

Figure S1 Sampling procedures and integration of Shandong Multi-Center Healthcare Big Data Platform.

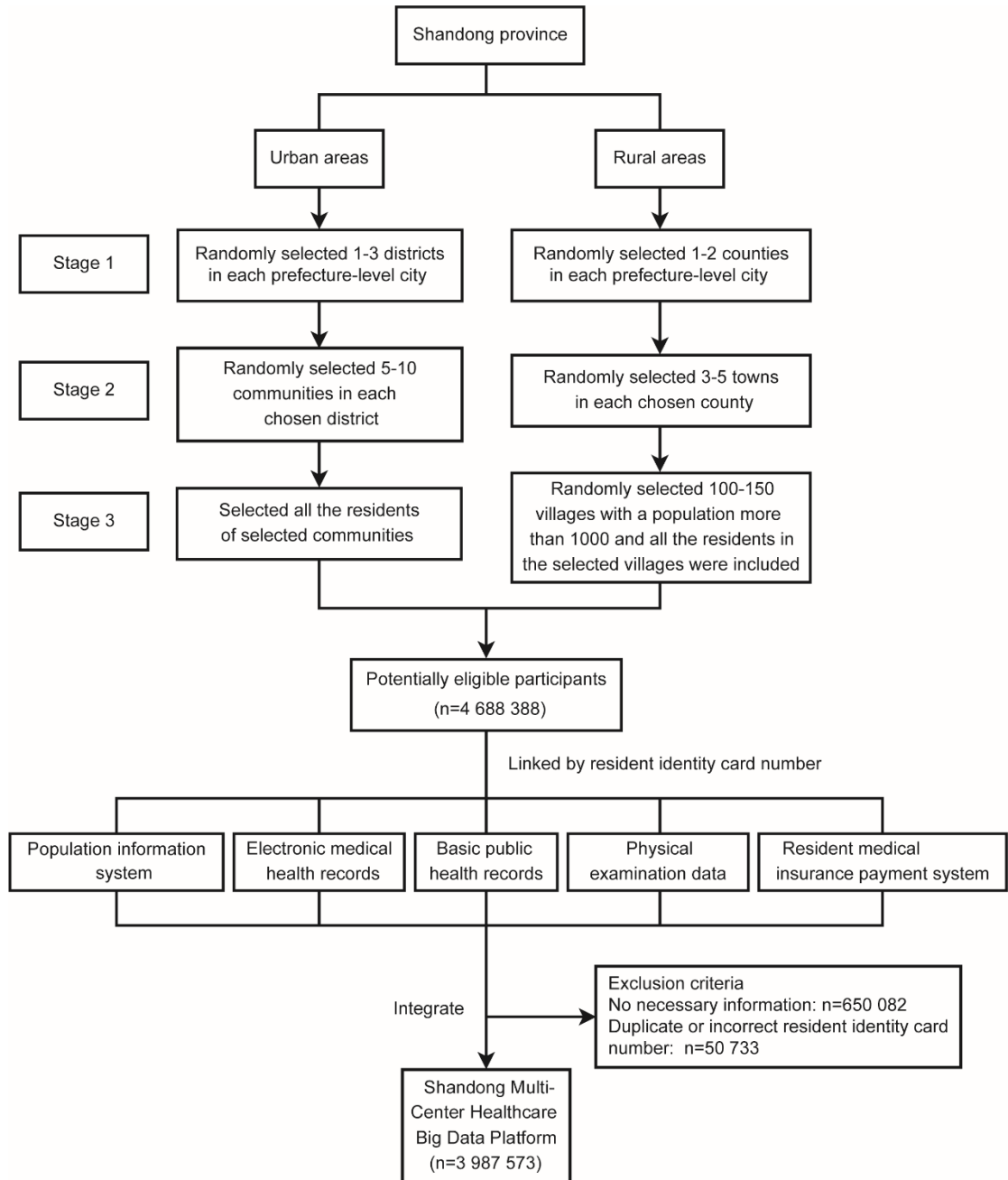


Table S1 Basic information of registered participants in “Shandong Multi-Center Healthcare Big Data Platform”, January 2013 to June 2017

