



EPOS2020: the European guidelines for rhinosinusitis and nasal polyps

Sponsored by Novartis , Sanofi, Medtronic and the European Rhinologic Society. (ERS)



What is post viral rhinosinusitis and why you should not prescribe antibiotics

De Yun Wang, MD, PhD

Department of Otolaryngology

National University of Singapore

Acute rhinosinusitis (ARS)

Adults



Definition:

Sudden onset of two or more symptoms:

Children



- One of which should be either:
 - nasal blockage/obstruction/congestion or
 - nasal discharge (anterior/posterior nasal drip)
- ± facial pain/pressure
- ± reduction or loss of smell

- Nasal blockage/obstruction/congestion
- Or discoloured nasal discharge
- Or cough (daytime and night-time)

for <12 weeks

with symptom free intervals if the problem is recurrent, with validation by telephone or interview.

Figure 4.1.1. Definition of acute rhinosinusitis.

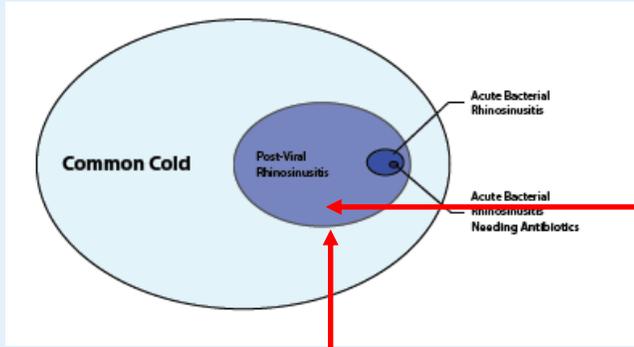
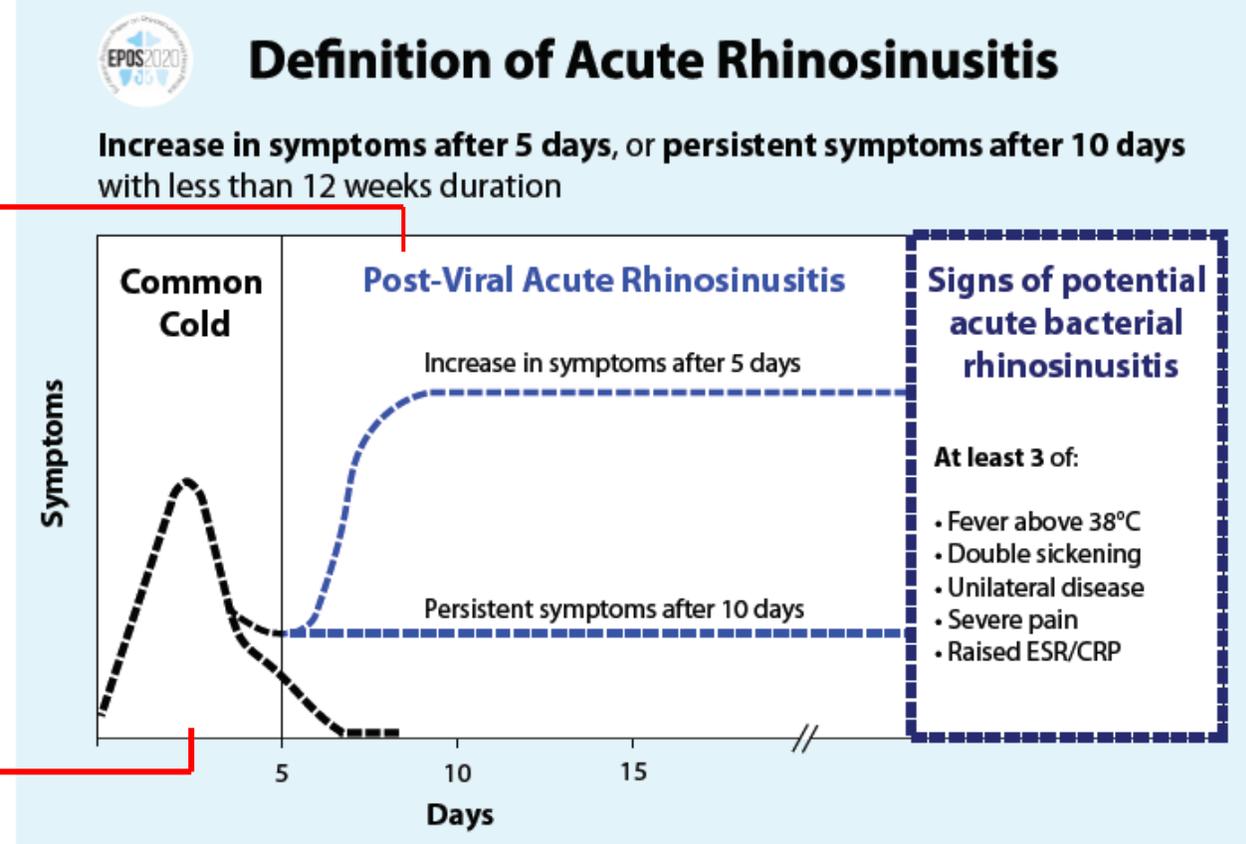
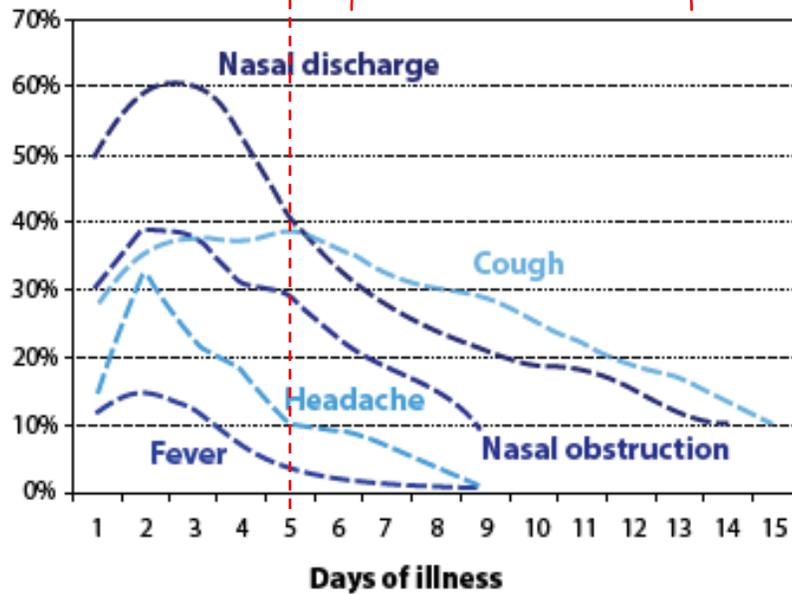
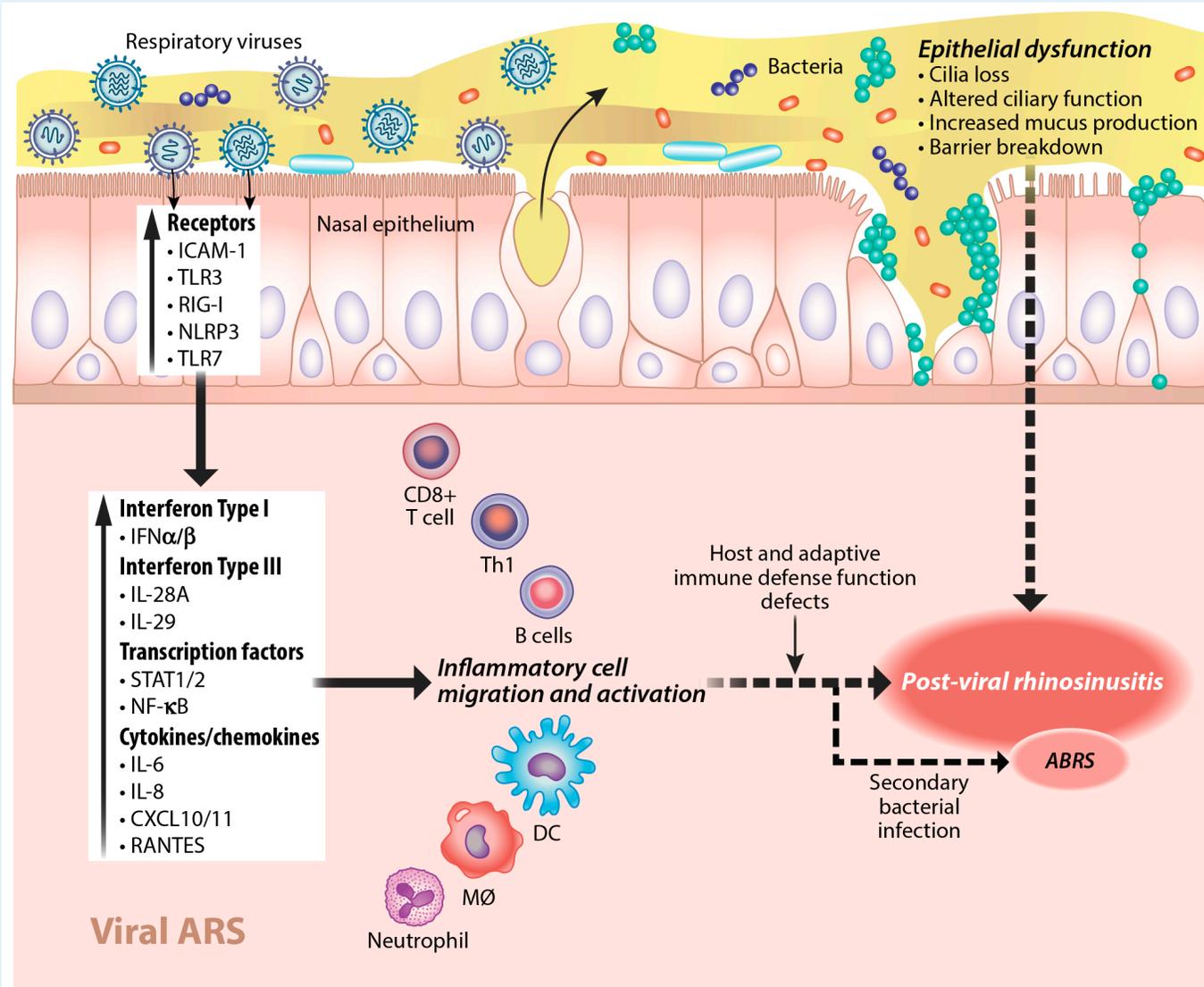


