age and older determined to be at high risk for smallpox or monkeypox infection. JYNNEOS is administered beneath the skin (subcutaneously) as two doses, four weeks (28 days) apart. For individuals 18 years of age and older determined to be at high risk of monkeypox infection, the EUA now allows for a fraction of the JYNNEOS dose to be administered between the layers of the skin (intradermally). Two doses of the vaccine given four weeks (28 days) apart will still be needed. There are no data available to indicate that one dose of JYNNEOS will provide long-lasting protection, which will be needed to control the current monkeypox outbreak.

Data from a 2015 clinical study of the MVA vaccine evaluated a two-dose series given intradermally compared to subcutaneously. Individuals who received the vaccine intradermally received a lower volume (one fifth) than individuals who received the vaccine subcutaneously. The results of this study demonstrated that intradermal administration produced a similar immune response to subcutaneous administration, meaning individuals in both groups responded to vaccination in a similar way. Administration by the intradermal route resulted in

more redness, firmness, itchiness and swelling at the injection site, but less pain, and these side effects were manageable. The FDA has determined that the known and potential benefits of JYNNEOS outweigh the known and potential risks for the authorized uses.

To support the FDA's authorization of two doses of JYNNEOS administered by the subcutaneous route of administration in individuals younger than 18 years of age, the FDA considered the available JYNNEOS safety and immune response data in adults as well as the historical data with use of live vaccinia virus smallpox vaccine in pediatric populations.

JYNNEOS has been tested in individuals with immunocompromising conditions and has been found to be safe and effective in the trials that were performed to support approval. It was initially developed specifically as an alternative for use in immunocompromised individuals in the event of a smallpox outbreak.

On the basis of the determination by the Secretary of the Department of Health and Human Services on Aug. 9, 2022, that there is a public health emergency, or the significant potential for a public health emergency, that has a significant potential to affect national security or the health and security of United States citizens living abroad, and the declaration on Aug. 9, 2022, that circumstances exist justifying the emergency use of vaccines, the FDA may issue an EUA to allow emergency use of unapproved vaccines or unapproved uses of approved vaccines.

The FDA will provide updates as developments occur and will continue to work with federal public health partners and industry to ensure timely access to all available medical countermeasures. More information can be found on the agency's monkeypox webpage (https://www.fda.gov/emergency-preparedness-and-response/mcm-issues/fda-monkeypox-response).

附件 3

嚴重疫苗不良事件通報與因應流程

一、目的

監測因接種疫苗引起疫苗不良事件個案，藉由相關調查，早期偵測疫苗危害，並及時因應。

二、嚴重疫苗不良事件定義

(一)死亡：只有在懷疑或無法排除通報個案的死亡與接種疫苗的關聯具合理可能性時。

(二)危及生命：指在疫苗不良事件發生時，病人處於極大的死亡風險之狀況。

(三)造成永久性殘疾：疫苗不良事件導致具臨床意義之持續性或永久性的身體功能、結構、日常活動或生活品質的改變、障礙、傷害或破壞。

(四)胎嬰兒先天性畸形：懷疑因懷孕期間與接種疫苗有關之先天性畸形。

(五)導致病人住院或延長病人住院時間：指當疫苗不良事件導致病人住院或延長住院時間。

(六)其他嚴重不良事件(具重要臨床意義之事件)：指當疫苗不良事件並不造成前述之後果，但可能會對於病人的安全造成危害並且需要額外的治療來預防發展至前述結果之疾病狀況時。例如：過敏性的氣管痙攣需要急診室的處理解除症狀；癲癇發作但不需要住院處理；顏面神經麻痺但不需要住院處理等。

三、通報流程

(一)各接種單位於執行接種工作時，若發現有接種後嚴重疫苗不良事件之個案發生時，醫療院所或衛生局(所)至疫苗不良事件通報系統(VAERS)(https://vaers.cdc.gov.tw/)通報。

