

# 发热、肺部感染、ARDS

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首都医科大学急诊医学系

首都医科大学附属北京朝阳医院急诊科

何新华

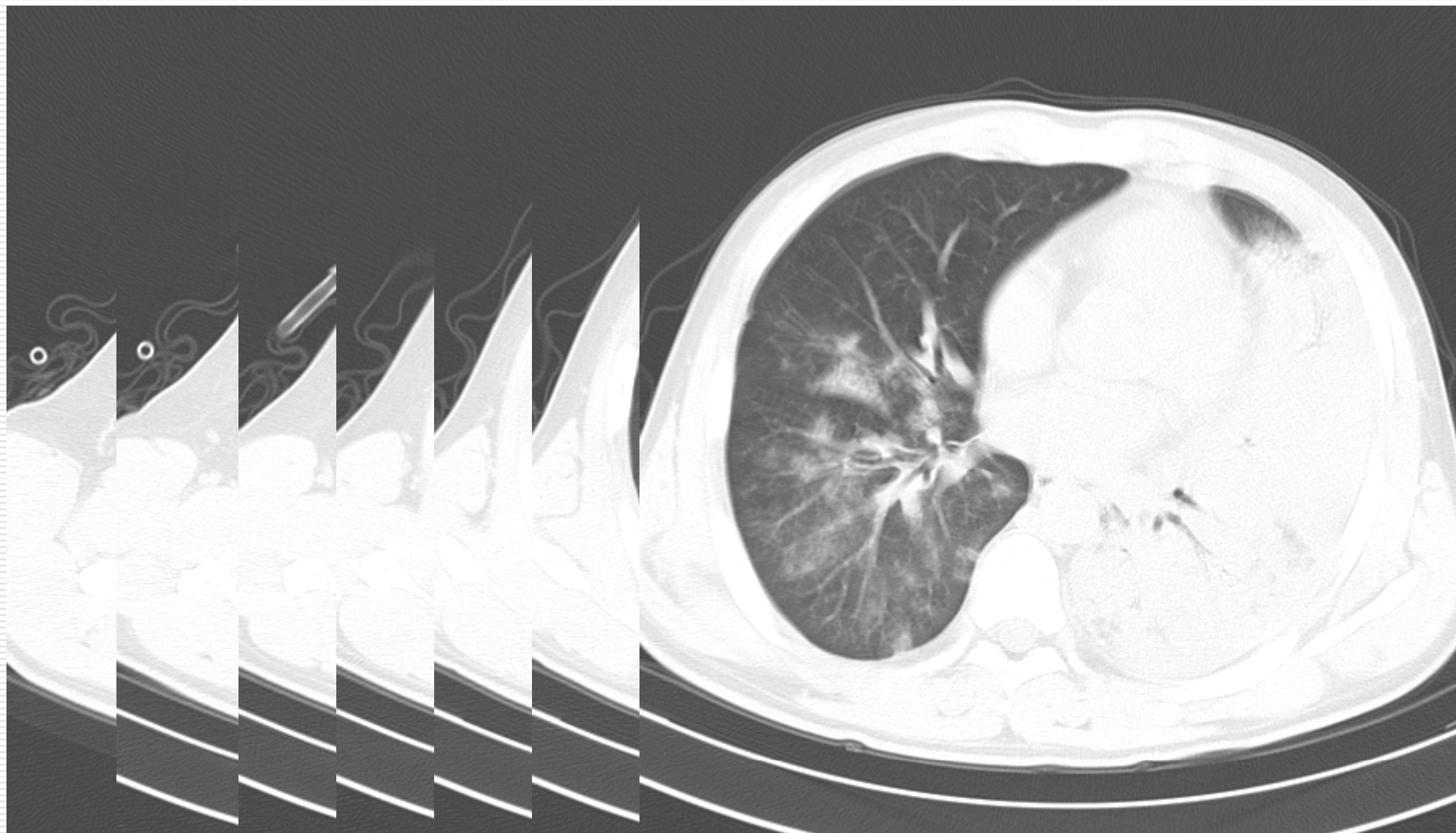
2011-08-28

## 一般情况

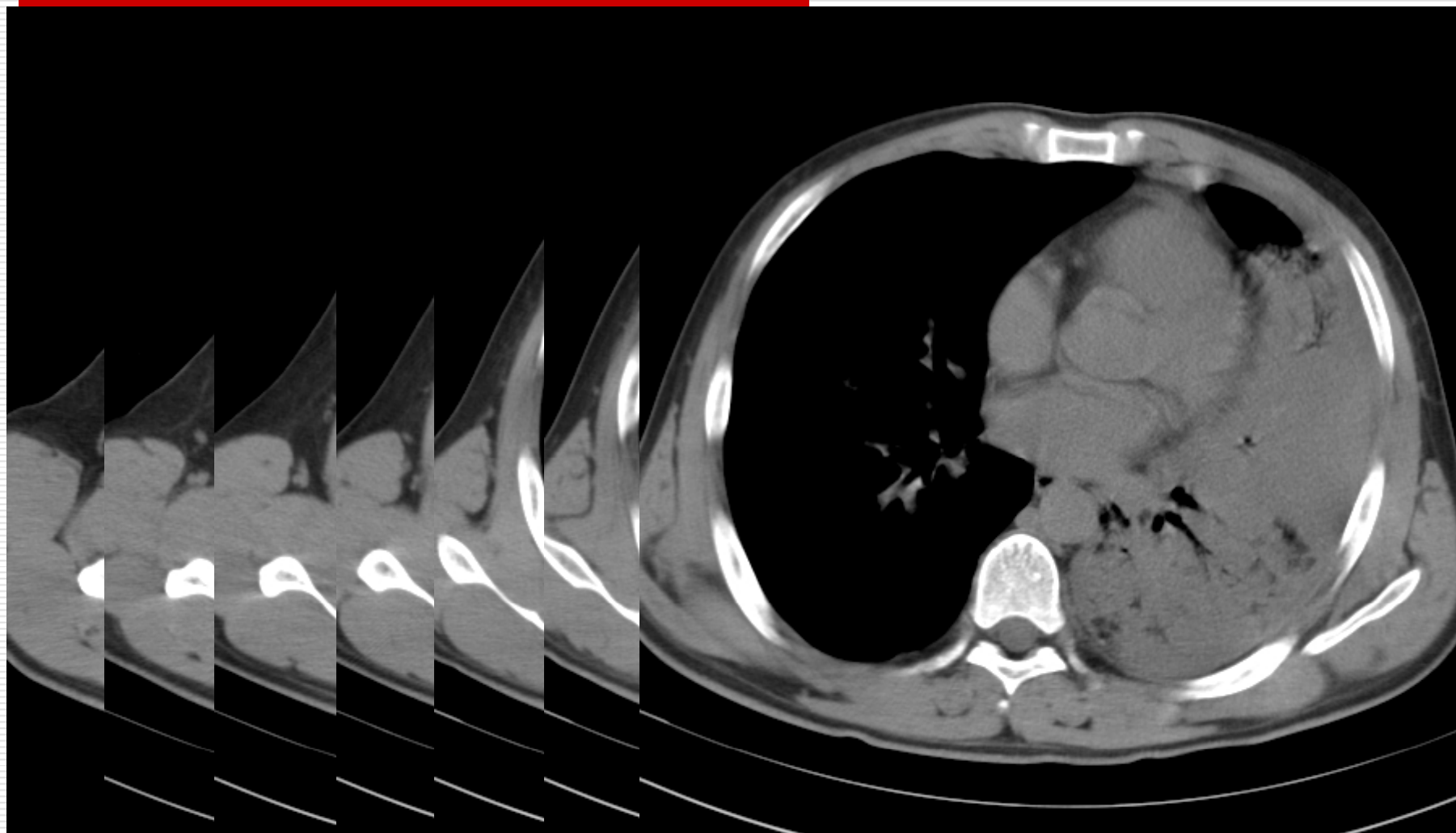
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- 男性，27岁
  - 发热10天，咳嗽、咳痰伴左侧胸痛5天
  - 血气：PH 7.531，PCO<sub>2</sub> 23.3mmHg，PO<sub>2</sub> 54.5mmHg（文丘里吸氧10l/min，FiO<sub>2</sub> 50%）
  - 血常规：WBC 4.39×10<sup>9</sup>/L，N 80.1%，HGB 134g/L，PLT254×10<sup>9</sup>/L。
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2011-05-03 HRCT (入院第1天)



