Neuraminidase inhibitors and hospital length of stay: an individual participant data (IPD) meta-analysis of treatment effectiveness in patients hospitalised with non-fatal A(H1N1)pdm09 infection

Supplementary appendix

Supplementary table 1: Standardised dataset - data dictionary for the length of stay analyses

Variable name in Stata	Description	Coding
About the data		
study_group_id	Study group identifier (lookup codes in MS Excel metadata file)	Auto-numbering (_n); string
patid	Study specific patient ID as provided by study groups; this will only be retained in the individual datasets but dropped from the pooled dataset	string
auto_patid	Auto-numbered patient ID generated for each study group dataset; this will only be retained in the individual datasets but dropped from the pooled dataset	Auto-numbering (_n)
pride_patid	Unique patient identifier created by concatenation of study_group_id and auto-numbered patient id (auto_patid)	string
data_source	Whether hospital, community or ICU	1=hospital 2= ICU 3= community
country	Country identifier	string
Patient characteristics		
age_years	Age in years; continuous variable	Place all under 1s in one category (replace <1s as '0')
sex	gender	1=male 0=female
pregnant	Pregnancy (for sub-group analyses including pregnant women, only women of child-bearing age (15-54 years) will be considered)	1= yes 0= no (no separate code for 'not applicable'; men and women not of child-bearing age will be dropped from any analyses including pregnant women)
comorbidity	Whether any co-existing comorbidity was present (either as recorded or derived on the basis of a record of one of the following comorbidities: asthma, COPD, other chronic lung disease, heart disease, cerebrovascular disease (not including uncomplicated hypertension), chronic liver disease, chronic renal disease, diabetes, neurological disease (including neurodevelopmental disorders), lymphoma, leukaemia, other malignancy, immunosuppression) Note: pregnancy will not be considered a 'comorbidity' and nor will obesity	1= any comorbidity 0= no recorded comorbidity
asthma	Asthma as recorded	1= yes 0= no

Variable name in Stata	Description	Coding
copd	COPD as recorded	1= yes 0= no
other_lung_ds	Chronic pulmonary diseases (other than asthma or COPD)	1= yes 0= no
heart_ds	Chronic heart disease as recorded (includes congenital heart disease, hypertension with cardiac complications, chronic heart failure, individuals requiring regular medication and/or follow-up for ischaemic heart disease)	1= yes 0= no
renal_ds	Chronic kidney disease (CKD) as recorded including CKD at stage 3, 4 or 5, chronic kidney failure, nephrotic syndrome, kidney transplantation.	1= yes 0= no
liver_ds	Chronic liver disease as recorded (including cirrhosis, biliary artesia, chronic hepatitis)	1= yes 0= no
cerebrovascular_ds	Cerebrovascular disease as recorded (including stroke, transient ischaemic attack but not including uncomplicated hypertension)	1= yes 0= no
neurological_ds	Neurological disease as recorded (including neurodevelopmental disorders)	1= yes 0= no
diabetes	Diabetes as recorded (including Type 1 diabetes, type 2 diabetes requiring insulin or oral hypoglycaemic drugs, diet controlled diabetes.)	1= yes 0= no
immunosuppression	Immunosuppression due to disease or treatment. Includes patients undergoing chemotherapy leading to immunosuppression; asplenia or splenic dysfunction and HIV infection at all stages.	1=yes 0= no
clinical characteristics		
onset_date	Date of onset of influenza like illness (ILI)	Recorded as date dd/mm/yy
admission_date	Date of first admission to hospital (whether to a general ward, HDU or ICU)	Recorded as date dd/mm/yy
time_to_admission	Time (in days) from onset of symptoms to hospital admission	Recorded as number of days
fever	Fever on presentation (as recorded)	1= yes 0= no
shortness_of_breath	Shortness of breath at presentation (as recorded)	1= yes 0= no
severe_respiratory_distress	Severe respiratory distress at admission	1= yes 0= no
flu_diag	Method of diagnosis of swine flu whether clinical or laboratory diagnosis (this includes RT-PCR)	1= clinical 2= laboratory diagnosis (not otherwise specified) or RT-PCR confirmed