(二)疾病管制署各區管制中心於接獲民眾 1922 通報疫苗不良事件時，由各區管中心防疫醫師評估是否通報 VAERS。

(三)通報單位應詳查個案病情狀況等相關資料，並於 VAERS 上傳相關調查結果，並提供個案必要之協助。

(四)衛生局(所)應督導轄區醫療院所確實填報 VAERS 中通報欄位之相關資料，俾後續追蹤關懷或申請預防接種受害救濟時具充足之資訊。

四、追蹤關懷流程

(一)辦理本計畫之接種單位

1. 配合進行個案病情狀況等相關調查。
2. 提供個案必要之醫療協助。

(二)衛生局(所)

1. 於接獲通報不良事件時，應立即進行追蹤關懷作業，並儘速於 VAERS 追蹤關懷欄位填報個案追蹤關懷狀況及上傳更新資料；且每日至少應追蹤關懷一次，追蹤其預後狀況至結案為止。
2. 如疑似因預防接種而受害之請求權人提出救濟申請時，應依「預防接種受害救濟基金徵收及審議辦法」及其處理流程辦理。

(三)疾病管制署區管中心

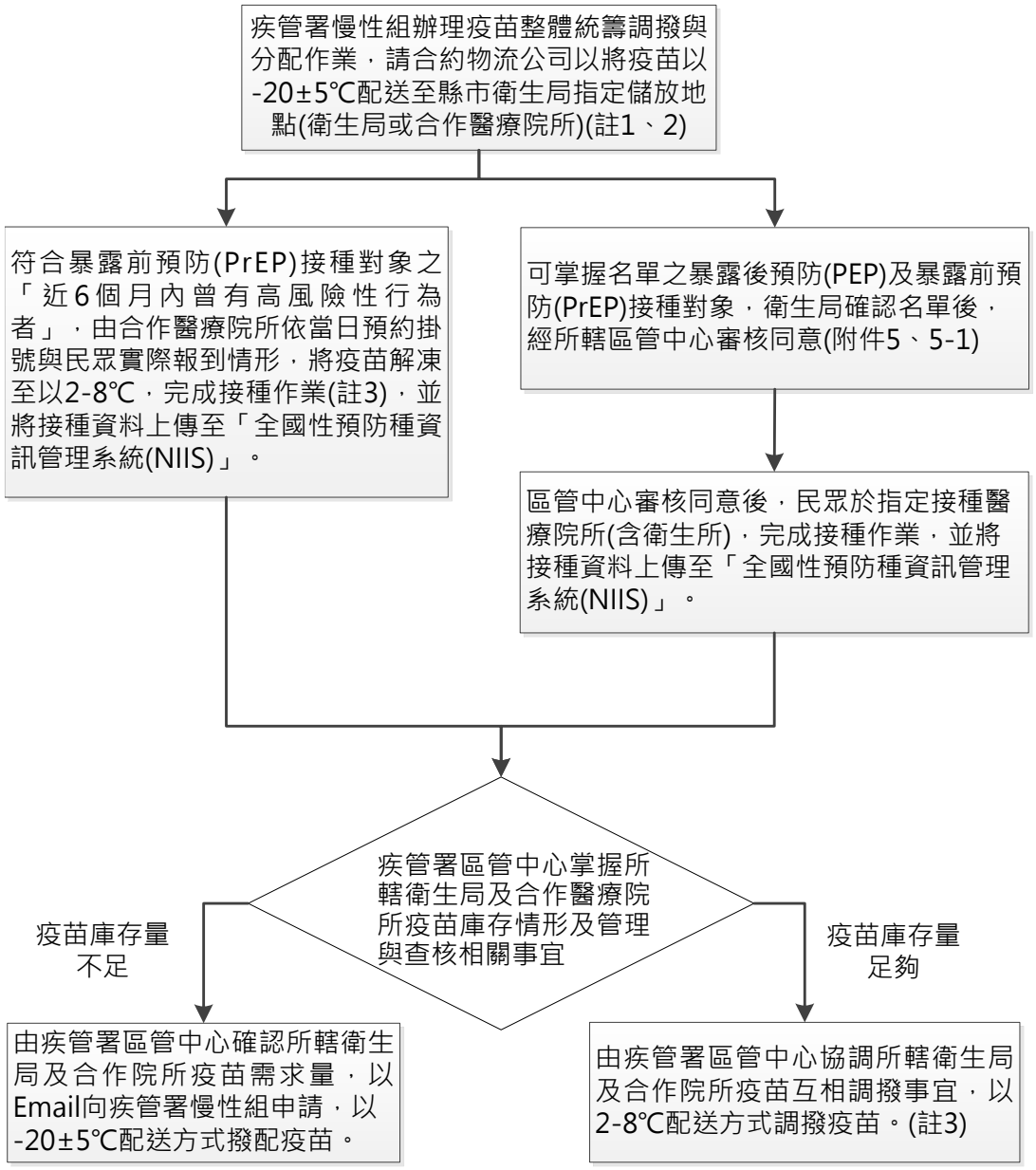
1. 督導轄區各衛生局於 VAERS 執行個案追蹤關懷作業，必要時協助衛生局處理個案相關事宜。
2. 倘接獲其他嚴重不良以上等級個案之通報時，應主動協助轄區衛生局執行追蹤關懷及相關調查作業。