Figure 4.1.3. Common cold symptoms.



CRP, C-reactive protein; ESR, erythrocyte sedimentation rate.



Key points:

- Since EPOS 2012, there has been increasing experimental data supporting the fact that nasal epithelium is the primary portal of entry for respiratory viruses as well as an active component of initial host responses against viral infection.
- The cascade of inflammation initiated by nasal epithelial cells will lead to damage by the infiltrating cells, causing oedema, engorgement, fluid extravasation, mucus production and sinus obstruction in the process, eventually leading to **postviral ARS** or even **ABRS**.

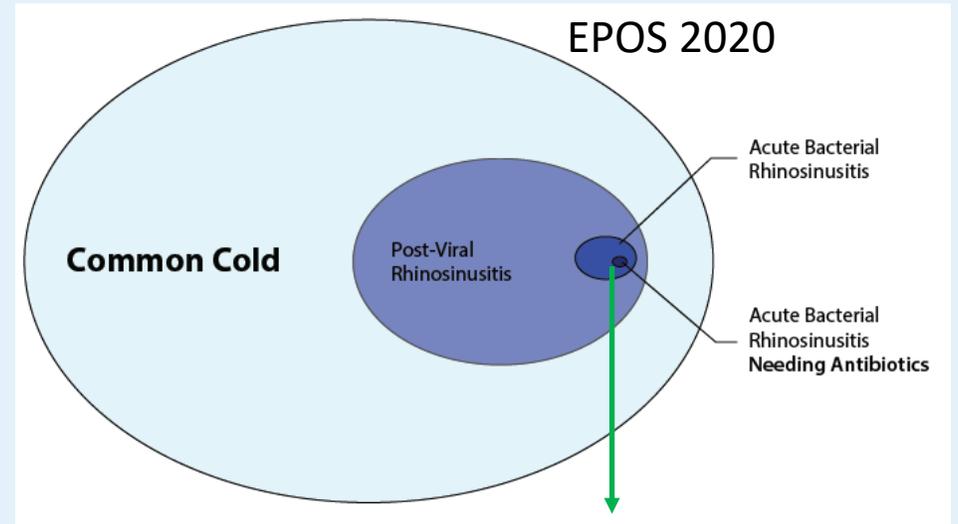
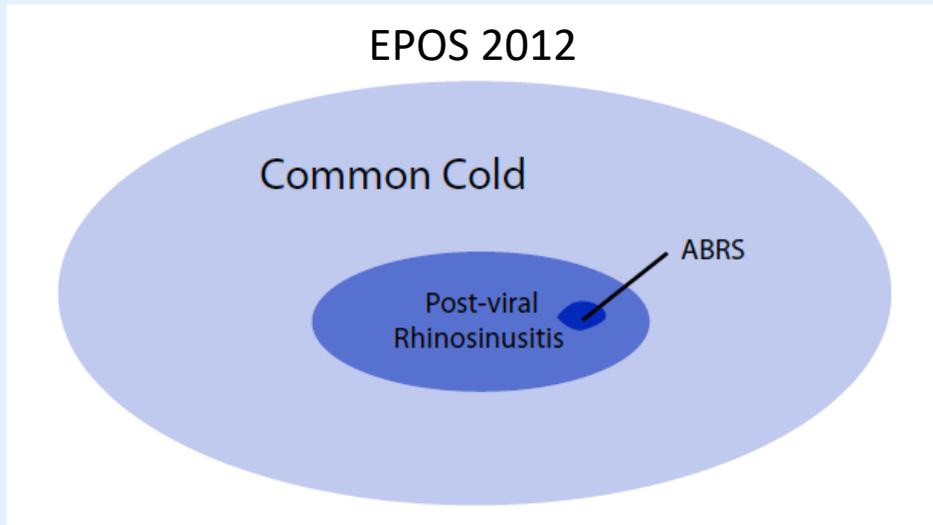
Table 4.1.1. Acute rhinosinusitis (ARS) incidence and prevalence in primary care studies.