2011-05-03 HRCT (入院第1天)



## 诊治经过

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- 肺部CT和化验检查，考虑患者重症肺炎
  - 泰能+斯沃+利福平+希舒美
  - 初期治疗，症状进一步加重
  - 气管插管接呼吸机辅助通气
  - $FiO_2$  100%， $SpO_2$  82%， $PaO_2$  55mmHg
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## 诊治经过

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PCT 0.26 ng/ml



## 诊治经过

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临床考虑：非细菌感染

- 痰病毒核酸检验：腺病毒（+）
- 血清病毒核酸：腺病毒（+）
- 血清G试验（-）

诊断：腺病毒肺炎

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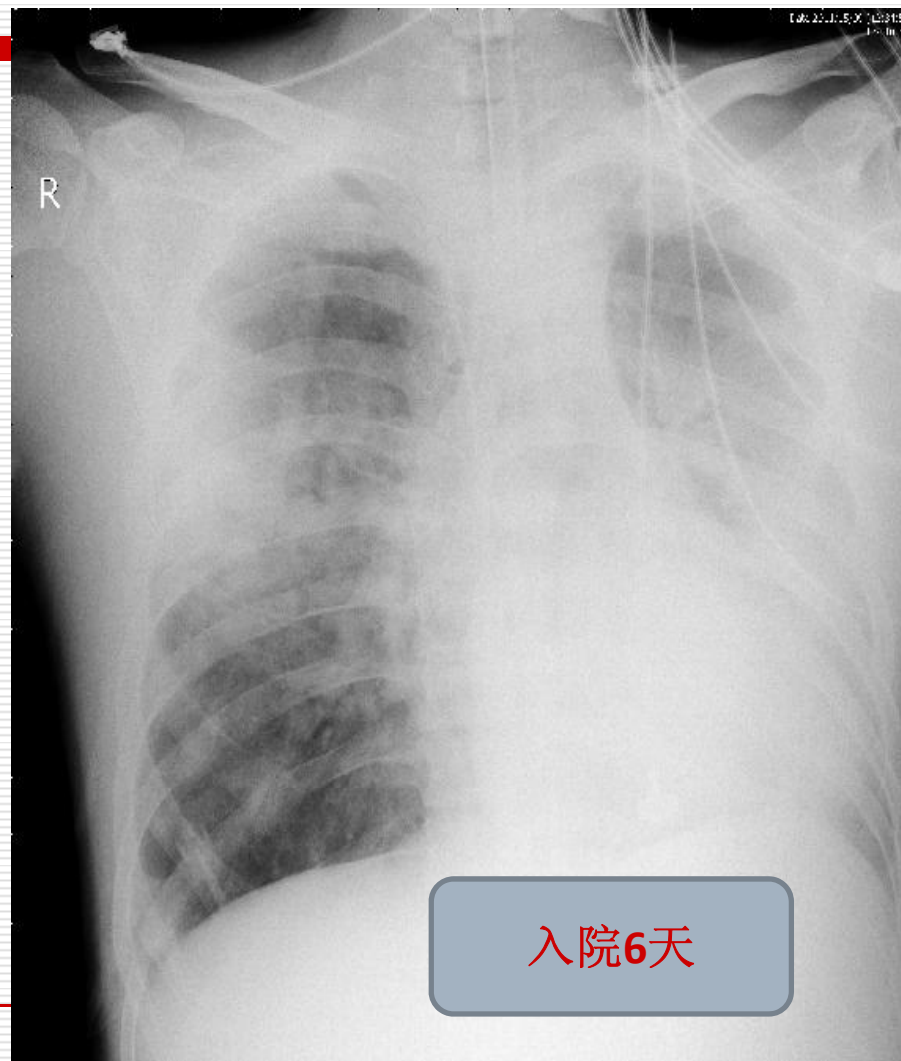
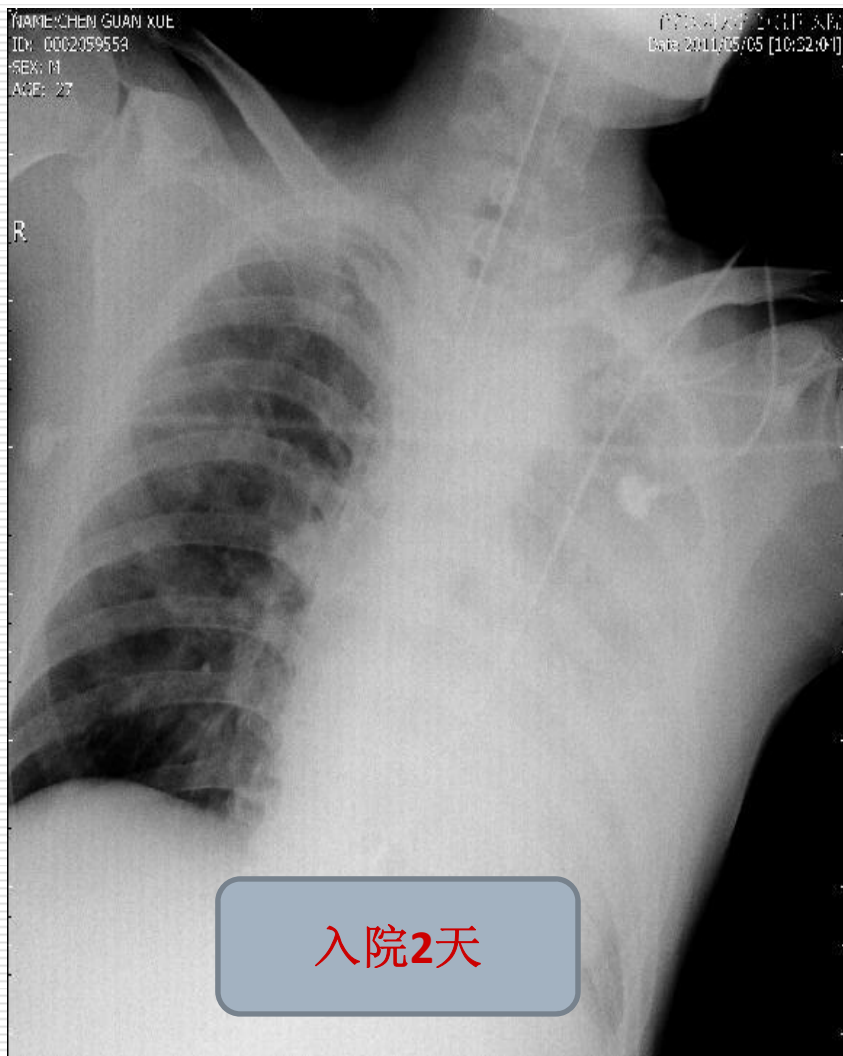
## 诊治经过