(四)疾病管制署慢性組

定期監測嚴重疫苗不良事件個案，彙整相關資料研判及研擬因應策略，與財團法人藥害救濟基金會全國藥物不良反應通報中心合作進行安全訊號偵測。

附件 4

猴痘疫苗申請及使用流程圖



註：

1.縣市衛生局所指定之疫苗儲放地點(衛生局或合作院所)，須經所轄疾管署區管中心審核同意後，由區管中心Email向疾管署慢性組申請撥配疫苗。疫苗配達縣市衛生局指定疫苗儲放地點後，縣市衛生局應至NIIS系統辦理疫苗點收撥入作業，縣市衛生局應辦理轄區內疫苗申請、分配、調撥及管理與查核等相關事宜。

2.院所如無-20±5℃冷儲設備，應由所轄衛生局於每次接種作業前，依合作院所疫苗需求量，以2-8℃配送方式，單批調撥疫苗至合作醫療院所。

3.疫苗解凍後於2-8℃環境可保存4週，且不能再凍結儲存，一旦開封，應在8小時內提供接種，如未使用完則須丟棄；故為提供更多人接種機會，須由衛生局或合作之醫療院所統一安排猴痘疫苗接種事宜，為保障疫苗接種效益與安全及降低疫苗耗損，應以集中接種方式規劃接種作業。

附件 5.

猴痘疫苗申請單

基　　本　　資　　料			
申請日期	＿＿＿年＿＿＿月＿＿＿日		
申請單位	衛生局	承辦人：	
聯絡電話		傳真：	
送貨地址 (有配送需求時填寫)			

接種人數 (名單如附件)	申請疫苗數量	同意使用 疫苗數量及批號	疫苗來源
皮內：___人 皮下：___人	皮內：___瓶 皮下：___瓶	同意使用　　瓶 批號：＿＿＿＿	□使用本區管中心所轄衛生局或合作醫療院所庫存疫苗。 庫存地點：＿＿＿＿＿＿＿＿ □使用＿＿＿＿＿＿區管中心所轄衛生局或合作醫療院所庫存疫苗。 庫存地點：＿＿＿＿＿＿＿＿ □疫苗不足，區管中心向疾管署申請請合約倉儲公司配送疫苗。 指定撥配地點：＿＿＿＿＿＿＿＿

申請人核章	申請單位主管核章

區管中心審核承辦人核章	區管中心審核主管核章
□同意 □不同意	

備註：

1. 基本資料請以正楷確實填寫清楚。
2. 同意使用疫苗數量及批號、疫苗來源欄位由疾管署區管中心填寫。請衛生局完成填寫後將申請單(含附件 5 及附件 5-1)掃描電子檔以 Email 方式送所轄區管中心審核。如區管中心評估所轄疫苗不足，由區管中心以 Email 方式(cindy0110@cdc.gov.tw)向疾管署慢性組申請撥配疫苗，申請時請同時以電話通知疾管署蘇小姐(Tel: 02-23959825#3001)。
3. 完成接種後，接種單位應當日儘速將接種資料上傳至「全國性預防接種資訊管理系統(NIIS)」或交付所在地衛生局完成資料(紙本或制式可匯入檔案)傳送，俾利衛生局掌握個案接種情形並進行後續接種劑次之追蹤。