Variable name in Stata	Description	Coding
primary_admit_diag	Primary admitting diagnosis (flu or non-flu)	1= flu 2= other 3= not recorded
icu_transfer_cause	Reason for transfer to ICU	Free text
treatment		
antiviral_start_date	Date of start of antiviral treatment	Recorded as dd/mm/yy
preadmit_antiviral	Preadmission antiviral (either oseltamivir, zanamivir or peramivir)	1= yes 0= no
oseltamivir_start_date	Date of start of oseltamivir treatment	Recorded as dd/mm/yy
preadmit_oseltamivir	Preadmission oseltamivir	1= yes 0= no
zanamivir_start_date	Date of start of zanamivir treatment	Recorded as dd/mm/yy
preadmit_zanamivir	Preadmission zanamivir	1= yes 0= no
antibiotic_start_date	Date of start of antibiotic treatment	Recorded as dd/mm/yy
preadmit_antibiotic	Preadmission antibiotic	1= yes 0= no
hospital_oseltamivir	Oseltamivir given in hospital	1= yes 0= no
hospital_zanamivir	Zanamivir given in hospital	1= yes 0= no
hospital_peramivir	Peramivir given in hospital	1=yes 0=no
hospital_antibiotic	Antibiotics given in hospital	1= yes 0= no
antiviral_anytime	Antiviral administered at any time (whether in the community or in hospital)	1= yes 0= no
early_antiviral1	Antiviral administered ≤ 2 days of symptom onset (whether in the community or in hospital) versus no antiviral treatment	1= early antiviral 0= no antiviral
early_antiviral2	Antiviral administered ≤ 2 days of symptom onset (whether in the community or in hospital) versus late antiviral treatment	1= early antiviral 0= late antiviral
lt_2days	Antiviral administered >2 days of symptom onset (whether in the community or in hospital) versus no antiviral treatment	1= late antiviral (>2 days) 0= no treatment
lt_5days	Antiviral administered ≥ 5 days of symptom onset (whether in the community or in hospital) versus no antiviral treatment	1= late antiviral (>5 days) 0= no treatment
oseltamivir_anytime	Oseltamivir administered at any time (whether in the community or in hospital)	1= yes 0= no
early_oseltamivir1	Oseltamivir administered ≤ 2 days of symptom onset (whether in the community or in hospital) versus no antiviral treatment	1= early oseltamivir 0= no antiviral treatment
early_oseltamivir2	Oseltamivir administered ≤ 2 days of symptom onset (whether in the community or in hospital) versus late oseltamivir (administered >2 days after symptom onset)	1= early oseltamivir 0= late oseltamivir

Variable name in Stata	Description	Coding
oseltamivir_dose	Oseltamivir dose whether standard or not (standard dose being described as 75 mg BD for 5 days in adults i.e. over 13 years of age)	1= standard 0= non-standard dose
zanamivir_anytime	Zanamivir administered at any time (whether in the community or in hospital)	1= yes 0= no
early_zanamivir1	Zanamivir administered ≤2 days of symptom onset (whether in the community or in hospital) versus no antiviral treatment	1= early zanamivir 0= no antiviral treatment
early_zanamivir2	Zanamivir administered ≤2 days of symptom onset (whether in the community or in hospital) versus late zanamivir (administered >2 days after symptom onset)	1= early zanamivir 0= late zanamivir
peramivir_anytime	Peramivir administered at any time (whether in the community or in hospital); note: peramivir was authorised for emergency use in patients with swine flu during the pandemic in some countries	1= yes 0= no
early_peramivir1	Peramivir administered ≤2 days of symptom onset (whether in the community or in hospital) versus no antiviral treatment	1= early peramivir 0= no antiviral treatment
early_peramivir2	Peramivir administered ≤2 days of symptom onset (whether in the community or in hospital) versus late peramivir (administered >2 days after symptom onset)	1= early peramivir 0= late peramivir
hosp_steroid	New steroids administered in hospital (dexamethasone, hydrocortisone, prednisolone)	1= yes 0= no
Outcomes		
discharge_date	Date of discharge from hospital	Recorded as date dd/mm/yy
length_of_stay	Length of stay in hospital (whether general ward or ICU) in days	Number of days
critical_care	Admission to critical care facilities (ICU)	1= yes 0= no
icu_admit_care	Date of admission to ICU	Recorded as dd/mm/yy
icu_discharge_date	Date of ICU discharge	Recorded as dd/mm/yy
icu_lengthstay	Length of ICU stay	Recorded as a continuous variables (no. of days)
pneumonia	Pneumonia as recorded (whether clinically diagnosed or radiologically diagnosed or discerned from free text chest x-ray report findings)	1= yes 0= no
death	Death (as recorded)	1= yes 0= no
dod	Date of death	Recorded as dd/mm/yy
p	Propensity scores for treatment- yes vs. no	Recorded as a continuous variable between 0 and 1
ps_quintile	Propensity scores categorised into quintiles for each individual study for NAI treatment- yes vs. no	Categorical variable with values from 1 to 5 (1=lowest quintile and 5=highest quintile)