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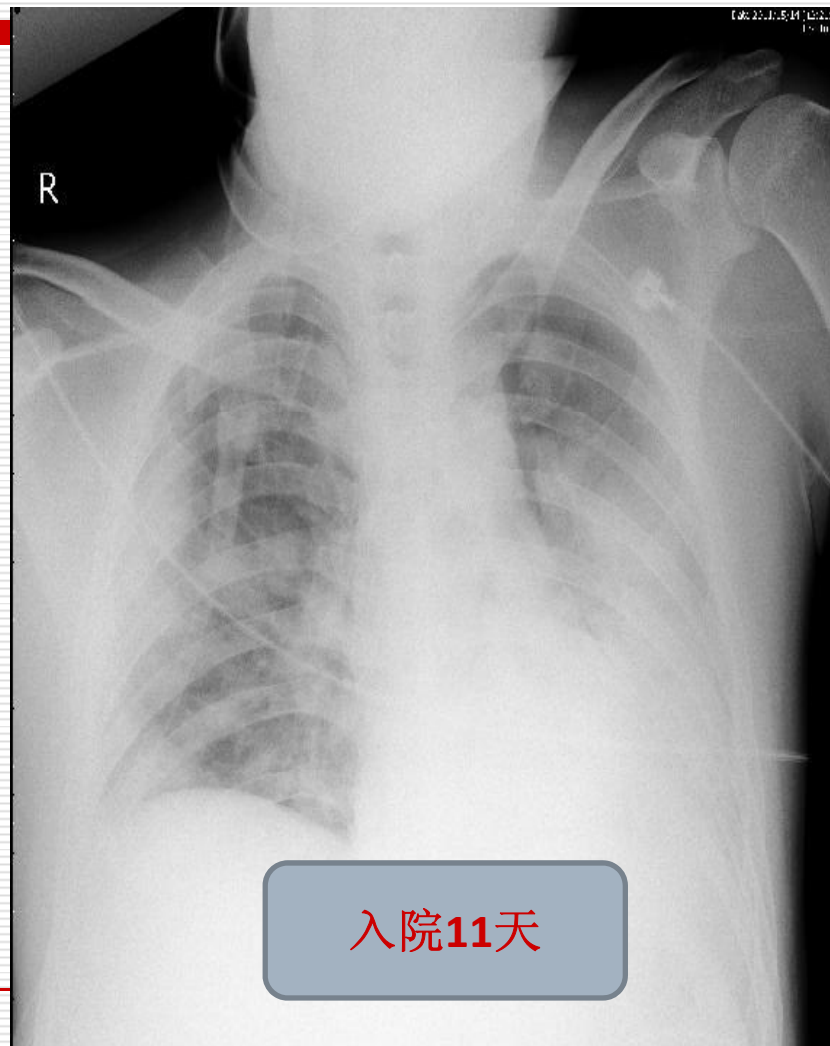
- 给予更昔洛韦抗病毒治疗
- 应用丙种球蛋白、胸腺肽免疫调节
- 联合应用中药抗病毒治疗



