**Supplementary material S1**

*International Classification of Diseases Diagnosis Codes* (ICD-10-CM) used to identify all-cause inpatient pneumonia events in the National (Nationwide) Inpatient Sample (NIS) dataset, 2018–2019

J120 – Adenoviral pneumonia

J121 – Respiratory syncytial virus pneumonia

J122 – Parainfluenza virus pneumonia

J1281 – Pneumonia due to SARS-associated coronavirus

J123 – Human metapneumovirus pneumonia

J1289 – Other viral pneumonia

J129 – Viral pneumonia, unspecified

J13 – Pneumonia due to Streptococcus pneumoniae

J181 – Lobar pneumonia, unspecified organism

J150 – Pneumonia due to Klebsiella pneumoniae

J151 – Pneumonia due to Pseudomonas

J14 – Pneumonia due to Haemophilus influenzae

J154 – Pneumonia due to other streptococci

J153 – Pneumonia due to streptococcus, group B

J1520 – Pneumonia due to staphylococcus unspecified

J15211 – Pneumonia due to Methicillin susceptible Staphylococcus aureus

J15212 – Pneumonia due to Methicillin resistant Staphylococcus aureus

J1529 – Pneumonia due to other staphylococcus

J158 – Pneumonia due to other specified bacteria

J155 – Pneumonia due to Escherichia coli

J156 – Pneumonia due to other Gram-negative bacteria

A481 – Legionnaires’ disease

J159 – Unspecified bacterial pneumonia

J157 – Pneumonia due to Mycoplasma pneumoniae

J160 – Chlamydial pneumonia

J168 – Pneumonia due to other specified infectious organisms

B250 – Cytomegaloviral pneumonitis

A3701 – Whooping cough due to Bordetella pertussis with pneumonia

A3711 – Whooping cough due to Bordetella parapertussis with pneumonia

A3781 – Whooping cough due to other Bordetella species with pneumonia

A3791 – Whooping cough, unspecified species with pneumonia

A221 – Pulmonary anthrax

B440 – Invasive pulmonary aspergillosis

J17 – Pneumonia in diseases classified elsewhere

B7781 – Ascariasis pneumonia

J180 – Bronchopneumonia, unspecified organism

J188 – Other pneumonia, unspecified organism

J189 – Pneumonia, unspecified organism

J1000 – Influenza due to other identified influenza virus with unspecified type of pneumonia

J1001 – Influenza due to other identified influenza virus with the same other identified influenza virus pneumonia

J1008 – Influenza due to other identified influenza virus with other specified pneumonia

J1100 – Influenza due to unidentified influenza virus with unspecified type of pneumonia

J1108 – Influenza due to unidentified influenza virus with specified pneumonia

J129 – Viral pneumonia, unspecified

**Supplementary material S2**

Tornado Diagram Indicating Most Influential Inputs