Variable name in Stata	Description	Coding
p_1	Propensity scores for treatment- Early treatment (≤2days) vs. no NAI treatment	Recorded as a continuous variable between 0 and 1
ps1_quintile	Propensity scores categorised into quintiles for each individual study for early treatment (≤2days) vs. no treatment	Categorical variable with values from 1 to 5 (1=lowest quintile and 5=highest quintile)
p_2	Propensity scores for treatment- Early treatment (≤2days) vs. Late treatment (>2 days)	Recorded as a continuous variable between 0 and 1
ps2_quintile	Propensity scores categorised into quintiles for each individual study for early treatment (≤2days) vs. late treatment (>2 days)	Categorical variable with values from 1 to 5 (1=lowest quintile and 5=highest quintile)
p_lt2	Propensity scores for treatment- Late treatment (>2days) vs. no NAI treatment	Recorded as a continuous variable between 0 and 1
pslt2_quintile	Propensity scores categorised into quintiles for each individual study for late treatment (>2days) vs. no NAI treatment	Categorical variable with values from 1 to 5 (1=lowest quintile and 5=highest quintile)

Supplementary table 2: Characteristics of individual studies contributing to the pooled analysis

	Country	Setting/Type of source	Total cases supplied	No. cases used	Median age, years at hospital admission (Range)	Male (%)	Time to hospital admission, days, median (IQR)	No. treated with NAI (%)	Early NAI treatment (≤2 days from symptom onset) (%)	Length of hospital stay, days, median days (IQR)	No. patients admitted to ICU (%)
1	Singapore	ED; Single Centre	110	110	24 (10 to 56)	62 (56.4)	2 (1 to 3)	110 (100)	-	4 (3 to 5)	0 (0)
2	Bangladesh	Hospital; Surveillance	147	121	22 (<1 to 72)	77 (63.7)	3 (2 to 5)	14 (11.6)	2 (14.3)	5 (3 to 6)	-
3	Spain	ICU; Multi-centre	1091	812	46 (1 to 86)	487 (60.2)	4 (2 to 6)	803 (98.9)	192 (23.9)	16 (10 to 30)	812 (100)
4	Mexico	Outpatients, Hospitalised; Multi-centre	446	237	39 (<1 to 81)	140 (59.1)	-	237 (100)	73 (30.8)	15 (11 to 21)	48 (20.3)
5	Hong Kong, China	ICU; Single Centre	17	15	42 (19 to 63)	9 (60)	4 (3 to 7)	15 (100)	3 (20)	46 (26 to 61)	15 (100)
6	Lithuania	Hospital; Multi-centre	121	110	30.5 (18 to 83)	46 (41.8)	2 (1 to 3)	61 (55.5)	31 (52.5)	5 (3 to 8)	3 (2.8)
7	Switzerland	Outpatients, Hospitalised; Single Centre	15	13	43 (30 to 74)	10 (79.9)	5 (1 to 6)	13 (100)	2 (15.4)	9 (8 to 13)	6 (46.2)
8	Germany	Hospital; Single Centre	315	135	1.3 (<1 to 17.7)	78 (57.8)	2 (1 to 4)	39 (28.9)	-	3 (2 to 5)	10 (7.7)
9	China	Outpatients, Hospitalised; Single Centre	65	40	41 (14 to 75)	24 (60)	5 (3.5 to 6)	40 (100)	3 (7.5)	7 (5.5 to 11)	24 (60)
10	China	Hospital; Multi-centre	155	127	39 (15 to 84)	72 (56.7)	5 (3 to 7)	106 (83.5)	12 (12)	11 (5 to 19)	47 (37)
11	Turkey	ICU; Single Centre	20	10	28.5 (15 to 72)	3 (30)	6 (3 to 7)	10 (100)	0 (0)	4.5 (3 to 8)	10 (100)
12	Argentina	Outpatients, Hospitalised; Single Centre	36	17	37 (16 to 82)	9 (52.9)	3 (2 to 4)	17 (100)	7 (41.2)	6 (4 to 10)	3 (17.7)

