Achoo, achis, ATCHIN! Vaccine you…

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Community-acquired pneumonia (CAP) is an important cause of morbidity, mortality and expenditure of health resources. Globally, lower respiratory tract infection, which includes CAP, was the fourth leading cause of death in 2015 [1]. In developed countries CAP is the leading cause of death by infectious disease [2], and in 2014 it was the eighth cause of death in the USA [3].

Within the 28 countries that form the European Community, pneumonia and other acute lower respiratory tract infections are associated with an estimated annual expenditure of €46 billion in direct costs and disability-adjusted life-years (DALY) [4]. Together with the financial burden it is also important to acknowledge that CAP contributes to a high antibiotic usage which has future implications in the development of antibiotic resistance.

CAP can affect any age group, hence we are all at risk, even though some are more at risk than others. Several risk factors for CAP are well recognised and studied [5], including age above 65 years [6], alcoholism [7], cigarette smoking [8], immunosuppression [7], and comorbidities such as COPD [9], cardiovascular disease, cerebrovascular disease, chronic liver or renal disease, diabetes mellitus and dementia [10].

The increase in life expectancy and the growing prevalence of comorbidities [11] highlight the importance of pneumonia prevention but also the importance of adequate control of chronic conditions. For instance, the severity of airway obstruction in COPD has been linked with the incidence of CAP [12]. Likewise, immunosuppressive therapy, including the use of oral steroids, are important risk factors for the development of CAP [5, 13]. The increased risk of pneumonia is an important safety concern when prescribing immunosuppressive therapy [13].

A comprehensive analysis of studies in the adult population of western Europe from 2013 by Torres *et al.* [5] investigated the association between the incidence of CAP and age, comorbidities and lifestyle factors. The association and the weight of different modifiable risk factors lead to a bundle of lifestyle interventions

Note to the title: Achoo (English), achis (Spanish), atchim (Portuguese), atchis (Catalan), etciu (Italian), atchoum (French), hatschi (German), hatsjie (Dutch).

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TABLE 1 The ATCHIN acronym for modifiable risk factors for community-acquired pneumonia

	Risk factor	Recommendation
A	**A**lcohol	Reduce alcohol consumption
T	**T**obacco	Tobacco/smoking cessation
C	**C**hronic conditions and **C**omorbidities	Adequate management of chronic conditions and comorbidities
H	Dental **H**ygiene	Ensure good oral hygiene and regular dental appointments
I	**I**mmussupressive therapy and contact with **I**nfants and children	Judicious use of immunosuppressive drugs (including oral steroids) and avoidance of infants and children with lower respiratory tract infections
N	**N**utritional status	Dietary advice to ensure good nutritional status

Adapted from [5].

to reduce the risk of CAP in adults. These included smoking cessation, responsible alcohol consumption, dental hygiene, dietary advice to ensure good nutritional status, the avoidance of infants and children with lower respiratory tract infections, and vaccination against influenza virus and *Streptococcus pneumoniae*. Based on this bundle we propose an easy to remember acronym – ATCHIN – with a group of interventions to reduce the risk of CAP in adults that aims to simplify its implementation by healthcare professionals (table 1).

Achoos, Achis, ATCHIN! Bless you. In this case, vaccinate yourself and vaccinate your patients against influenza virus and *S. pneumoniae*. And take every opportunity to act on modifiable risk factors for CAP. ATCHIN!

References

1 GBD 2015 Mortality and Causes of Death Collaborators. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet* 2016; 388: 1459–1544.

2 Niederman MS, McCombs JS, Unger AN, *et al.* The cost of treating community-acquired pneumonia. *Clin Ther* 1998; 20: 820–837.

3 Kenneth D, Kochanek MA, Sherry L, *et al.* Deaths: Final Data for 2014. National Vital Statistics Reports 2016; 64 (June 30, 2016).

4 The Economic Burden of Lung Disease. *In*: Gibson J, Loddenkemper R, Sibille Y, *et al.*, eds. European Lung White Book. Sheffield, European Respiratory Society/European Lung Foundation, 2013; pp. 16–27.

5 Torres A, Peetermans WE, Viegi G, *et al.* Risk factors for community-acquired pneumonia in adults in Europe: a literature review. *Thorax* 2013; 68: 1057–1065.

6 Welte T, Torres A, Nathwani D. Clinical and economic burden of community-acquired pneumonia among adults in Europe. *Thorax* 2012; 67: 71–79.

7 Koivalu I, Sten M, Makela PH. Risk factors for pneumonia in the elderly. *Am J Med* 1994; 96: 313–320.

8 Baik I, Curhan GC, Rimm EB, *et al.* A prospective study of age and lifestyle factors in relation to community-acquired pneumonia in US men and women. *Arch Intern Med* 2000; 160: 3082–3088.

9 Mannino DM, Davis KJ, Kiri VA. Chronic obstructive pulmonary disease and hospitalizations for pneumonia in a US cohort. *Respir Med* 2009; 103: 224–229.

10 Polverino E, Torres Marti A. Community-acquired pneumonia. *Minerva Anestesiol* 2011; 77: 196–211.

11 Ward BW, Black LI. State and regional prevalence of diagnosed multiple chronic conditions among adults aged ⩾18 years — United States, 2014. *MMWR Morb Mortal Wekly Rep* 2016; 65: 735–738.

12 Müllerova H, Chigbo C, Hagan GW, *et al.* The natural history of community-acquired pneumonia in COPD patients: a population database analysis. *Respir Med* 2012; 106: 1124–1133.

13 Almirall J, Serra-Prat M, Bolíbar I, *et al.* Risk factors for community-acquired pneumonia in adults: a systematic review of observational studies. *Respiration* 2017; 94: 299–311.