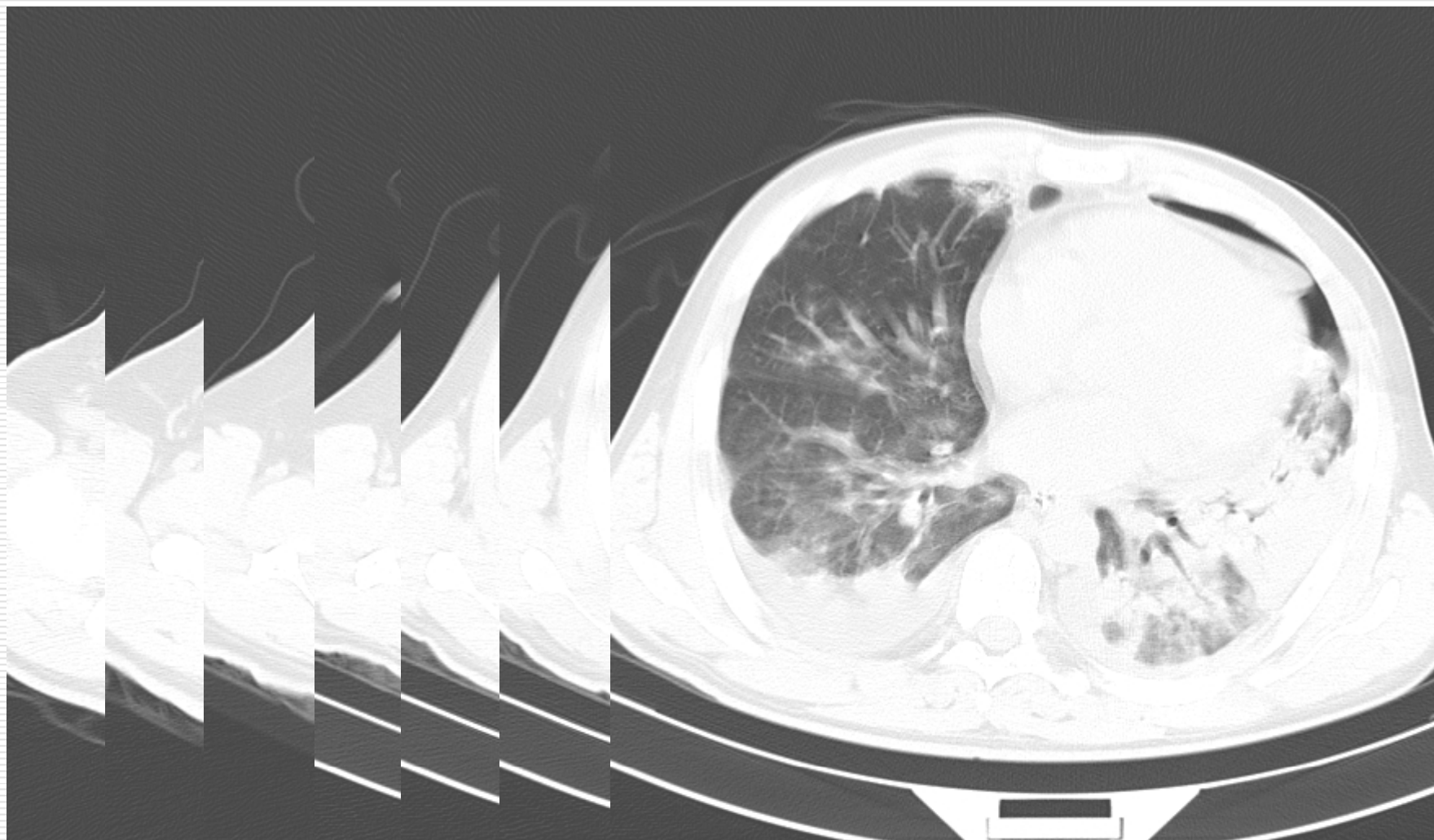
# 诊治经过



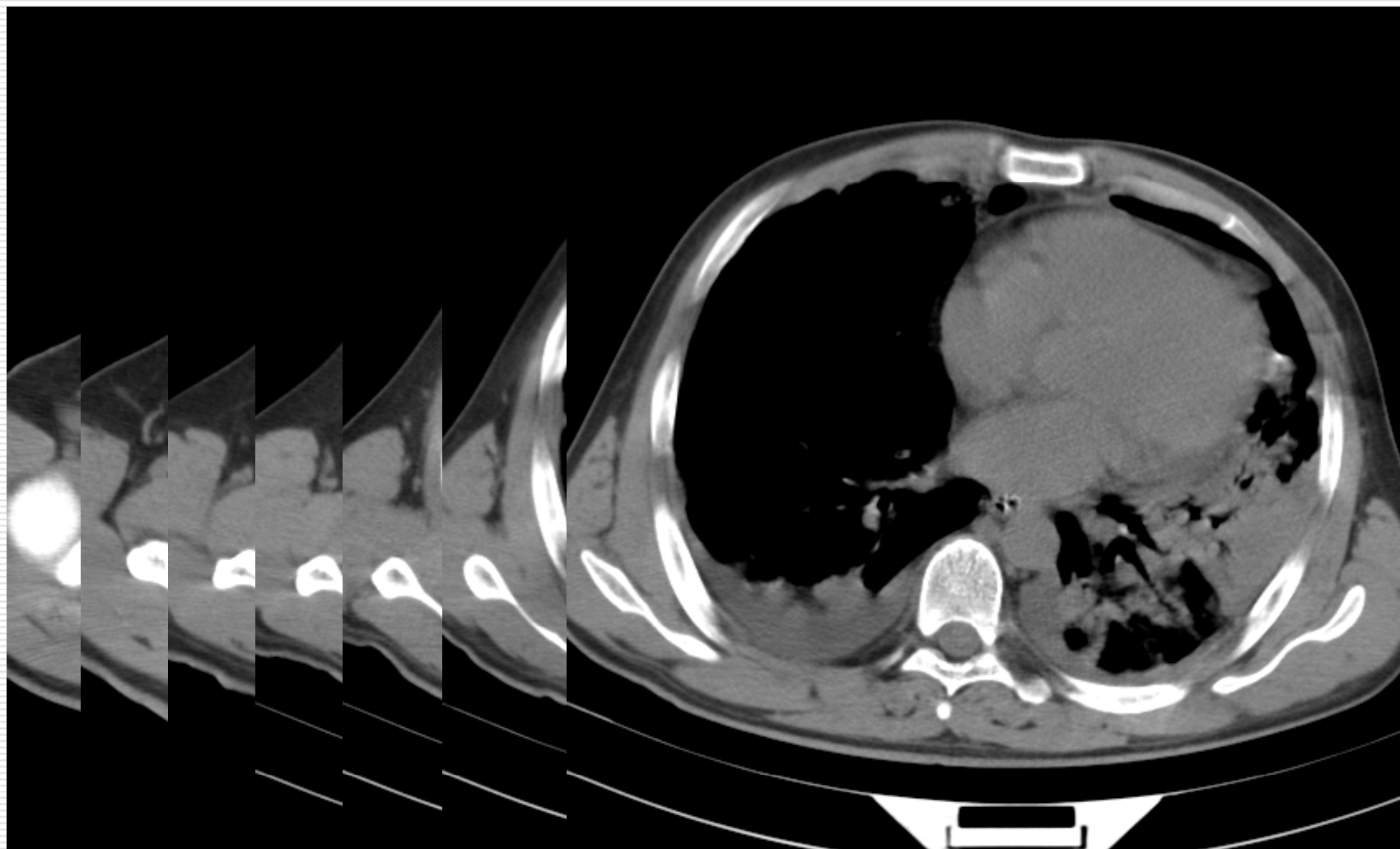
# 诊治经过



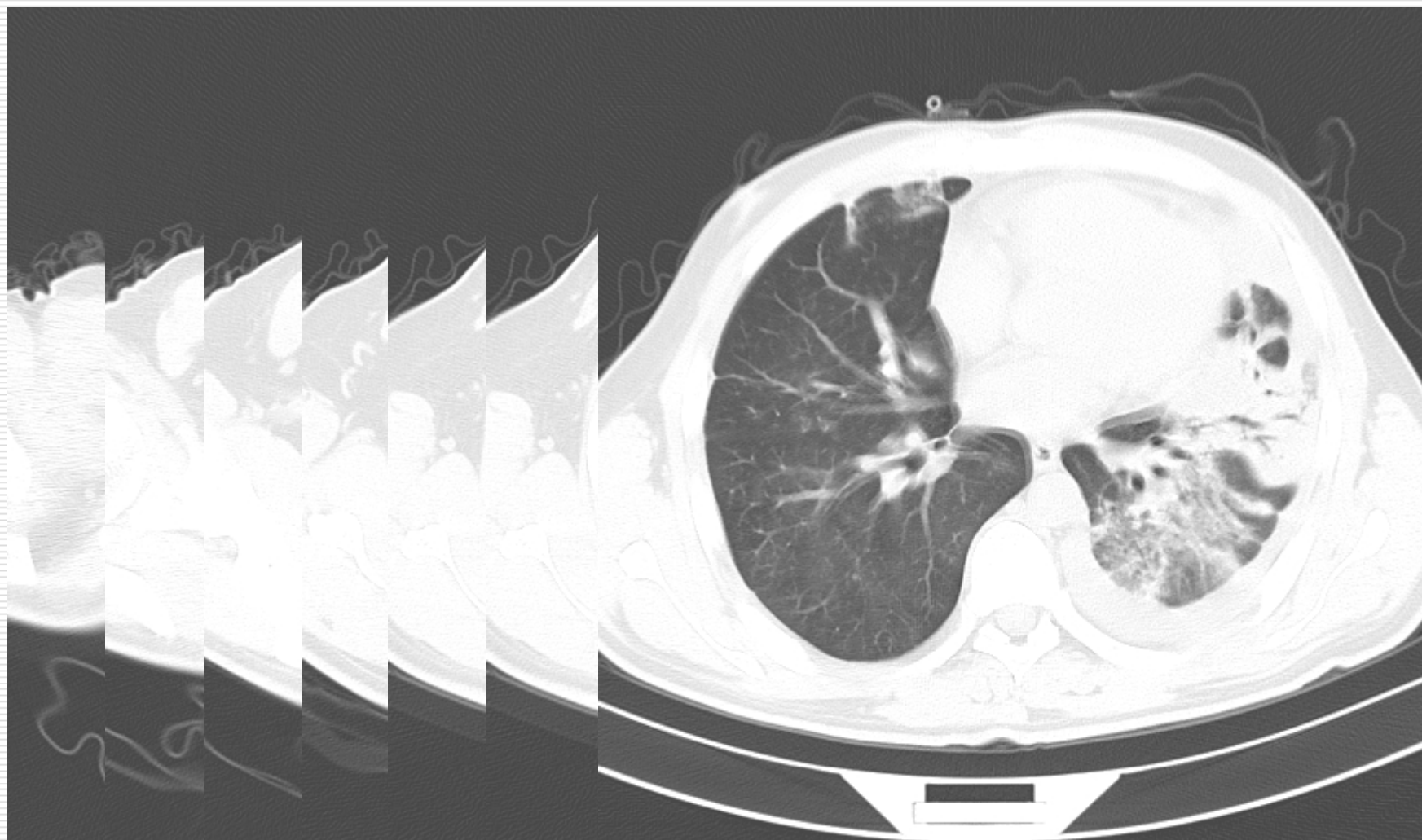
2011-05-18HRCT (入院第16天)