13	Spain	Outpatients, Hospitalised; Multi-centre	57	45	46 (18 to 84)	26 (57.8)	5 (3 to 7)	45 (100)	5 (11.1)	5 (3 to 8)	9 (20)
14	Iran	Outpatients, Hospitalised; Single Centre	434	121	33 (14 to 86)	52 (43)	4.1 (2.1 to 6.1)	121 (100)	19 (18.5)	3 (2 to 5)	34 (28.1)
15	Canada	ICU, Hospitalised, Outpatients; Single Centre	148	30	5.2 (<1 to 18)	18 (60)	3 (1 to 5)	25 (83.3)	-	4 (2 to 9)	6 (20)
16	South Africa	Hospital; Single Centre	46	23	22 (<1 to 55.7)	1 (4.4)	1 (0 to 3.5)	23 (100)	10 (66.7)	15 (6 to 27)	11 (47.8)
17	Argentina	Hospital; Multi-centre	112	76	26.5 (<1 to 79)	14 (18.4)	2 (1 to 3)	75 (98.7)	40 (53.3)	5 (3 to 9.5)	19 (25)
18	Poland	Hospital; Single Centre	24	18	6.5 (<1 to 16.5)	6 (33.3)	-	18 (100)	13 (72.2)	4 (3 to 5)	1 (5.9)
19	Jordan	Hospital; Single Centre	81	41	7 (1.1 to19)	25 (61)	-	41 (100)	32 (84.2)	4 (3 to 6)	6 (14.6)
20	Israel	Outpatients, Hospitalised; Single Centre	73	37	5.5 (1 to 16.9)	19 (51.4)	-	25 (67.6)	-	3 (2 to 6)	2 (5.4)
21	Australia	Hospital; Single Centre	106	86	28 (1 to 76)	30 (34.9)	-	75 (87.2)	-	2 (1 to 4)	11 (12.8)
22	Turkey	Hospital; Single Centre	204	200	30 (16 to 86)	95 (47.5)	3 (2 to 4)	192 (96)	-	3 (2 to 5)	15 (7.5)
23	Morocco	Outpatients, Hospitalised; Single Centre	640	16	29 (1 to 42)	6 (37.5)	-	16 (100)	-	4 (2.5 to 4)	2 (12.5)
24	France	Hospital; Single Centre	1770	930	35 (<1 to 104)	476 (51.2)	2 (1 to 4)	855 (91.9)	364 (50.5)	5 (3 to 13)	671 (72.2)
25	Spain	Hospital; Multi-centre	698	656	41 (16 to 97)	346 (52.7)	3 (2 to 5)	627 (95.6)	213 (35.1)	6 (3 to 8)	87 (13.3)
26	Singapore	Outpatients, Hospitalised; Single Centre	584	310	19.4 (<1 to 92.5)	160 (51.6)	2 (1 to 3)	258 (83.2)	84 (32.6)	2.5 (2 to 4)	21 (6.8)
27	Canada	Hospital; Multi-centre	300	260	5.2 (<1 to 18.7)	153 (58.9)	2 (1 to 4)	232 (89.2)	103 (44.6)	5 (3 to 10)	111 (42.7)