附件 5-1. 猴痘疫苗申請單-附件名單

(本表適用可掌握名單之暴露後預防 PEP 及 PrEP 接種對象)

姓名	出生日期	身分證號	符合接種對象類別	預定接種時間
			□暴露前預防(PrEP) □____________實驗室； □與確診猴痘個案曾有任何形式性接觸之高風險接觸者 □照顧猴痘確診個案之醫療照護與清消人員，以及協助疑似猴痘個案檢體採檢或執行猴痘疫苗接種作業人員。 □暴露後預防(PEP) 傳染病通報單編號：____________之高風險接觸者 □其他特殊狀況經疾管署同意者(檢附醫療網區指揮官審核文件)	□第一劑：___年___月___日___時 □第二劑：___年___月___日___時
			□暴露前預防(PrEP) □____________實驗室； □與確診猴痘個案曾有任何形式性接觸之高風險接觸者 □照顧猴痘確診個案之醫療照護與清消人員，以及協助疑似猴痘個案檢體採檢或執行猴痘疫苗接種作業人員。 □暴露後預防(PEP) 傳染病通報單編號：____________之高風險接觸者 □其他特殊狀況經疾管署同意者(檢附醫療網區指揮官審核文件)	□第一劑：___年___月___日___時 □第二劑：___年___月___日___時
			□暴露前預防(PrEP) □____________實驗室； □與確診猴痘個案曾有任何形式性接觸之高風險接觸者 □照顧猴痘確診個案之醫療照護與清消人員，以及協助疑似猴痘個案檢體採檢或執行猴痘疫苗接種作業人員。 □暴露後預防(PEP) 傳染病通報單編號：____________之高風險接觸者 □其他特殊狀況經疾管署同意者(檢附醫療網區指揮官審核文件)	□第一劑：___年___月___日___時 □第二劑：___年___月___日___時

