REFERENCE TABLE OF PREVIOUS PANDEMICS AND MAJOR EPIDEMICS

Prepared by the UK Covid-19 Inquiry, 9th June 2023

Time	Pathogen	Global cases (attack rate)			Global deaths				UK	Case fatality	Tranemiesion	Asymptomatic infection
period		Upper	Mid	Lower	Upper	Mid	Lower	UK cases	deaths	rate ^a	route	widespread? ^b
1889-94	Uncertain. Human coronavirus OC43 or possibly influenza	· ·	(~60% based on limited data, ncreased to >90% in endemic state ^c)			1m	Not known	Became endemic (>90%)	132,000	0.1-0.28%	Respiratory	Unknown but probable
1918-20	Influenza - H1N1	N/A	Became endemic (>90%) ^d	500m ^e	100m	50m	17.4m	Became endemic (>90%)	228,000	2.5-10%	Respiratory	Yes
1957-59	Influenza - H2N2	N/A	Became endemic (>90%) ^f	N/A	1.5m	1.1m	700,000	Became endemic (>90%)	5,000 ^g	0.017-0.1%	Respiratory	Yes
1968- 7 0 ^ʰ	Influenza - H3N2	N/A	Became endemic (>90%)	N/A	4m	2m	1m	Became endemic (>90%)	37,500 ⁱ	0.1-0.2%	Respiratory	Yes
1977-78	Influenza - H1N1	N/A	Became endemic (>90%)	N/A	Not known	700,000	Not known	Became endemic (>90%)	6,000 ⁱ	<0.1%	Respiratory	Yes
1981-	Retrovirus - HIV	113m	84.2m cumulative 38.4m now (0.7%)	64m	48.6m	40.1m ^j	33.6m	165,338	25,296	~99% [untreated]	Blood-borne / sexual	Yes
2002-03	Coronavirus - SARS-CoV-1	Not known ^k	8,096 (<0.001%)	N/A ⁱ	Not known ^k	774	N/A ^I	4	0	9.6%	Respiratory	No
2009-10	Influenza - H1N1	Became endemic. (First wave ~24%) ^m [491,382 official] ^o			575,000	284,000	18,449 [official] [°]	Became endemic ⁿ [28,456 official] ^o	457 [official] [°]	0.01-0.02%	Respiratory	Yes
2012-	Coronavirus - MERS-CoV	Not known ^k	2,519 (<0.001%)	N/A ⁱ	Not known ^k	866	N/A ^I	5	3	34.3%	Respiratory	Not initially, but more reports over time
2013-16	Ebola virus - EBOV	34,477 ^p	28,616 (<0.001%)	N/A ⁱ	Not known ^k	11,310	N/A ^I	3	0	62.9%	Contact	No. ~5%, no evidence of onward transmission
2019-	Coronavirus - SARS-CoV-2	N/A	Becoming endemic as of Jun 2023 (>90%)	766m [official]°	30.6m ^q	22m	17.7m [6.9m official]°	Becoming endemic (>90%) [22m official] ^o	225,668 [official] [°]	0.67-1.18% [infection fatality rate]	Respiratory	Yes

Caveats:

1) All figures are **approximate**. They are **estimates** sourced from published scientific articles listed in the references, which in the process of summarising available data, also mask widely varying experiences in different countries or groups. Methodological quality varies, so the original references should be checked where estimates are being reused, and they may not be strictly comparable. 2) The influence of prior immunity on case fatality rate and the age distribution of infection is complex and has not been summarised here.

3) All references are from before 2020 to show the pre-covid knowledge base, apart from those for covid-19 itself. One paper does not necessarily indicate a scientific consensus, but public health authorities did have a duty to be aware of this selected evidence as part of their epidemic intelligence role and, where relevant, to summarise these references, within the context of the overall scientific literature, for political decision-makers.

4) The classical definition of a pandemic as an epidemic ocurring worldwide or over a very wide area has been used, regardless of whether an official declaration was made. SARS-CoV-1, MERS-CoV, and the 2013-2016 Ebola outbreak are sometimes described as pandemics as they could be considered to meet this definition, but they are more often described as epidemics.

5) Two notable subtypes of highly pathogenic avian influenza have not yet caused sustained human to human transmission: H5N1 (globally prevalent in birds, 879 reported human cases since 1997 emergence in Hong Kong, 53% case fatality rate) and H7N9 (persists in bird populations in China, 1,568 reported human cases since 2013 emergence in China, 39% case fatality rate).

6) Also not included are vector-borne infections, pandemics of plant or animal diseases, pandemics occurring before the development of modern germ theory (such as the Black Death) and the seven cholera pandemics from 1817 to the present.

See page 3 for footnotes a-q, and page 4 for a glossary of terms.