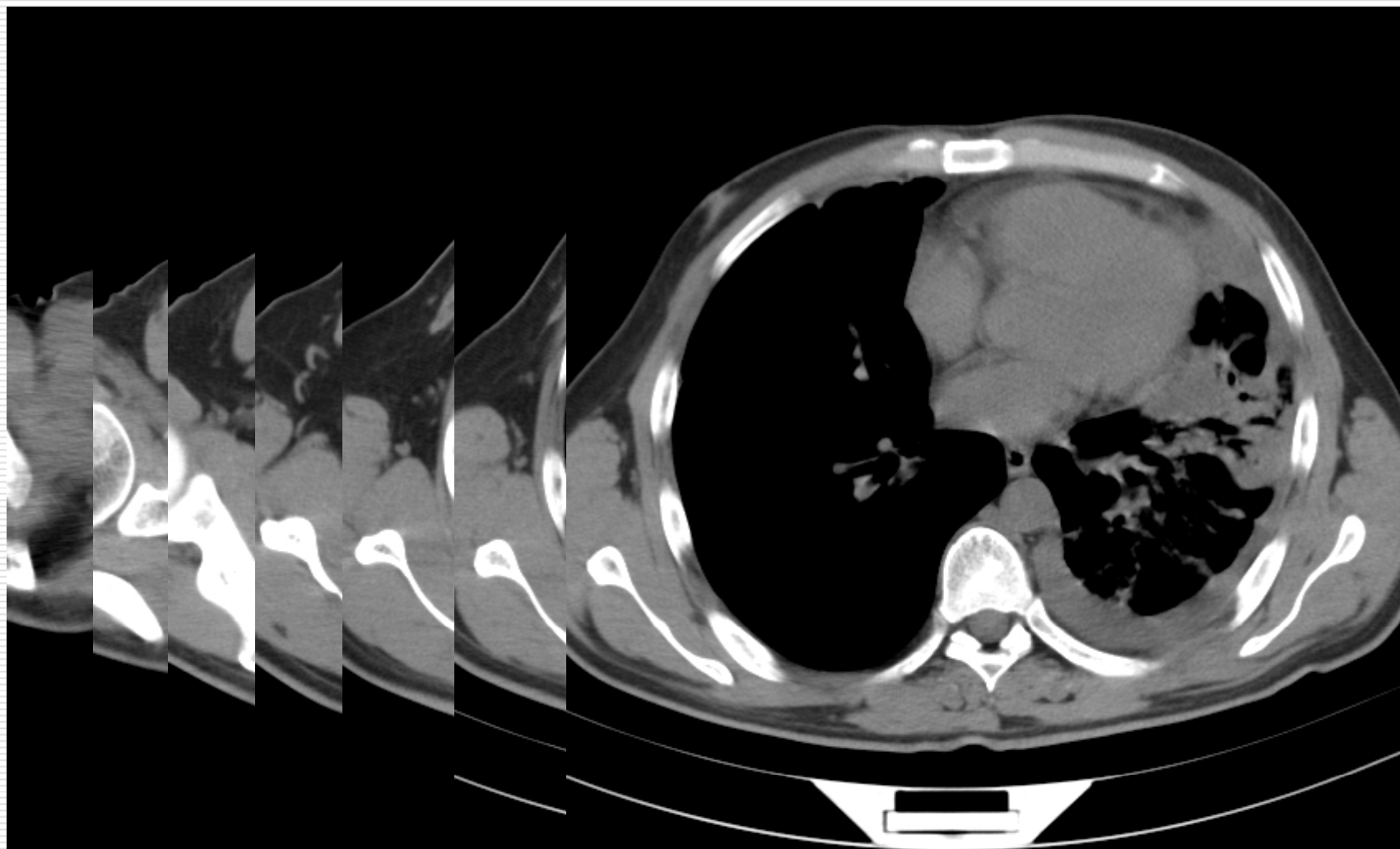
2011-05-18HRCT (入院第16天)



2011-05-28HRCT (入院第26天)



2011-05-28HRCT (入院第26天)



# 出院前





# CHEST<sup>®</sup>

Official publication of the American College of Chest Physicians

## **Viral Infection in Adults Hospitalized With Community-Acquired Pneumonia : Prevalence, Pathogens, and Presentation**

Jennie Johnstone, Sumit R. Majumdar, Julie D. Fox and Thomas J. Marrie

*Chest* 2008;134;1141-1148; Prepublished online August 8, 2008;  
DOI 10.1378/chest.08-0888

**From Canada**

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## 方式与方法

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- 时间：2004-2006
  - 地点：5家医院，前瞻性临床研究
  - 方法：细菌学培养、血清学检查、咽拭子实验
  - 流感病毒、人变性肺病毒、呼吸道合孢病毒、鼻病毒、副流感病毒、冠状病毒和腺病毒。
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## 结果

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- 193人入选，平均71岁，51%男性，47%SCAP。
  - 75（39%）病源学。其中病毒29例（15%），细菌38例（20%），8例混合感染（4%）。
  - 流感7，人变性肺病毒7，呼吸道合孢3，腺病毒2
  - 肺链37%
  - 与细菌感染相比，病毒感染者年龄更大（76 vs 64， $p=0.01$ ），同时合并基础疾病（66% vs 32%， $p=0.02$ ）
  - 细菌和病毒感染在临床表现和预后方面没有差异。
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**Table 1—Distribution of Viral and Bacterial Respiratory Pathogens**