附件 5-2. 猴痘疫苗申請單-附件醫療網區指揮官審核文件

其他特殊狀況之猴痘疫苗申請單

申請日期： 年 月 日

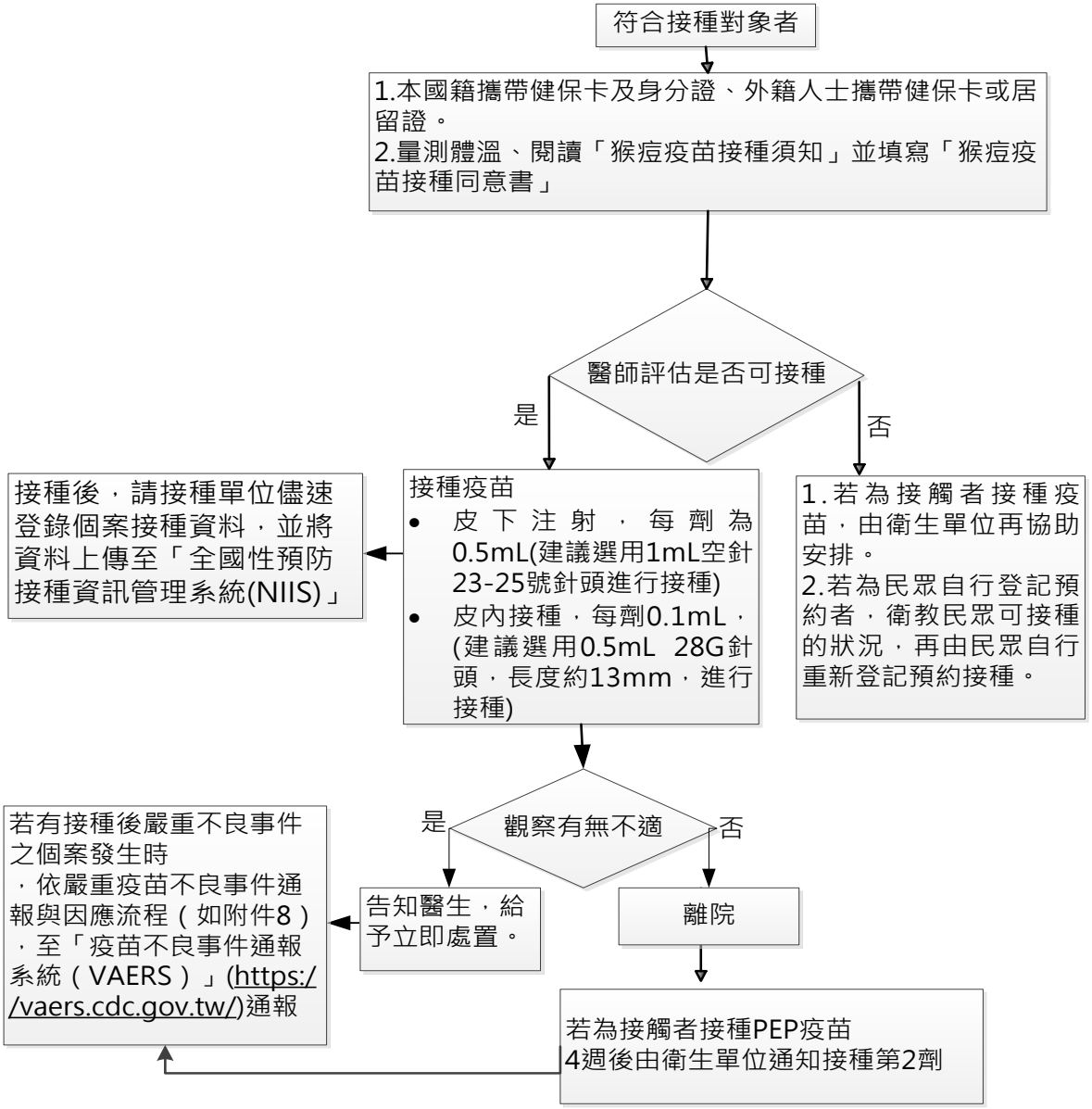
基 本 資 料			
姓名			
出生日期	____年____月____日	身分證號	
性別		聯絡電話/手機	
申請原因說明	(非目前使用方案定義之暴露前預防(PrEP)及暴露後預防(PEP)對象)		
申請單位	衛生局		
申請人			
申請單位主管			
醫療網區指揮官 審核結果	□同意 □不同意 說明：_____		
醫療網區指揮官簽名			

備註：

本申請單由衛生局提出申請，填寫猴痘疫苗施打者之基本資料、申請原因後以 Email 或傳真方式予轄管的區管中心並電話通知區管中心；區管中心將本申請單送醫療網區指揮官審核。

附件 6

猴痘疫苗接種流程



註:
1.猴痘疫苗為每盒20瓶之單劑型包裝，於-20±5℃冷儲。
2.20±5℃冷凍疫苗需經10-20分鐘解凍至室溫溫度才可使用，使用前請輕搖瓶身30秒。
3.離開-20±5℃儲存環境後，於2-8℃可保存4週，惟一旦開封應在8小時內提供接種，未使用完則需丟棄。

附件 7

猴痘疫苗 JYNNEOS®接種須知

一、疫苗廠牌、成分及特性

疾病管制署所儲備之猴痘疫苗係由丹麥 Bavarian Nordic A/S 公司所產製之減毒活性非複製型疫苗(live-attenuated, non-replicating)為第一個獲准用於預防猴痘的疫苗，本疫苗已取得美國、加拿大、歐盟之上市許可，並獲得衛生福利部食品藥物管理署專案核准進口。

- 主要成分：
  每劑疫苗(0.5mL)含有0.5 x 10^8 IU至3.95x 10^8 IU非複製型經修飾之牛痘病毒(non-replicating, live Modified Vaccinia Virus Ankara - Bavarian Nordic, MVA-BN®)
- 其它成分：
  Host-cell DNA、protein、benzonase、gentamicin、ciprofloxacin。
- 依據國際文獻證據指出，皮內接種與皮下接種可提供相似的免疫保護力，發生嚴重不良事件的風險很低。