28	Australia	Hospital; Single Centre	105	102	41.5 (15 to 79)	49 (48)	3 (2 to 6)	87 (85.3)	38 (43.4)	4.5 (3 to 8)	24 (23.5)
29	Hong Kong	Hospital; Single Centre	69	56	46.5 (18 to 95)	22 (39.3)	2 (1 to 3)	51 (91.1)	22 (44.9)	4 (2 to 5.5)	1 (1.8)
30	Argentina	Hospital; Single Centre	197	135	29 (<1 to 71)	67 (49.6)	4 (2 to 7)	135 (100)	37 (28.7)	5 (3 to 8)	24 (17.9)
31	Argentina	ICU, Hospitalised, Outpatients; Single Centre	354	92	34 (<1 to 78)	49 (53.3)	3.5 (1 to 6)	66 (71.7)	-	5 (3 to 8)	8 (8.7)
32	Spain	Hospital; Single Centre	91	64	40.5 (13 to 78)	22 (34.4)	2 (0 to 3)	58 (90.6)	26 (44.8)	6 (4 to 16)	18 (28.1)
33	UK	Hospital; Surveillance	272	169	27 (16 to 44)	0 (0)	2 (1 to 4)	140 (82.8)	59 (47.2)	3 (2 to 6)	33 (19.5)
34	Italy	Hospital; Single Centre	81	78	31 (1 to 81)	43 (55.1)	-	66 (84.6)	50 (75.8)	5 (3 to 7)	7 (9)
35	Turkey	Hospital; Single Centre	15	13	2.2 (<1 to 6)	6 (46.2)	0 (0 to 1)	13 (100)	12 (92.3)	1 (1 to 2)	2 (15.4)
36	Israel	Hospital; Multi-centre	506	480	42 (16 to 89)	229 (47.7)	3 (1 to 4)	426 (88.8)	174 (40.9)	6 (4 to 9)	21 (4.4)
37	Brazil	Hospital; Single Centre	21	20	23.5 (15to 32)	0 (0)	1 (0 to 2)	20 (100)	15 (83.3)	5.5 (3 to 13)	5 (26.3)
38	France	Outpatients, Hospitalised; Single Centre	139	72	25 (16 to 42)	0 (0)	2 (1 to 2)	62 (86.1)	52 (83.9)	4 (3 to 4)	1 (1.4)
39	Greece	Hospital; Single Centre	34	34	33.5 (14 to 65)	23 (67.7)	-	34 (100)	34 (100)	6 (5 to 6)	0 (0)
40	Brazil	ICU; Multi-centre	37	16	36 (18 to 80)	9 (56.3)	7.5 (4 to 10)	15 (93.8)	-	10.5 (6.5 to 29)	16 (100)
41	Finland	ICU; Multi-centre	132	104	45.5 (<1 to 77)	68 (65.4)	3 (1 to 6)	99 (95.2)	39 (40.6)	14 (7 to 25)	104 (100)
42	Egypt	Hospital; Surveillance	1943	822	21 (<1 to 77)	471 (57.3)	1 (1 to 3)	822 (100)	547 (72.1)	6 (5 to 8)	-
43	USA	Hospital; Single Centre	307	263	5.8 (<1 to 21.6)	155 (58.9)	3 (1 to 5)	230 (87.5)	96 (42.1)	3 (3 to 6)	66 (25.1)
44	Turkey	Hospital; Surveillance	114	102	6.3 (<1 to 15.6)	62 (60.8)	2 (2 to 4)	102 (100)	52 (51)	6 (5 to 10)	12 (11.8)