Pathogens	No.
<b>Viral pathogens* (n = 29)</b>	
Influenza A	3
Influenza B	4
hMPV	7
RSV	5
Parainfluenza 1–4	3
Rhinovirus	4
Coronavirus OC43	4
Coronavirus 229E	0
Coronavirus NL63	0
Adenovirus	2
<b>Bacterial pathogens† (n = 38)</b>	
Typical pathogens	
<i>S pneumoniae</i>	14
Aerobic Gram-negative bacilli	6
Moraxella spp	3
Streptococcal spp	2
<i>Staphylococcus aureus</i>	2
Haemophilus spp	2
Anaerobes	2
<b>Atypical pathogens</b>	
<i>M pneumoniae</i>	4
<i>C pneumoniae</i>	4
<i>L pneumophila</i>	1
<i>C psittaci</i>	0
<i>C burnetii</i>	0

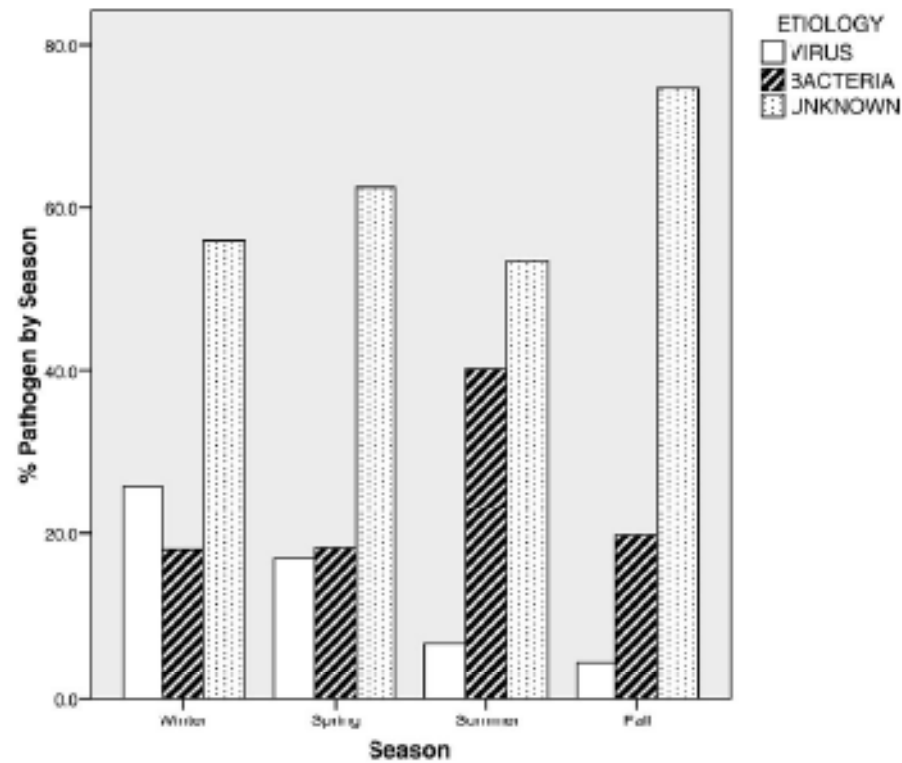
\*Three patients had two viruses isolated: parainfluenza plus hMPV; influenza plus RSV; and influenza plus adenovirus.

†Two patients had two different bacteria isolated: *M pneumoniae* and *C pneumoniae*; and Moraxella spp and aerobic Gram-negative bacilli.

**Table 2—Characteristics of Patients With Viral, Bacterial, Mixed, and Unknown Respiratory Infections\***

Characteristics	Unknown (n = 118)	Mixed Infection† (n = 8)	Viral Infection (n = 29)	Bacterial Infection (n = 38)	p Value (Viral vs Bacterial Infection)
<b>Sociodemographics</b>					
Age ≥ 65 yr	79 (67)	4 (50)	19 (65)	19 (50)	0.20
Male sex	57 (48)	3 (38)	18 (62)	19 (50)	0.32
Nursing home	1 (1)	0 (0)	0 (0)	1 (3)	0.38
Current smoker	27 (23)	5 (63)	6 (21)	17 (45)	0.04
Alcohol use	4 (3)	0 (0)	1 (3)	2 (5)	0.72
Influenza vaccination‡	67 (57)	4 (50)	18 (62)	17 (45)	0.16
Pneumococcal vaccination§	43 (36)	2 (25)	15 (52)	8 (21)	0.009
<b>Comorbidities</b>					
Cardiovascular disease	45 (38)	2 (25)	19 (66)	12 (32)	0.006
Respiratory disease	46 (39)	4 (50)	16 (55)	12 (32)	0.052
Neurologic disease	28 (24)	1 (13)	6 (21)	10 (26)	0.59
Diabetes requiring insulin	11 (9)	1 (13)	1 (3)	2 (5)	0.72
Impaired functional status	43 (36)	1 (13)	14 (48)	8 (21)	0.019
<b>Symptoms and signs</b>					
Altered mental status	8 (7)	1 (13)	0 (0)	3 (8)	0.12
Cough	100 (85)	7 (88)	26 (90)	32 (84)	0.52
Sputum	75 (64)	7 (88)	20 (69)	22 (58)	0.35
Dyspnea	99 (84)	5 (63)	28 (97)	35 (92)	0.45
Chest pain	26 (22)	1 (13)	2 (7)	14 (37)	0.004
Respiratory rate ≥ 30 breaths/min	20 (17)	2 (25)	5 (17)	9 (24)	0.48
Abnormal temperature (> 38.5 or < 35°C)	8 (7)	2 (25)	5 (17)	10 (26)	0.38
Hypoxia (oxygen saturation < 92%)	93 (79)	6 (75)	27 (93)	31 (82)	0.17
<b>Investigations</b>					
Abnormal WBC (> 12 or < 4 cells/mL)	69 (59)	4 (50)	4 (14)	28 (74)	< 0.001
Lobar infiltrate on chest radiograph	87 (74)	3 (38)	18 (62)	32 (84)	0.04
Pleural effusion on chest radiograph	28 (24)	0 (0)	5 (17)	10 (26)	0.38
<b>Pneumonia severity</b>					
PSI class IV or V	64 (54)	4 (50)	16 (55)	18 (47)	0.53

\*Values are given as No. (%), unless otherwise indicated.



**\*Definition of Seasons:**

Winter: December, January, February

Spring: March, April, May

Summer: June, July, August

Fall: September, October, November

FIGURE 1. Seasonal distribution of pneumonia, arranged by pathogen.