二、接種部位：建議接種於上臂三角肌部位，若有其他情形(例如：接種第 2 劑時，仍有第 1 劑局部副作用等不適反應)，經醫師評估可於其他部位接種(例如：前臂掌側等)。

三、接種時機：

(一)暴露前預防(PrEP)：符合接種對象，且無出現疑似感染猴痘症狀，可進行接種。如為感染猴痘確診個案的高風險接觸者，且未曾接種過暴露後預防(PEP)疫苗者，若無出現疑似猴痘感染症狀，可進行疫苗接種。

(二)暴露後預防(PEP)：高風險接觸者應在最後一次暴露後 4 天內儘速接種，以達最佳預防效果。若在暴露後 4 至 14 天內接種，則可能無法預防發病，但可降低疾病嚴重程度。已出現猴痘症狀，則不建議接種。

四、接種方式、劑量與間隔：

(一)皮內接種*，接種 2 劑，每劑 0.1mL，2 劑間隔須至少達 4 週以上; 或

(二)皮下接種，接種 2 劑，每劑 0.5mL，2 劑間隔須至少達 4 週以上;

(在疫苗供給有限的情形下， 18 歲以上 PrEP 及 PEP 接種對象優先以皮內方式接種，PrEP 接種對象先以接種 1 劑為原則。)

*注意事項：未滿 18 歲族群，或具蟹足腫病史者，或嚴重免疫不全者**，**不適用皮內注射，應採皮下接種**

**嚴重免疫不全者，包括：晚期或控制不佳的愛滋(HIV)感染者(HIV 感染且 CD4<200 cells /mm3)、白血病、淋巴瘤、全身性惡性腫瘤、放療、器官移植；使用烷化劑(alkylating agents)、抗代謝藥(antimetabolites)、腫瘤壞死因子抑製劑或高劑量皮質類固醇治療；造血幹細胞移植接受者在移植術後 24 個月內，或術後 24 個月以上但患有移植物抗宿主病或疾病復發；自體免疫疾病合併免疫缺陷。

(三)在疫苗有限情況下，曾接種天花疫苗者，以接種 1 劑為原則。(台灣於 1979 年後停止施打牛痘疫苗)

(四)2 劑接種方式可不限於相同接種方式(例如：第 1 劑若以皮內接種，第 2 劑可不限於皮內接種，可採皮內或皮下接種)。

五、副作用

(一)在未曾接種第一代天花疫苗族群，可能發生副作用如下：

●注射部位反應: 疼痛(85%)、發紅(61%)、腫脹(52%)、硬塊(45%)和搔癢(43%)等。

●全身性反應：肌肉疼痛(43%)、頭痛(35%)、疲倦(30%)、噁心(17%)、發冷(10%)等。

(二)曾接種第一代天花疫苗族群，可能發生副作用如下：

●注射部位反應: 發紅(81%)、疼痛(80%)、硬塊(70%)、腫脹(67%)和搔癢(32%)等。

●全身性反應：疲倦(34%)、頭痛(28%)、肌肉疼痛(22%)等。

六、疫苗接種禁忌與接種前注意事項

(一)對疫苗成分過敏者

(二) 須注意注射後可能發生之過敏性休克。

(三)免疫低下或接受免疫抑制劑治療者，對疫苗免疫反應可能較差。

(四)猴痘疫苗屬非複製型活性減毒疫苗，原則可視為非活性疫苗，可與其他非活性或活性疫苗同時接種，或間隔任何時間接種。另，對於接種 COVID-19 疫苗有較高風險發生心肌炎的 12-39 歲男性，可以考慮在疫苗接種後，等待 4 週，再接種 COVID-19 疫苗；倘有暴露後接種(PEP)之急迫性，建議不須因此延後猴痘疫苗之接種。

七、接種後注意事項

(一)為預防並即時處理接種後發生率極低的立即型嚴重過敏反應，接種後應於接種單位或附近稍做休息，並觀察至少 15 分鐘，無恙後再離開。

(二)接種後如有持續發燒、嚴重過敏反應如呼吸困難、氣喘、眩昏、心跳加速等不適症狀，應儘速就醫，請您就醫時告知醫師曾接種本疫苗、疫苗接種時間、相關症狀、症狀發生時間，以做為診斷參考。若為疑似疫苗接種後嚴重不良事件，可經由醫療院所或衛生局所協助通報至「疫苗不良事件通報系統」(https://vaers.cdc.gov.tw/)。