45	Canada	Hospital; Single Centre	81	65	1.1 (<1 to 15)	34 (52.3)	4 (2 to 7)	40 (61.5)	4 (10.3)	4 (2 to 6)	8 (12.3)
46	Denmark	ICU; Surveillance	53	21	41.1 (5.8 to 63.1)	12 (57.1)	4.5 (1 to 7)	21 (100)	6 (30)	12 (3 to 24)	21 (100)
47	Saudi Arabia	Hospital; Single Centre	127	121	27 (10.9 to 79)	97 (80.2)	2.5 (1 to 4)	121 (100)	59 (49.2)	6 (5 to 9)	10 (8.3)
48	Slovenia	Outpatients, Hospitalised; Single Centre	78	40	23.6 (<1 to 87.1)	29 (72.5)	2 (1 to 5)	25 (62.5)	6 (27.3)	4 (2 to 6)	3 (7.5)
49	Japan	Hospital; Single Centre	104	102	7 (<1 to 71)	53 (52)	2 (1 to 3)	102 (100)	76 (74.5)	7 (5 to 9)	4 (3.9)
50	India	Hospital; Single Centre	61	51	20 (<1 to 52)	31 (60.8)	5 (3 to 7)	51 (100)	7 (13.7)	7 (6 to 11)	2 (3.9)
51	Mexico	Outpatients, Hospitalised; Surveillance	127289	5,034	28 (<1 to 99)	2,192 (43.5)	2 (1 to 5)	927 (18.4)	-	4 (2 to 7)	189 (3.8)
52	China	Hospital; Single Centre	72	19	43 (18 to 62)	12 (63.2)	8 (5 to 10)	19 (100)	0 (0)	11 (8 to 22)	8 (42.1)
53	Croatia	Hospital; Single Centre	169	160	29 (<1 to 83)	90 (56.3)	2 (1 to 4)	131 (81.9)	69 (52.7)	6 (4 to 10)	28 (17.5)
54	UK	Hospital; Multi-centre	1520	1,163	26 (<1 to 95)	541 (46.5)	2 (1 to 4)	879 (75.6)	265 (46.3)	4 (2 to 6)	158 (13.6)
55	Poland	Hospital; Single Centre	13	8	18.5 (6 to 75)	3 (37.5)	2 (1 to 2)	6 (75)	2 (50)	9.5 (5.5 to 11.5)	1 (12.5)
56	Slovenia	Hospital; Single Centre	66	60	38.5 (16.6 to 87.2)	29 (48.3)	4 (2 to 6)	58 (96.7)	14 (26.9)	4 (3 to 6)	6 (10)
57	Serbia	Hospital; Single Centre	98	95	27 (14 to 88)	66 (69.5)	2 (1 to 5)	67 (70.5)	31 (46.3)	7 (6 to 8)	4 (4.2)
58	UK	ICU; Single Centre	24	17	50 (22 to 80)	10 (58.8)	6 (3 to 8)	17 (100)	1 (5.9)	32 (14 to 47)	17 (100)
59	Argentina	Hospital; Multi-centre	251	191	0.8 (<1 to 17.7)	98 (51.3)	4 (2 to 7)	156 (81.7)	16 (10.3)	8 (5 to 13)	28 (14.7)
60	China	Hospital; Multi-centre	367	321	20 (<1 to 77)	184 (57.3)	2 (1 to 4)	318 (99.1)	94 (51.1)	7 (5 to 9)	35 (10.9)
61	Austria	Outpatients, Hospitalised; Multi-centre	540	325	20.3 (<1 to 90.8)	230 (70.8)	-	230 (70.8)	-	7 (4 to 9)	34 (10.5)