	Participants (n=3 987 573)
Sex distribution of population, n (%)	
Male	1 906 485 (47.81)
Female	2 081 088 (52.19)
Residence	
Urban	2 284 975 (57.30)
Rural	1 702 598 (42.70)
Enrolment time (year), n (%)	
2013	3 017 631 (75.67)
2014	338 850 (8.50)
2015	332 129 (8.33)
2016	214 279 (5.37)
2017	84 684 (2.12)
Case number of infectious diseases (incidence density, per 100 000 PY)	
Notifiable infectious diseases	73 801 (482.47)
Non-notifiable infectious diseases	32 488 (212.39)
Case number of five categories of infectious diseases (incidence density, per 100 000 PY)	
Respiratory	61 951 (405.00)
Gastrointestinal	9862 (64.47)
Vector-borne	1128 (7.37)
Blood- and sex-transmitted	10 170 (66.48)
Mucocutaneous	23 178 (151.52)
Annual case number of infectious diseases (incidence density, per 100 000 PY)	
2013	10 313 (364.81)
2014	12 813 (397.04)
2015	27 181 (771.20)
2016	35 167 (931.37)
2017	20 815 (1071.80)

PY – person-years

Table S2: Annual incidence and trends of 102 infectious diseases among the elderly in the population-based observational study of Shandong province, China, 2013-2017

Disease	Incidence density (per 100000 PY)					APC (%)
	2013	2014	2015	2016	2017	
Respiratory diseases	679.95	638.46	1001.44	1101.95	1156.70	17.45*
Influenza	537.39	558.96	822.54	838.70	828.51	13.56
Pneumonia	25.39	41.89	118.19	188.93	235.79	81.55*
Pulmonary tuberculosis	48.18	32.82	49.93	54.30	66.02	12.00
Varicella	63.83	0.25	1.08	1.18	0.38	-58.09
Scarlet fever	0	0.25	0.22	0.20	0.77	-
Mumps	0.65	0.25	1.73	0.79	1.53	-
Measles	2.28	1.01	2.38	0.79	0	-
Cryptococcosis	0	0.25	0.43	4.72	7.28	401.22*
Whooping cough	0.65	0.76	1.30	3.54	5.75	80.37*
Rubella	0.33	0.25	0	0.79	0.77	-
Aspergillosis	0.33	1.77	3.02	5.31	5.37	94.99*
Influenza A H1N1	0	0	0	0.59	0.77	-
Blastomycosis	0.33	0	0.22	0.79	0	-
Meningococcal disease	0	0	0.22	0.98	2.30	-
Leprosy	0.33	0	0	0.20	1.15	-
Streptococcal pharyngitis	0.33	0	0	0	0	-
Legionellosis	0	0	0	0.20	0	-
Nocardiosis	0	0	0.22	0	0.38	-
Gastrointestinal diseases	142.57	33.31	88.37	160.62	287.54	34.67
Typhoid	106.11	16.40	51.85	112.46	235.79	42.22
Other infectious diarrhoea	1.63	3.28	8.21	11.80	10.73	65.69*
Ascariasis	2.93	1.01	8.21	6.49	6.90	42.95
Paratyphoid	0.98	0	0.43	9.24	9.58	212.32
Bacterial dysentery	24.74	6.56	3.24	3.34	4.98	-32.17
Amoebic dysentery	0.98	1.01	4.75	5.50	4.60	61.40
Gastroenteritis due to						
Rotavirus	0	0	0	0.20	1.15	-
Intestinal infections due to						
<i>E. coli</i>	0	0	3.89	3.34	2.30	430.54
Oesophagostomiasis	0	0	0.22	2.16	4.22	-
Hepatitis A	1.30	0.25	1.51	0.98	0.77	-
Enterobiasis	0	0	0.65	0.79	0.38	-
Hepatitis E	1.95	2.78	2.16	0.79	0.77	-26.78
Bacterial foodborne						
intoxications, unspecified	0	0.50	0.43	0.59	0	-
Infections due to other						
Salmonella	0	0.25	0.22	0.39	1.53	-
Cysticercosis	0	0.50	0.22	0.98	2.30	-
Enteritis due to Norovirus	0.98	0.25	1.08	0.20	0	-