「猴痘疫苗 JYNNEOS®」接種同意書

1. 接種者基本資料：

(1)姓名：_____； (2)生理性別：□男、□女

(3)身分證/居留證/護照號碼：_____

(4)生日：民國___年___月___日；(5)聯絡電話：(___)_____；

(6)居住地址：_____ 縣(市) _____鄉鎮市區_____

(7)是否曾接種天花疫苗? (台灣於 1979 年後停止施打牛痘疫苗)

□否；□是，接種年份_____；□不確定

(8)是否曾接種猴痘疫苗?

□否；□是，接種日期_____；□不確定

2. 請接種者詳閱猴痘疫苗接種須知，並確認與勾選：

評估內容	否	是	不清楚
1.目前是否有猴痘疑似症狀?			
2.過去注射疫苗或藥物是否有嚴重過敏反應史?			
3.是否對疫苗的其他成分過敏?			
4.是否免疫功能低下或接受會造成免疫低下之治療?			
5.目前是否懷孕或哺乳?			
6.體溫：_____℃			

我已瞭解此項疫苗之保護效果、副作用、禁忌、接種程序及接種後注意事項，並決定：

□同意接種；

□第 1 劑

□第 2 劑，第 1 劑接種日期____年_____月____日

□不同意接種

接種者簽名：_____日期：____年____月____日

法定代理人簽名：_____日期：____年____月____日

填寫完成後，請交給醫師進行接種評估診察

※醫師評估方框，請由醫師填寫：

□暴露前預防接種(PrEP)

□暴露後預防接種(PEP)

疫苗	劑量	可否接種		醫師簽章	其他批註
猴痘疫苗 JYNNEOS®	0.5ml/ 皮下注射	可	否		
	0.1ml/ 皮內注射	可	否		

接種醫療機構：_____ 機構十碼章代碼：_____

附件 8

公費疫苗毀損賠償等級

102 年 3 月 1 日修訂

賠償等級	疫苗毀損原因
無需賠償	1.因災害等所致之不可抗力因素，致疫苗毀損者：依災害疫苗冷儲應變處理作業流程，經衛生局(所)研判處理，專案通報疾病管制局。 2.疫苗針劑包裝透明膠膜未拆封前、瓶裝未開瓶前或於注射前發現有損壞、內容物不足.....等無法使用情形者，應儘速通知衛生局(所)，並將疫苗實體繳回，經衛生局(所)確認屬實。 3.於注射過程因反抽回血、注射筒異常、疫苗滲漏、掉落、推柄脫落或抽取疫苗排氣時將疫苗排出等非人為疏失且無法避免之情形，致疫苗損毀者，由院所出具報告，檢附實體，經衛生局(所)研判確立。 4.於注射過程，因被接種者扭動等致疫苗破損、汙染或藥液流失者：由院所出具報告並經個案或家屬確認，載明事件發生情形，檢附實體，經衛生局(所)研判確立。 5.因冷運、冷藏異常(如冷凍監視片破裂、溫度監視片指數超出規範、高低溫度計顯示低溫曾達 0℃以下等情況者)或其他事故造成疫苗毀損，但合約院所自行發現即主動通報，並檢具報告，經衛生局(所)審核通過者。
按原價賠償	1.合約院所於 6 個月內，發生無需賠償等級事項第 3、4 款合計三次(含)以上者。 2.因冷運、冷藏異常(如冷凍監視片破裂、溫度監視片指數超出規範、高低溫度計顯示低溫曾達 0℃以下等情況)或其他事故造成疫苗毀損，經衛生單位查核發現，配合有效改善者。 3.將公費疫苗施打於非計畫實施對象之情事，經衛生局(所)研判確立屬個案可歸責於院所之事實者。 4.經查核疫苗發生遺失或短缺情事，經衛生局(所)研判確立不可歸責於院所之事實者。
按原價 3 倍賠償	下列事項按疫苗原價賠償外，加計疫苗原價 2 倍違約金，並得終止合約： 1.曾因冷運、冷藏異常或其他事故致疫苗毀損，經衛生單位查核發現，通知改善而未改善者。 2.經查核疫苗發生遺失或短缺情事，經衛生局(所)查核發現並有明確證據可歸責於院所之事實者。
按原價 5 倍賠償	將公費疫苗蓄意施打於非計畫實施對象(單一事件)，經衛生局(所)研判確立者，按疫苗原價賠償外，加計疫苗原價 4 倍違約金，並得終止合約。
按原價 10 倍賠償	下列事項按疫苗原價賠償外，加計疫苗原價 9 倍違約金，並得終止合約： 1.蓄意違反善良管理人之保管義務，經查核疫苗發生遺失或短缺等情事。 2.蓄意將公費疫苗施打於非計畫實施對象(非單一事件)之情事或挪做自費疫苗使用，並有明確證據者。

