

### Supplementary Table 1: Search strategy MEDLINE

- 1 influenza.mp. or Influenza, Human/
- 2 exp Influenza A virus/
- 3 Influenza, Human/ep, mo
- 4 flu.mp.
- 5 or/1-4
- 6 exp risk/
- 7 exp epidemics/ or pandemics/
- 8 (pandemic\* or epidemic\*).mp.
- 9 exp Mortality/
- 10 exp Morbidity/
- 11 morbidit\*.ti.
- 12 ((mortality or risk or risks or morbidit\* or severe or severity) adj7 influenza).mp.
- 13 Susceptibil:.ti. and influenza.mp.
- 14 (Susceptibl\* and influenza).mp.
- 15 Death/
- 16 Disease Outbreaks/
- 17 exp Hospitalization/
- 18 risk factor\*.mp.
- 19 exp Disease Transmission, Infectious/
- 20 (risk or risks or mortality).ti.
- 21 or/6-20
- 22 5 and 21

- 23 22 or 3
- 24 animals/ not humans/
- 25 23 not 24

The search strategies for the other databases were adapted from the MEDLINE search strategy and are available by request.

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**Supplementary Table 2:** Study characteristics of the 142 included studies (non-ecological studies)

	<i>Overall</i>	<i>Pandemic influenza</i> <sup>†</sup>	<i>Seasonal influenza</i> <sup>†</sup>
Range of year of publication	1918 – 2014	1918 – 2011	2010-2014
Number of studies	142	136	17
Number of participants	310,597	303,452	14,336
Cohort studies, n (%)	138 (97.2)	132 (97.1)	17 (100.0)
Laboratory confirmation of influenza, n (%)	139 (97.9)	133 (97.8)	17 (100.0)
Newcastle-Ottawa Scale points, median (range)	6 (3-8)	6 (3-8)	7 (5-7)

<sup>†</sup> 11 studies reported on both, pandemic and seasonal influenza

### Supplementary Table 3: References of all 142 individual level studies [1-145]

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Note: a couple of studies were published in several articles, thus, references of 145 articles with 142 datasets are provided.

**Supplementary Table 4: List of the 142 included studies with individual level data**

**Supplementary Figure 1: Forest plot for pregnancy as a risk factor for ICU admission following influenza**

**Supplementary Figure 2: Forest plot for pregnancy as a risk factor for ICU admission following influenza, sensitivity analysis including studies with non-pregnant women of reproductive age as comparator, only**

**Supplementary Figure 3: Forest plot for pregnancy as a risk factor for pneumonia following influenza**

**Supplementary Figure 4: Forest plot for pregnancy as a risk factor for receipt of mechanical ventilatory support following influenza**

**Supplementary Figure 5: Forest plot for pregnancy as a risk factor for ICU admission and/or death following influenza**