Campylobacteriosis	0.33	0	0	0.20	0.38	-
Clonorchiasis	0.33	0	0	0.20	0.38	-
Taeniasis	0	0	0	0.20	0.77	-
Toxoplasmosis	0	0	0.22	0	0	-
Paragonimiasis	0	0	0	0.39	0	-
Foodborne staphylococcal						
intoxication	0	0.25	0	0	0	-
Listeriosis	0	0	0	0.20	0	-
Trichuriasis	0.33	0	0	0	0	-
Enteritis due to						
Adenovirus	0	0	0.22	0	0	-
Epidemic myalgia	0	0	0.22	0.20	0	-
Giardiasis	0	0	0.22	0	0	-
Intestinal infections due to						
Yersinia enterocolitica	0	0	0.22	0	0	-
Foodborne Bacillus cereus						
intoxication	0	0.25	0.22	0	0	-
Vector-borne diseases	6.18	5.30	11.45	10.03	9.97	17.26
Brucellosis	0.33	2.78	2.38	3.54	5.75	81.44
Hemorrhagic fever	2.93	0.76	2.16	1.97	1.15	-8.77
Erysipeloid	0.33	0	1.51	1.18	0	-
Typhus fever	0.65	0.76	0.65	0.98	0.77	-
Orf	0	0	0.22	0	0	-
Severe fever with						
thrombocytopenia						
syndrome	0.65	0.25	2.59	1.18	0.38	-
Spotted fever	0	0	0.22	0.39	0.38	-
Tularemia	0	0	0.43	0.20	0.77	-
African trypanosomiasis	0	0.25	0	0	0	-
Cat-scratch disease	0	0	0.22	0	0	-
Epidemic encephalitis B	0.65	0	0	0	0	-
Extraintestinal yersiniosis	0.33	0.25	0	0.20	0	-
Glanders	0	0	0.22	0	0	-
Q fever	0	0	0.22	0	0	-
Monkeypox	0	0	0	0	0.38	-
Relapsing fever	0.33	0.25	0	0	0	-
Yellow fever	0	0	0	0.39	0	-
Eastern equine encephalitis	0	0	0.22	0	0.38	-
Melioidosis	0	0	0.43	0	0	-
Blood- and sex-						
transmitted diseases	65.75	52.49	75.41	80.61	79.75	8.49
Hepatitis B	49.16	41.65	56.21	49.98	49.91	2.15
Syphilis	2.28	4.54	4.32	13.37	18.02	68.45*
Hepatitis C	9.44	5.05	6.27	6.49	2.30	-22.69

Gonorrhea	2.28	0.25	5.19	5.90	4.98	60.38
Trichomoniasis	0	0	1.08	0.98	1.92	-
Anogenital warts	0.65	0.25	0.22	1.97	0.38	-
Cytomegaloviral disease	0	0.25	1.30	0.59	0.38	-
HIV infection	0.98	0.50	0.22	0.79	1.53	-
Anogenital herpes simplex infection	0.65	0	0.43	0.39	0.38	-
Hepatitis D	0.33	0	0.22	0.20	0	-
Mucocutaneous diseases	211.90	193.05	292.11	360.37	392.98	20.44*
Herpes zoster	122.06	136.02	222.76	277.21	295.60	28.16*
Hand, foot, and mouth disease	0.98	1.01	0.22	1.97	0.38	-
Viral conjunctivitis	26.04	20.95	31.98	36.76	43.32	17.12
Common warts	1.63	3.03	4.11	8.06	13.04	67.15*
Trachoma	47.52	19.94	19.01	15.33	17.64	-20.11
Herpes simplex infections	5.21	6.81	5.62	7.47	9.97	14.92
Plane warts	0	0	0.65	1.38	1.53	-
Impetigo	3.25	1.26	2.38	4.92	3.07	13.29
Non-dermatophyte superficial dermatomycoses	1.30	0.76	0.86	1.38	1.15	-
Molluscum contagiosum	0.65	0.25	0	0.79	1.92	-
Infectious mononucleosis	1.95	1.51	1.08	1.38	0	-
Picornavirus infections presenting in the skin or mucous membranes	0.33	0	0.22	0.20	0	-
Scabies	0	1.01	1.08	0.59	1.53	-
Myiasis	0	0	0.43	0.79	1.15	-
Yaws	0	0	0.43	0.20	1.53	-
Tetanus	0.65	0	0.22	0.39	0	-
Rabies	0	0	0.43	0	0	-
Acute hemorrhagic conjunctivitis	0.33	0	0	0	0	-
Infestation by mites	0	0	0	0.20	0.38	-
Eumycetoma	0	0	0.22	0.59	0.38	-
Sporotrichosis	0	0	0	0.20	0.38	-
Echinococcosis	0	0	0.22	0	0	-
Strongyloidiasis	0	0.25	0	0.39	0	-
Hookworm diseases	0	0	0.22	0	0	-
Gas gangrene	0	0	0	0.20	0	-
External hirudiniasis	0	0.25	0	0	0	-