備註：1.本表所稱疫苗含 B 型肝炎免疫球蛋白。

2.本表未列載事項，由各衛生局依實際發生情形及比照上述情節輕重研判，據以核定 賠償等級。

3.無需賠償等級：疫苗因災害或其他因素等所致損毀，經各衛生局依本「公費疫苗毀損賠償等級」審核判定無管理、人為疏失，列為無需賠償者，依「審計法」第 58 條，須由地方衛生局逐案檢同有關文件送疾病管制署轉報審計部審核，經該部同意後始能無需賠償；至疫苗報廢則依「各機關財物報廢分級核定金額表」規定辦理。

4.按原價賠償等級第 1 條所列，無需賠償等級事項第 3、4 款件數核計方式：(1)預防接種及冷儲單位(預注門診、藥局等)以各單位之毀損件數分別合計。(2)學幼童集中接種作業之毀損件數依不同地點、原因分別合計。

附件 9

疫苗接種異常事件通報及調查表

發生時間： 年 月 日 時 分 接種地點：_____ 接種單位：_____ 接種人員：姓名_____職稱_____	衛生所填報人員： 姓名_____職稱_____ 獲知時間： 年 月 日 時 分 衛生局審查通報人員： 姓名_____職稱_____ 通報日期： 年 月 日 時 分
異常事件類別	**問題內容**
□ 疫苗種類錯誤 □劑量錯誤 □重複施打 □ 提前接種 □打錯人 □接種方式錯誤 □ 其他_____	原應接種疫苗名稱：_____，劑量_____ 此次接種疫苗名稱：_____，劑量_____ 廠牌_____批號：_____效期：_____ 同時接種其他疫苗：□是，_____ □否
事件描述	
事件原因與經過：	

<table>
<tr><td colspan="3">後續處理
（此欄位以下資料，請於調查後再填寫）</td></tr>
<tr><td rowspan="2">追蹤介入時間
及處理情形</td><td>接種單位</td><td>衛生局/所</td></tr>
<tr><td></td><td></td></tr>
<tr><td>其他</td><td colspan="2">接種後是否有不良反應：□無；_____人
□有；_____人，症狀：_____
症狀發生時間：___月____日____時，於接種後_____小時
是否就醫：□無
□有，就診日期：_____，就診地點：_____
處置：_____</td></tr>
<tr><td colspan="3">檢討改善</td></tr>
<tr><td colspan="3">是否有規劃詳細接種流程：□無
□有（檢附接種流程及說明三讀五對查核點）
三讀五對說明：

改善情形：</td></tr>
<tr><td colspan="3">異常接種個案基本資料</td></tr>
<tr><td colspan="3">姓名：_____，出生日期：___年___月___日，接種時年齡：___歲___月

預防接種史：
最近一次接種劑疫苗名稱：_____ ，劑次：_____ ，時間：___年___月___日

其他疫苗接種情形：
疫苗名稱：_____，劑次_____，疫苗名稱：_____，劑次_____
疫苗名稱：_____，劑次_____，疫苗名稱：_____，劑次_____
(欄位不敷使用, 請自行增列)</td></tr>
</table>