Author	Study period	Country	Low/Middle Income Country	Study design	Seasonality	Predominant	Sample size	Laboratory confirmation	Newcastle-Ottawa Scale
Abdelaty		2009 Saudi Arabia		Cohort	Pandemic	H1N1	176	Yes	7
Adeniji	2009/2010	United Kingdom		Cohort	Pandemic	H1N1	62	Yes	3
Adlhoc	2009/2010	Germany		Cohort	Pandemic	H1N1	59	Yes	7
Agha		2010 Saudi Arabia		Cohort	Pandemic	H1N1	117	Yes	6
Ahmad		2009 Oman		Cohort	Pandemic	H1N1	55	Yes	7
Akinci	2009	Turkey	Yes	Cohort	Pandemic	H1N1	40	Yes	4
Akinci	2009	Turkey	Yes	Cohort	Pandemic	H1N1	113	Yes	7
Al-Lawati	2009	Oman		Cohort	Pandemic	H1N1	131	Yes	6
Anonymous		2009 Spain		Cohort	Pandemic	H1N1	279	Yes	6
Athanasίου	2010/2011	Greece		Cohort	Seasonal	H1N1	368	Yes	6
Ayatollahi	2008/2009	Iran	Yes	Cross-sectional	Pandemic	H1N1	253	Yes	6
Barakat	2009/2010	Marocco	Yes	Cohort	Pandemic	H1N1	343	Yes	7
Bergman		2009 USA		Cohort	Pandemic	H1N1	29	Yes	6
Blakemore	2009	South Africa	Yes	Cohort	Pandemic	H1N1	7	Yes	5
Borse	2010	India	Yes	Cohort	Pandemic	H1N1	100	Yes	6
Brandsaeter	2009	Norway		Cohort	Pandemic	H1N1	64	Yes	6
Brink		2010 Sweden		Cohort	Pandemic	H1N1	126	Yes	7
Buda	2009/2010	Germany		Cohort	Pandemic	H1N1	120,544	Yes	5
Caler	2009	Spain		Cohort	Pandemic	H1N1	15	Yes	4
Campbell	2009	Canada		Cohort	Pandemic	H1N1	1,479	Yes	5
CDC	2009	USA		Cohort	Pandemic	H1N1	30	Yes	5
CDC	2009	USA		Cohort	Pandemic	H1N1	1,557	Yes	5
Chacko	2009	India	Yes	Cohort	Pandemic	H1N1	31	Yes	5
Chaiwarith	2009	Thailand	Yes	Cohort	Pandemic	H1N1	278	Yes	7
Chawla	2009/2010	India	Yes	Cohort	Pandemic	H1N1	77	Yes	7
Cheng	2009	Australia and New Zealand		Cohort	Seasonal and pandemic	H1N1	560	Yes	7
Chien	2009	Taiwan		Cohort	Pandemic	H1N1	96	Yes	5
Chowell	2009	Mexico	Yes	Cohort	Pandemic	H1N1	2,944	Yes	8
Choy	2009	United Kingdom		Cohort	Pandemic	H1N1	64	Yes	6
Chudasama	2009-2011	India	Yes	Cohort	Seasonal and pandemic	H1N1	511	Yes	6
Chudasama (3 publications)	2009/2010	India	Yes	Cohort	Pandemic	H1N1	274	Yes	5
Creanga	2009	USA		Cohort	Pandemic	H1N1	136	Yes	6
Creanga	2005-2010	USA		Cohort	Seasonal and pandemic	H1N1	2,216	Yes	7
Cullen	2009	Ireland		Cohort	Pandemic	H1N1	205	Yes	6
Cutter	2009	Singapore		Cohort	Pandemic	H1N1	1,348	Yes	5
Damak	2009/2010	Tunisia	Yes	Cohort	Pandemic	H1N1	32	Yes	6