## 结论

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- 在**CAP**住院病人中呼吸道病毒感染是常见的。病原学明确的患者中占**39%**，在所有观察病人中占**15%**。
  - 流感病毒、人变性肺病毒和呼吸道合孢病毒最为常见。
  - 鉴别是否感染病毒仍然很困难。
  - 建议此类病人常规行病毒学检查。
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Respiratory infection

## Incidence and characteristics of viral community-acquired pneumonia in adults

L C Jennings,<sup>1,2</sup> T P Anderson,<sup>1</sup> K A Beynon,<sup>1</sup> A Chua,<sup>1</sup> R T R Laing,<sup>3</sup> A M Werno,<sup>1,2</sup>  
S A Young,<sup>1</sup> S T Chambers,<sup>2</sup> D R Murdoch<sup>1,2</sup>



# Methods

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- Adults admitted to Christchurch Hospital over a 1-year period with CAP were included in the study.
  - Blood and sputum cultures, urinary antigen testing for *Streptococcus pneumoniae* and *Legionella pneumophila*, antibody detection in paired sera and detection of respiratory viruses in nasopharyngeal swabs by immunofluorescence, culture and PCR.
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# Results

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- 304 patients with CAP, a viral diagnosis was made in 88 (29%), with rhinoviruses and influenza A being the most common.
  - Two or more pathogens were detected in 49 (16%) patients, 45 of whom had mixed viral and bacterial infections.
  - There were no reliable clinical predictors of viral pneumonia, although several variables were independently associated with some aetiologies. The presence of myalgia was associated with pneumonia caused by any respiratory virus (OR 3.62, 95% CI 1.29 to 10.12) and influenza pneumonia (OR 190.72, 95% CI 3.68 to 9891.91).
  - Mixed rhinovirus/pneumococcal infection was associated with severe disease.
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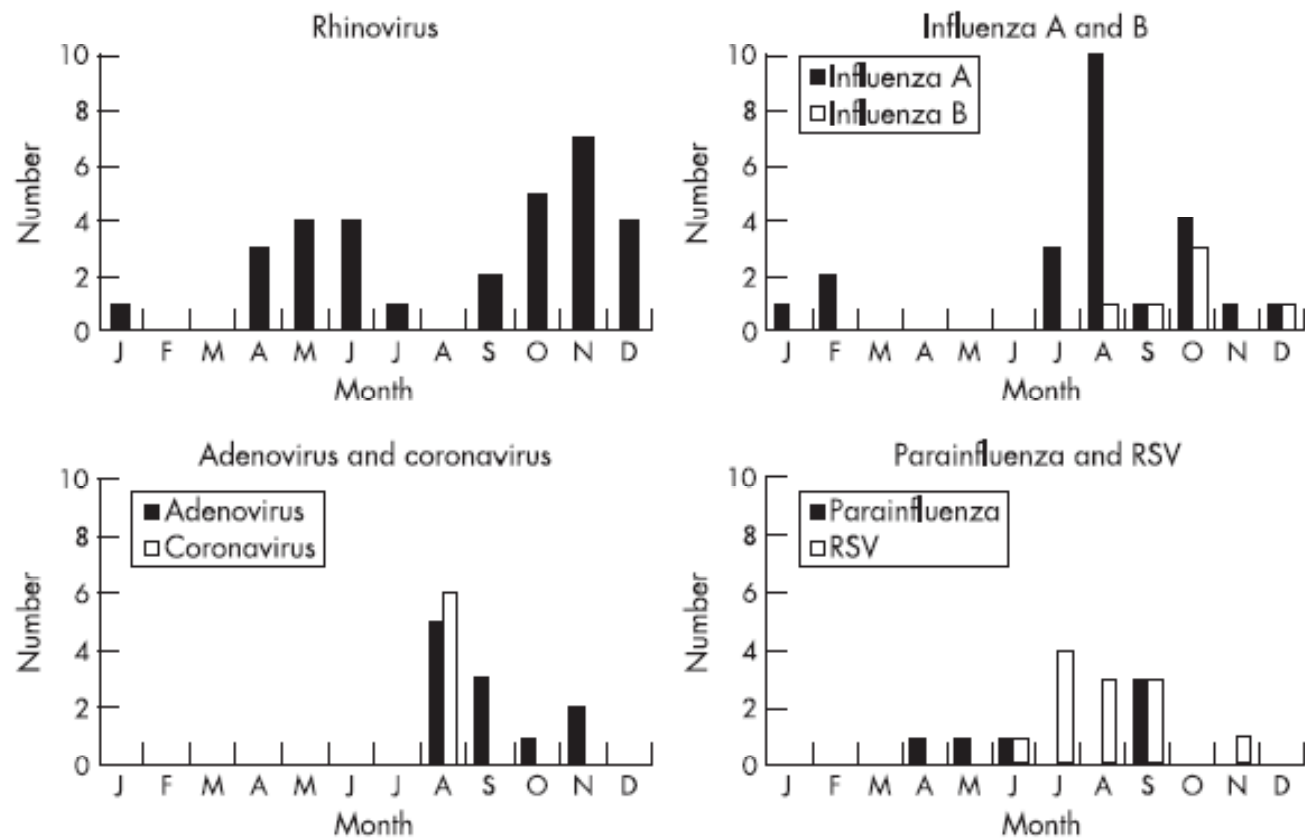
**Table 1** Viral pathogens identified in adults with community-acquired pneumonia

Virus	All subjects* (n = 304)	Subjects with full array of viral diagnostic tests* (n = 225)
Rhinovirus	31 (10)	30 (13)
Influenza A	23 (8)	22 (10)
Influenza B	6 (2)	5 (2)
RSV	12 (4)	8 (4)
Adenovirus	11 (4)	10 (4)
Parainfluenza	6 (2)	2 (1)
Coronavirus 229E	4 (1)	3 (1)
Coronavirus OC43	2 (1)	2 (1)
Metapneumovirus	0 (0)	0 (0)
Total	95	82

Data shown as number (%).

\*More than one virus was detected in some patients.

RSV, respiratory syncytial virus.



**Figure 1** Monthly distribution of cases of virus-associated community-acquired pneumonia. RSV, respiratory syncytial virus.

# Conclusions

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- Virus-associated CAP is **common** in adults.
  - Polymicrobial infections involving bacterial and viral pathogens are frequent and may be associated with severe pneumonia.
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BRIEF REPORT

**Viral and *Mycoplasma pneumoniae* community-acquired pneumonia and novel clinical outcome evaluation in ambulatory adult patients in China**

B. Cao • L.-L. Ren • F. Zhao • R. Gonzalez • S.-F. Song •  
L. Bai • Y. D. Yin • Y.-Y. Zhang • Y.-M. Liu • P. Guo •  
J.-Z. Zhang • J.-W. Wang • C. Wang

From China

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**Table 1** Etiology of patients with ambulatory community-acquired pneumonia (CAP)

	<i>n</i>	%
Bacteria	13	6.6
<i>Streptococcus pneumoniae</i>	8	
<i>Escherichia coli</i>	2	
<i>Klebsiella pneumoniae</i>	2	
<i>Pseudomonas aeruginosa</i>	1	
Virus	19	9.6
IFVA	9	
PIV	4	
AdV	4	
hMPV	2	
<i>Mycoplasma pneumoniae</i>	58	29.4
Mycoplasma + virus	5	2.5
RSV	2	
HRV	2	
COV	1	
Bacteria + virus	4	2.1
<i>Streptococcus pneumoniae</i> + PIV	1	
<i>Klebsiella pneumoniae</i> + IFVA	1	
<i>Streptococcus</i> spp. + AdV	1	
<i>Ralstonia pickettii</i> + IFVA	1	
<i>Haemophilus influenzae</i> + Mycoplasma + IFVA	1	0.5
<i>Mycobacterium tuberculosis</i>	2	1
Unknown	95	48.2
Total	197	100