APC – annual percentage change, PY – person-years

Note: Unavailable APC because of too few cases of the disease; * represent the trend test is statistically significant.

Table S3: The Top 20 infectious disease among the elderly in the population-based observational study of Shandong province, China, 2013-2017

Rank	2013		2014		2015		2016		2017	
	Disease	Incidence density*	Disease	Incidence density	Disease	Incidence density	Disease	Incidence density	Disease	Incidence density
1	Influenza	537.39	Influenza	558.96	Influenza	822.54	Influenza	838.70	Influenza	828.51
2	Herpes zoster	122.06	Herpes zoster	136.02	Herpes zoster	222.76	Herpes zoster	277.21	Herpes zoster	295.60
3	Typhoid	106.11	Pneumonia	41.89	Pneumonia	118.19	Pneumonia	188.93	Pneumonia	235.79
4	Varicella	63.83	Hepatitis B	41.65	Hepatitis B	56.21	Typhoid	112.46	Typhoid	235.79
5	Hepatitis B	49.16	Pulmonary tuberculosis	32.82	Typhoid	51.85	Pulmonary tuberculosis	54.30	Pulmonary tuberculosis	66.02
6	Pulmonary tuberculosis	48.18	Viral conjunctivitis	20.95	Pulmonary tuberculosis	49.93	Hepatitis B	49.98	Hepatitis B	49.91
7	Trachoma	47.52	Trachoma	19.94	Viral conjunctivitis	31.98	Viral conjunctivitis	36.76	Viral conjunctivitis	43.32
8	Viral conjunctivitis	26.04	Typhoid	16.40	Trachoma	19.01	Trachoma	15.33	Syphilis	18.02
9	Pneumonia	25.39	Herpes simplex infections	6.81	Ascariasis	8.21	Syphilis	13.37	Trachoma	17.64
10	Bacterial dysentery	24.74	Bacterial dysentery	6.56	OID	8.21	OID	11.80	Common warts	13.04
11	Hepatitis C	9.44	Hepatitis C	5.05	Hepatitis C	6.27	Paratyphoid	9.24	OID	10.73
12	Herpes simplex infections	5.21	Syphilis	4.54	Herpes simplex infections	5.62	Common warts	8.06	Herpes simplex infections	9.97
13	Impetigo	3.25	OID [†]	3.28	Gonorrhea	5.19	Herpes simplex infections	7.47	Paratyphoid	9.58

14	Hemorrhagic fever	2.93	Common warts	3.03	Amoebic dysentery	4.75	Hepatitis C	6.49	Cryptococcosis	7.28
15	Ascariasis	2.93	Hepatitis E	2.78	Syphilis	4.32	Ascariasis	6.49	Ascariasis	6.90
16	Measles	2.28	Brucellosis	2.78	Common warts	4.11	Gonorrhea	5.90	Whooping cough	5.75
17	Gonorrhea	2.28	Aspergillosis	1.77	Intestinal Infections due to <i>E. coli</i>	3.89	Amoebic dysentery	5.50	Brucellosis	5.75
18	Syphilis	2.28	Infectious mononucleosis	1.51	Bacterial dysentery	3.24	Aspergillosis	5.31	Aspergillosis	5.37
19	Hepatitis E	1.95	Impetigo	1.26	Aspergillosis	3.02	Impetigo	4.92	Gonorrhea	4.98
20	Infectious mononucleosis	1.95	Measles	1.01	SFTS [†]	2.59	Cryptococcosis	4.72	Bacterial dysentery	4.98

Incidence density*: per 100 000 person-years.

OID - other infectious diarrhoea (infectious diarrhoeal diseases other than cholera, bacterial and amoebic dysentery, typhoid and paratyphoid); SFTS - severe fever with thrombocytopenia syndrome.