Dao	2005-2008	USA		Cohort	Seasonal	Influenza A	5,055	Yes	7
de Miguel-Diez	2009	Spain		Cohort	Pandemic	H1N1	11,499	No	6
Dee	2009	New Zealand		Cohort	Pandemic	H1N1	54	Yes	6
Delgado-Rodriguez	2009/2010	Spain		Cohort	Pandemic	H1N1	813	Yes	7
Dolan	2009/2010	United Kingdom		Cohort	Pandemic	H1N1	395	Yes	7
D'Ortenzio	2009	Reunion Island		Cohort	Pandemic	H1N1	283	Yes	5
Echavarria	2009	Argentina	Yes	Cohort	Pandemic	H1N1	275	Yes	4
Estenssoro	2009	Argentina	Yes	Cohort	Pandemic	H1N1	337	Yes	6
Flint	2009	Australia		Cohort	Pandemic	H1N1	918	Yes	5
Fuhrman	2009	France		Cohort	Pandemic	H1N1	758	Yes	5
Fuhrman	2009/2010	France		Cohort	Seasonal and pandemic	H1N1	1,065	Yes	7
Gilca	2009	Canada		Case-Control	Pandemic	H1N1	716	Yes	5
Gonzalez-Candelas	2009/2010	Spain		Case-Control	Pandemic	H1N1	1,402	Yes	8
Gordon	2009	Australia		Cohort	Pandemic	H1N1	39	Yes	6
Grasselli	2009/2010	Italy		Cohort	Pandemic	H1N1	102	Yes	7
Gutierrez-Pizarra	2010/2011	Spain		Cohort	Seasonal and pandemic	H1N1	130	Yes	6
Harris	1918	USA		Cohort	Pandemic	H1N1	1,350	Not described	4
Harris	2009	Australia		Cohort	Pandemic	H1N1	181	Yes	6
Helferty	2009/2010	Canada		Cohort	Pandemic	H1N1	8,678	Yes	6
Hernandez	2009	USA		Cohort	Pandemic	H1N1	31	Yes	6
Hong	2009/2010	South Korea		Cohort	Pandemic	H1N1	245	Yes	7
Hong	2011/2012	Korea		Cohort	Seasonal	influenza A	123	Yes	7
Huang	2009	Taiwan		Cohort	Pandemic	H1N1	148	Yes	7
Iorio	2009/2010	Italy		Cohort	Pandemic	H1N1	141	Yes	7
Jahic	2009/2010	Bosnia and Herzegovina	Yes	Cohort	Pandemic	H1N1	119	Yes	7
Jain	2009	USA		Cohort	Pandemic	H1N1	272	Yes	6
Jamieson	2009	USA		Cohort	Pandemic	H1N1	34	Yes	6
Javadi	2009/2010	Iran	Yes	Cross-sectional	Pandemic	H1N1	216	Yes	7
Jimenez-Garcia	2009	Spain		Cohort	Pandemic	H1N1	11,499	Yes	6
Kaya	2009/2010	Turkey	Yes	Cohort	Pandemic	H1N1	50	Yes	7
Kelly	2009	Australia		Cohort	Pandemic	H1N1	4,992	Yes	3
Kelly	2009	Australia		Cohort	Pandemic	H1N1	465	Yes	6
Koegelenberg	2009	South Africa	Yes	Cohort	Pandemic	H1N1	19	Yes	6
Kojicic	2010	Bosnia and Herzegovina and Serbia	Yes	Cohort	Pandemic	H1N1	50	Yes	7
Kusznierz	2009	Argentina	Yes	Cohort	Pandemic	H1N1	242	Yes	7
Kwan-Gett	2009	USA		Cohort	Pandemic	H1N1	565	Yes	7
Lai	2009	USA		Cohort	Pandemic	H1N1	7	Yes	7
Lehners	2009-2011	Germany		Cohort	Seasonal and pandemic	H1N1	178	Yes	7