IFVA: influenza virus A; PIV: parainfluenza virus; AdV: adenovirus; hMPV: human metapneumovirus; RSV: respiratory syncytial virus; HRV: human rhinovirus; COV: coronavirus

**Table 2** Comparison between CAP patients with different causative pathogens. The data are presented as means±standard deviations, no./total no. (%), or median (range)

	Bacteria group* n=18	Virus group n=19	Mycoplasma group* n=63	Unknown group n=95	p-value
Age (years)	45.1±15.4	51.6±20.1	28.6±11.0	41.2±20.6	<0.001 <sup>a</sup>
Male gender	11/18 (61.1)	12/19 (63.2)	27/63 (42.9)	47/95 (49.5)	0.350
Comorbidities	7/18 (38.9)	2/19 (10.5)	3/63 (4.8)	16/95 (16.8)	0.003 <sup>b</sup>
PSI	61.4±34.4	59.3±24.5	24.8±11.8	39±24.5	<0.001 <sup>c</sup>
<b>Symptoms</b>					
Tmax (°C)	39±1.1	39.1±1.1	38.9±0.8	38.8±0.8	0.527
Cough	17/18 (94.4)	19/19 (100)	60/62 (96.8)	82/89 (92.1)	0.323
White sputum	10/18 (55.6)	10/19 (52.6)	36/62 (58.1)	55/89 (61.8)	0.899
Yellow or bloody sputum	6/18 (33.3)	8/19 (42.1)	16/62 (25.8)	15/89 (16.9)	0.101
Shortness of breath	3/18 (16.7)	3/19 (15.8)	3/62 (4.8)	5/89 (5.6)	0.159
Chest pain	3/18 (16.7)	1/19 (5.3)	6/62 (9.7)	7/89 (7.9)	0.619
Adequate specimen for gram stain or culture	11/18 (61.1)	10/19 (52.6)	13/62 (21.0)	38/87 (43.7)	0.001 <sup>d</sup>
<b>Radiology</b>					
Patchy	15/18 (83.3)	13/19 (68.4)	50/63 (79.4)	84/95 (88.4)	0.142
Poorly defined nodules	0/18 (0)	5/19 (26.3)	0/63 (0)	0/95 (0)	
Consolidation	2/18 (11.1)	4/19 (21.5)	10/63 (15.9)	0/95 (0)	
Bilateral infiltrate	4/18 (22.2)	5/19 (26.3)	13/63 (20.6)	15/95 (15.8)	0.676
Plural fluid	1/18 (5.6)	1/19 (5.3)	3/63 (4.8)	1/95 (1.1)	0.5
Leukocyte count (×10 <sup>9</sup> /L)	12.6±8.2	7.9±4.3	7.4±2.2	9.1±3.6	<0.001 <sup>e</sup>
Granulocyte (%)	82.3±8.5	76.0±13.2	74.0±7.5	78.3±8.3	<0.001 <sup>f</sup>
<b>Initial antibiotic</b>					
β-lactams	2/18 (11.1)	5/19 (26.3)	33/62 (53.2)	29/89 (32.6)	0.004 <sup>g</sup>
Macrolides	1/18 (5.6)	0/19 (0)	8/62 (12.9)	14/89 (15.7)	0.230
Quinolones	8/18 (44.4)	9/19 (47.4)	16/62 (25.8)	33/89 (37.1)	0.186
β-lactams + macrolides	5/18 (27.8)	1/19 (5.3)	4/62 (6.5)	10/89 (11.2)	0.046 <sup>h</sup>
<b>Parenteral antibiotic</b>					
T1 (days)	4 (3–5)	5 (3–9)	6 (4–8)	5 (3–7)	0.036 <sup>i</sup>
T2 (days)	3 (2–4)	3 (2–4)	3.25 (2–5)	2 (1–4.5)	0.310
R1 (days)	16 (10–22)	11 (8–16)	10 (7–15.25)	9 (6–13)	0.010 <sup>j</sup>
R2 (days)	12 (8–16)	8 (4–13)	8 (5–13)	6.5 (4–10)	0.043 <sup>k</sup>
Deferescence 24 h after antibiotic therapy	1/16 (5.6)	3/17 (15.8)	7/62 (11.3)	26/85 (29.2)	0.014 <sup>l</sup>
Deferescence 72 h after antibiotic therapy	8/16 (44.4)	9/17 (47.4)	26/62 (41.9)	55/85 (61.8)	0.053
Change of antibiotics	9/17 (52.9)	7/17 (36.8)	43/63 (69.4)	46/89 (51.7)	0.594
Duration of antibiotic therapy (days)	10 (7.25–18.75)	9.5 (7.25–13)	9 (7–11)	9 (7–12)	0.774
Cost (US \$)	196 (111–2097)	170 (122–300)	126 (104–169)	153 (115–238)	0.060



# Conclusion

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- *M. pneumoniae* and respiratory viruses (IFVA, PIV, AdV, hMPV) were the most frequent pathogens found in ambulatory adult CAP patients.
  - Quinolones were better than  $\beta$ -lactams, macrolides, or  $\beta$ -lactams + macrolides in the resolution of fever of *M. pneumoniae* pneumonia.
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## **Viral pneumonia**

Maria Angeles Marcos<sup>a</sup>, Mariano Esperatti<sup>b</sup> and Antoni Torres<sup>b</sup>

**Current Opinion in Infectious Diseases 2009; 22: 143-147**

**From Spain**

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# Recent Finding

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- Better quality diagnostic tests, such as nucleic acid amplification techniques, have markedly improved our ability to detect multiple viral pathogens.
  - With these diagnostic tools, a viral cause can be established in more than **half of patients with CAP**.
  - **Influenza A and RSVs** are the most frequent causes of viral pneumonia followed by adenovirus, parainfluenza virus types 1, 2, and 3, and influenza.
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- Although some clinical findings have been more frequent with viral infection, no clear-cut clinical signs have been shown to be predictive of specific cause.
  - Of more interest is the association of **mixed virus-bacteria infection** with poorer severity scores found in some studies.
  - Unfortunately, there are no other licensed **antivirals** or **vaccines** against the large variety of clinically important respiratory viruses with the notable exception of influenza.
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# Summary

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- Given the high rate of viral infection in CAP and its probable association with poorer prognosis in mixed virus-bacteria infection, an extensive evaluation for virus in some populations seems appropriate.
  - These findings can be useful for a more appropriate management of these patients.
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## 小结

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- ❑ 病毒感染在**CAP**占有较高的发病率。
  - ❑ 临床症状、体征、**X**线无特异性。
  - ❑ 特异性病毒学检查可明确诊断。
  - ❑ 无特异性治疗药物
  - ❑ 混合感染预后差。
  - ❑ 老年人更易合并病毒感染。
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发热

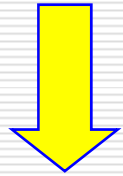
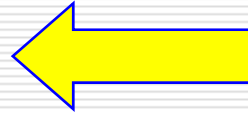
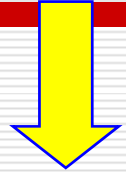
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肺部感染

病毒感染

ARDS

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感谢您的关注  
请提宝贵意见

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