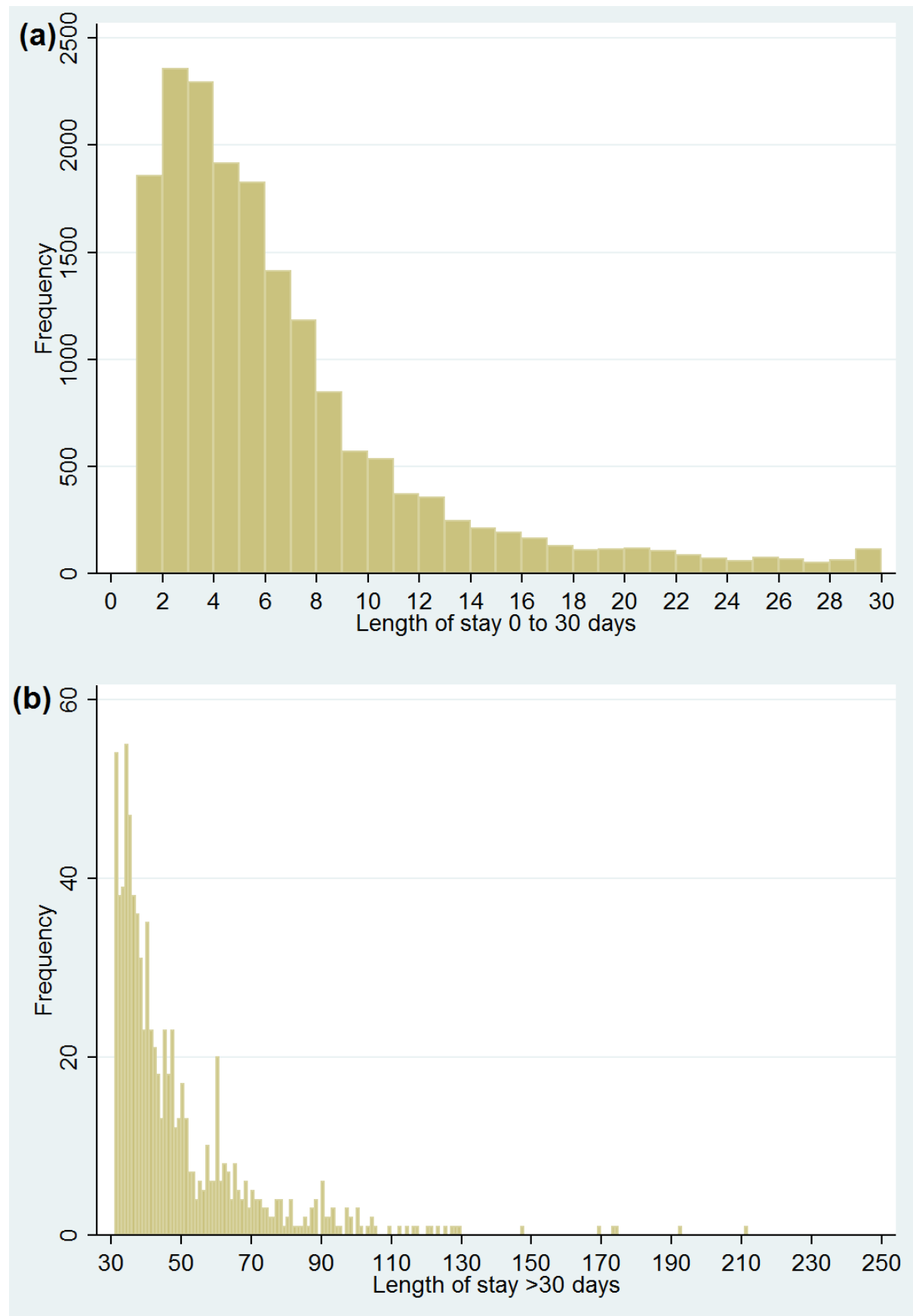|											
62	Iran	Hospital; Multi-centre	484	433	31 (1 to 84)	181 (41.8)	3 (2 to 7)	420 (97)	113 (28.1)	3 (1 to 4)	37 (8.6)
63	Mongolia	Hospital; Surveillance	204	180	20 (1 to 76)	89 (49.4)	3 (1 to 5)	96 (53.3)	-	5 (4 to 7)	6 (3.3)
64	Germany	Hospital; Single Centre	92	89	3.6 (<1 to 17.8)	45 (50.6)	2 (1 to 4)	26 (29.2)	18 (69.2)	3 (2 to 5)	6 (6.7)
65	Australia	Hospital; Single Centre	601	433	3.5 (<1 to 14.9)	252 (58.2)	2 (1 to 4)	221 (51)	101 (49.5)	2 (1 to 5)	48 (11.1)
66	Bangladesh	Hospital; Single Centre	28	8	23 (3 to 50)	2 (25)	1 (0 to 4)	8 (100)	4 (57.1)	5.5 (4 to 6)	-
67.1	USA	Hospital; Multi-centre	630	432	47 (13 to 92)	184 (42.6)	3 (2 to 6)	401 (92.8)	1 (16.7)	11 (5.5 to 22)	432 (100)
67.2	USA	Hospital; Multi-centre	838	699	6 (<1 to 20)	412 (58.9)	2 (1 to 4)	628 (89.8)	3 (75)	7 (4 to 15)	699 (100)
68	UK	Hospital; Single Centre	41	20	2 (<1 to 14.4)	9 (45)	3.5 (0.5 to 5)	16 (80)	5 (31.3)	5 (3 to 18.5)	7 (35)
69	Canada	Hospital; Single Centre	1014	899	27 (<1 to 92)	460 (51.2)	3 (2 to 5)	656 (73)	293 (44.7)	3 (2 to 6)	119 (13.2)
70	Norway	Hospital; Single Centre	129	105	43.6 (15.1 to 93.2)	50 (47.6)	4 (1 to 7)	75 (71.4)	29 (38.7)	3 (2 to 6)	7 (6.7)