Lenzi	2010	Brazil	Yes	Cohort	Pandemic	H1N1	4,740	Yes	7
Lenzi	2009	Brazil	Yes	Cross-sectional	Pandemic	H1N1	1,861	Yes	7
Louie 2009	2009	USA		Cohort	Pandemic	H1N1	1,088	Yes	6
Louie 2010a	2009	USA		Cohort	Pandemic	H1N1	239	Yes	6
Louie 2010b	2009	USA		Cohort	Pandemic	H1N1	345	Yes	6
Louria	1957/1958	USA		Cohort	Pandemic	H2N2	33	Yes	6
Louriz	2009	Marocco	Yes	Cohort	Pandemic	H1N1	186	Yes	6
Macesic	2010/2011	Australia		Cohort	Seasonal	Not Reported/Mixed	598	Yes	6
Mahendra	2009/2010	India	Yes	Cohort	Pandemic	H1N1	685	Yes	7
Malonda	2009	Spain		Cohort	Pandemic	H1N1	522	Yes	6
Maravi-Poma	2009/2010	Spain		Cohort	Pandemic	H1N1	234	Yes	7
Martin-Loeches	2009-2011	Spain		Cohort	Seasonal and pandemic	H1N1	997	Yes	7
Mehta	2009-2011	India	Yes	Cohort	Seasonal and pandemic	H1N1	88	Yes	7
Mickiene	2009/2010	Lithuania		Cohort	Pandemic	H1N1	121	Yes	7
Miller	2009	USA		Cohort	Pandemic	H1N1	43	Yes	7
Mortensen	2009	USA		Cohort	Pandemic	H1N1	170	Yes	6
Mulrennan	2009	Australia		Cohort	Pandemic	H1N1	70	Yes	6
Nayman Alpat	2009/2010	Turkey	Yes	Cohort	Pandemic	H1N1	106	Yes	7
Nguyen	2009	United Kingdom		Cohort	Pandemic	H1N1	631	Yes	5
Nickel	2009	USA		Cohort	Pandemic	H1N1	184	Yes	7
Nicolay	2009/2010	Ireland		Cohort	Pandemic	H1N1	76	Yes	6
Nin	2009	Chile and Uruguay		Cohort	Pandemic	H1N1	96	Yes	7
Oh	2009/2010	Korea		Cohort	Pandemic	H1N1	709	Yes	7
Oliveira	2009	Brazil	Yes	Cohort	Pandemic	H1N1	5,747	Yes	5
Orellano	2009	Argentina	Yes	Cohort	Pandemic	H1N1	6,866	Yes	7
Pano-Pardo	2009	Spain		Cohort	Pandemic	H1N1	210	Yes	8
Parcevaux	2009	Reunion Island		Cohort	Pandemic	H1N1	13	Yes	6
Pecavar	2009/2010	Slovenia		Cohort	Pandemic	H1N1	66	Yes	7
Peralta	2009/2010	Spain		Cohort	Pandemic	H1N1	1,043	Yes	6
Phung	2009	Australia		Cohort	Pandemic	H1N1	1,236	Yes	7
Pires Neto Rda	2009/2010	Brazil	Yes	Cohort	Pandemic	H1N1	143	Yes	7
Poepl	2009/2010	Austria		Cross-sectional	Pandemic	H1N1	540	Yes	7
Poggensee	2009	Germany		Cohort	Pandemic	H1N1	53,968	Yes	6
Poulakou	2009/2010	Spain		Cohort	Seasonal and pandemic	H1N1	53	Yes	7
Puvanalingam	2009/2010	India	Yes	Cohort	Pandemic	H1N1	442	Yes	7
Quan-Tai	2009/2010	China	Yes	Cohort	Pandemic	H1N1	53	Yes	7
Riquelme 2010	2009	Chile		Cohort	Pandemic	H1N1	100	Yes	6
Riquelme 2011	2009	9 countries		Cohort	Pandemic	H1N1	250	Yes	5
Rodriguez	2010/2011	Spain		Cohort	Seasonal	H1N1	300	Yes	6
Rodriguez-Valero	2009	Mexico	Yes	Cohort	Pandemic	H1N1	462	Yes	7
Rolland-Harris	2009/2010	Canada		Cohort	Pandemic	H1N1	8,301	Yes	7
Saleh	2010	Iran	Yes	Cohort	Pandemic	H1N1	40	Yes	7
Santa-Olalla Peralta	2009	Spain		Cohort	Pandemic	H1N1	3,025	Yes	6
Satterwhite	2009	USA		Cohort	Pandemic	H1N1	109	Yes	6
Sertogullarindan	2009	Turkey	Yes	Cohort	Pandemic	H1N1	20	Yes	6
Sevencan	2009	Turkey	Yes	Cohort	Pandemic	H1N1	250	Yes	7
Sevic	2009/2010	Serbia	Yes	Cohort	Pandemic	H1N1	64	Yes	7
Shaham	2009	Israel		Cohort	Pandemic	H1N1	22	Yes	6
Shyam	2009/2010	India	Yes	Cohort	Pandemic	H1N1	221	Yes	7
Skarbinski	2009	USA		Cohort	Pandemic	H1N1	255	Yes	6
Subramony	2008	Singapore		Cohort	Pandemic	H1N1	1,348	Yes	5
Thompson	2009/2010	USA		Cross-sectional	Pandemic	H1N1	926	Yes	7
Tramoto	2009/2010	Italy		Cohort	Seasonal and pandemic	H1N1	1,193	Yes	5
van't Klooster	2009	Netherlands		Cohort	Pandemic	H1N1	2,181	Yes	4
Vasoo	2009	USA		Cohort	Pandemic	H1N1	99	Yes	6
Viasus	2009	Spain		Cohort	Pandemic	H1N1	585	Yes	7
Ward	2009	Australia		Case-Control	Pandemic	H1N1	302	Yes	5
Wilkinson	2009/2010	Canada		Cohort	Pandemic	H1N1	1,083	Yes	7
Woolston	1918	USA		Cohort	Pandemic	H1N1	2,154	No	6
Xi	2009	China	Yes	Cohort	Pandemic	H1N1	155	Yes	7
Xu	2010/2011	China	Yes	Cohort	Seasonal	H1N1	701	Yes	7
Yang	2009	China	Yes	Cohort	Pandemic	H1N1	679	Yes	7
Yokota	2009	Brazil	Yes	Cohort	Pandemic	H1N1	157	Yes	6
Yu	2009/2010	China	Yes	Cohort	Pandemic	H1N1	9,966	Yes	6
Zarogoulidis	2010	Greece		Cohort	Pandemic	H1N1	106	Yes	7
Zarychanski	2009	Canada		Case-Control	Pandemic	H1N1	795	Yes	6
Zhang	2009	China	Yes	Cohort	Pandemic	H1N1	2,151	Yes	7
Zolotusca	2009-2011	Romania	Yes	Cohort	Seasonal and pandemic	H1N1	230	Yes	7









