

**Supplementary Figure 1:** Pathogen composition of 791 CAP patients and factors affecting pathogen distribution. (A) The pathogen spectrum of hospitalized adults with CAP in Fujian from 2012 to 2018. (B) Analysis of CAP co-infection in Fujian Province: Among the 791 cases, a single bacterial infection accounted for 18.7% (148 cases), and a single virus infection accounted for 16.4% (130 cases). A total of 186 mixed infections accounted for 23.5% (186 cases). The majority had bacteria-viral co-infection, accounting for 12.8% (101 cases), followed by bacterial-bacterial co-infections (5.1%, 40 cases), and viral-viral co-infections (2.4%, 19 cases), as shown in the pie chart. (C) Detection of specific pathogens in Fujian Province. (D) The distribution of 61 SCAP pathogens in Fujian Province. (E) Changes in the spectrum of CAP pathogens in Fujian Province from 2012 to 2018: From top to bottom, three graphs show the changes in the composition of pathogens detected in CAP-hospitalized patients in terms of different seasons and years. Y-axis indicates the number of detection of specific pathogen per 100 patients. (F) Comparison of CAP pathogens from Fuzhou area and multiple non-Fuzhou areas including Wuyishan, Sanming, and Putian City. Y-axis indicates the number of detection of specific pathogen per 100 patients. Six hundred eighty-seven of the selected patients were from Fuzhou, and 104 cases were from non-Fuzhou areas, including 39 from Putian, 19 from Sanming, and 46 from Wuyishan city. The top five pathogens detected in Fuzhou area were Flu-A, *S. pneumoniae*, *C. pneumoniae*, *K. pneumoniae*, and *S. aureus*. The top five pathogens detected in the non-Fuzhou area were Flu-A, *S. pneumoniae*, *K. pneumoniae*, *S. aureus*, and *C. pneumoniae*. (G) Analysis of the distribution of pathogens in different age groups of CAP in Fujian Province. Circles indicate the number of detection of specific pathogen per 100 patients, and the horizontal lines 95% CIs. Compared to Fuzhou area, \**P <*0.05. ADV: Adenovirus; CAP: Community-acquired pneumonia; CIs: Confidence intervals; *C. pneumoniae*: Chlamydia pneumoniae; Flu-A: Influenza A virus; hMPV: Human metapneumovirus; hPIV: Human parainfluenza virus; *K. pneumoniae*: *Klebsiella pneumoniae*; *M. pneumoniae*: *Mycoplasma pneumoniae*; RSV: Respiratory syncytial virus; *S.* *aureus*: *Staphylococcus aureus*; *S. Pneumoniae*: *Streptococcus Pneumoniae.*

**Supplementary Table 1: General information, clinical manifestations, and underlying diseases of 791 CAP patients in Fujian Province.**

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| **Characteristics**  | ***n* (%)** |
| Gender |  |
| Male | 524 (66.2) |
| Female | 267 (33.8) |
| Age group (years) |  |
| 18–49 | 140 (17.7) |
| 50–64 | 216 (27.3) |
| 65–79 | 287 (36.3) |
| ≥80 | 148 (18.7) |
| Symptoms |  |
| Fever | 441 (55.8) |
| Cough | 741 (93.7) |
| Cough yellow/purulent sputum | 695 (87.9) |
| Any underlying condition |  |
| Chronic heart disease | 174 (22.0) |
| Coronary atherosclerotic heart disease | 109 (13.8) |
| Chronic lung disease | 215 (27.2) |
| Diabetes mellitus | 124 (15.7) |
| Neurologic disorders | 42 (5.3) |
| Chronic kidney disease | 33 (4.2) |
| Chronic liver disease | 17 (2.1) |

CAP: Community-acquired pneumonia.

**Suppplementary Table 2: Analysis of the distribution of pathogens in different age groups of CAP in Fujian Province (*n* [%]).**

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| --- | --- | --- | --- | --- | --- | --- |
| **Pathogens** | **18–49 years (*n* = 139)** | **50–64 years (*n* = 217)** | **65–79 years (*n* = 287)** | **≥80 years (*n* = 148)** | ***χ***2 | ***P-*value** |
| Flu-A | 32 (23.0) | 38 (17.5) | 62 (21.6) | 30 (20.3) | 1.952 | 0.583 |
| hMPV | 3 (2.2) | 3 (1.4) | 5 (1.7) | 1 (0.7) | - | 0.751 |
| hPIV | 9 (6.5) | 6 (2.8) | 8 (2.8) | 6 (4.1) | 4.294 | 0.231 |
| RSV | 3 (2.2) | 6 (2.8) | 6 (2.1) | 5 (3.4) | - | 0.862 |
| ADV | 4 (2.9) | 7 (3.2) | 3 (1.0) | 1 (0.7) | - | 0.170 |
| *S. pneumoniae* | 13 (9.4) | 29 (13.4) | 42 (14.6) | 17 (11.5) | 2.641 | 0.450 |
| *K. pneumoniae* | 7 (5.0) | 15 (6.9) | 32 (11.1) | 13 (8.8) | 5.471 | 0.140 |
| *S. aureus* | 10 (7.2) | 12 (5.5) | 18 (6.3) | 11 (7.4) | 0.684 | 0.877 |
| *M. pneumoniae* | 11 (7.9) | 7 (3.2) | 7 (2.4) | 3 (2.0) | 9.861 | 0.020 |
| *C. pneumoniae* | 6 (4.3) | 12 (5.5) | 14 (4.9) | 9 (6.1) | 0.563 | 0.905 |

ADV: Adenovirus; CAP: Community-acquired pneumonia; *C. pneumoniae*: *Chlamydia pneumoniae*;Flu-A: Influenza A virus; hMPV: Human metapneumovirus; hPIV: Human parainfluenza virus; *K. pneumoniae*: *Klebsiella pneumoniae*; *M. pneumoniae*: *Mycoplasma pneumoniae*; RSV: Respiratory syncytial virus; *S.* *aureus*: *Staphylococcus aureus*; *S. Pneumoniae*: *Streptococcus Pneumoniae.*