Percentages based on available data

ED- Emergency department; ICU- Intensive care unit; NAI- Neuraminidase inhibitor; IQR- Interquartile range

Supplementary table 3: Impact of in-hospital NAI treatment on hospital length of stay in pregnant women and patients with obesity

	Unadjusted RR (95% CI)	Adjusted[a] RR (95% CI)
Pregnant (n=1,197)		
NAI anytime vs No NAI treatment	1.10 (0.95 to 1.27)	1.03 (0.89 to 1.19)
Early NAI treatment vs Later NAI treatment	**0.56 (0.48 to 0.65)**	**0.61 (0.52 to 0.70)**
Early NAI treatment vs No NAI treatment	0.98 (0.80 to 1.19)	0.90 (0.74 to 1.10)
NAI treatment on the day of hospital admission vs No NAI treatment[b]	1.18 (0.96 to 1.16)	1.05 (0.85 to 1.29)
NAI treatment on the day of hospital admission vs Later/No NAI treatment[b]	**0.80 (0.69 to 0.93)**	**0.75 (0.64 to 0.88)**
Obesity (n=1,677)		
NAI anytime vs No NAI treatment	**1.21 (1.06 to 1.39)**	1.14 (0.99 to 1.31)
Early NAI treatment vs Later NAI treatment	**0.67 (0.59 to 0.76)**	**0.73 (0.65 to 0.83)**
Early NAI treatment vs No NAI treatment	1.09 (0.88 to 1.34)	0.95 (0.74 to 1.21)
NAI treatment on the day of hospital admission vs No NAI treatment[b]	1.10 (0.86 to 1.41)	1.13 (0.86 to 1.48)
NAI treatment on the day of hospital admission vs Later/No NAI treatment[b]	**0.79 (0.68 to 0.91)**	**0.80 (0.69 to 0.93)**

RR: Rate Ratio; 95%CI: 95% Confidence Interval (bold font indicates statistical significance at the 5% level (p<0.05); a) RR adjusted for propensity scores (quintiles) for receiving treatment, antibiotic treatment received in hospital, steroid treatment received in hospital; b) RR further adjusted for time from onset to admission;

Supplementary figure 1: Histogram showing the distribution of hospital length of stay for our study population (a) distribution of length of stay from 0 to 30 days (b) distribution of length of stay >30 days

Supplementary table 4: PRIDE study Investigators

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