Study Author, year	Evidence	Type of study
Hoffmans 2018 ⁽²¹⁾	Prevalence of (post-viral and ABRS) ARS based on the EPOS criteria 18% (17-21%)	Prospective population study
Hoffmans 2015 ⁽¹⁷⁾	Incidence of (acute) rhinosinusitis in primary care in the Netherlands 18.8/1000 patient years	Retrospective primary care morbidity registration
Uijen 2011 ⁽¹⁷⁴⁾	Incidence of acute rhinosinusitis during 2002 to 2008: 0-4 years: 2/1000 per year in all years. 5-14 years: 7/1000 in 2002 reducing to 4/1000 in 2008 (p<0.001) 12-17 years: 18/1000 per year in all years.	Retrospective, population study
Oskarsson 2011 ⁽¹⁷⁵⁾	Incidence of ARS is 3.4 cases per 100 inhabitants per year, or 1 in 29.4 patients visit their GP due to acute rhinosinusitis.	Retrospective population study
Wang 2011 ⁽¹⁷⁶⁾	6-10% of patients present at GP, otolaryngologist or paediatric out-patient practices with ARS	Multi-national questionnaire survey
Bhattacharyya 2011 ⁽¹⁷¹⁾	Point prevalence of 0.035% for recurrent acute rhinosinusitis during 2003-2008.	Retrospective cohort study
Meltzer, Kaliner, Kaliner 2011, 1997, 1997 ^(168, 176)	1 in 7 adults affected by rhinosinusitis in USA	Guidelines
Neumark 2009 ⁽¹⁵⁾	7.5% of consultations for respiratory tract infections (or 1 in every 13.3) were attributable to sinusitis. Expanding to all primary care consultations, 19.3 consultations/1000 patients were attributable to sinusitis.	Prospective population study
Bhattacharyya 2009 ^(50, 177)	For 1997-2006, 1-year prevalence of sinusitis (all forms) was 15.2%	Retrospective cohort study
Fokkens 2007 ⁽¹⁷⁸⁾	For 1999, 8.4% of the Dutch population reported at least one episode of acute rhinosinusitis.	Guideline
van Gageldonk-Lafeber 2005 ⁽¹⁵⁾	Incidence of acute respiratory tract infection (including ARS) during 2000-2003 was 54.5 cases /1000 patient-years, or 1 in every 18.3 consultations	Prospective case-control study
Cherry 2005 ⁽¹⁷⁹⁾	In the USA, upper respiratory tract infection is third most common cause of a primary care consultation, of which a third is attributable to ARS.	National Survey
Louie 2005 ⁽¹⁸⁰⁾	In US study conducted during January to March 2002, 9% of previously healthy patients presented with acute sinusitis.	Prospective study
Varonen, Rautakorpi 2004, 2001 ^(181, 182)	During 1998-1999, 12% of patients were diagnosed with ARS. 12% of consultations for infection (all cause) over this time period were attributable to ARS.	Cross-sectional multi-centre epidemiological survey
Bachert 2003 ⁽²⁾	Between July 2000 and June 2001 6.3 million separate diagnoses of acute sinusitis were identified in Germany, resulting in 8.3 million prescription	Review

Hoffmans (2018):	18%	
Uijen (2011)	2/1000	per yr (0-4 ys)
	7/1000	(2002, 4-14 ys)
	4/1000	(2008, 4-14 ys)
	18/1000	per yr (12-17)
Oskarsson (2011)	3.4/100	per yr
Wang (2011)	6-10%	in GP, ENT pediatric clinic
Melzer (2011)	1/7	adult
Neumark (2009)	7.5%	of UTRI
Bhattacharyya (2009)	15.2%	
Fokkens (2007)	8.4%	
Van Gageldonk-lafeber (2005)	54.5/1000	
Cherry (2005)	1/3	
Louie (2005)	9%	
Varomen (2004)	12%	
Rautakorpi (2001)		

ARS is divided into:

- Acute viral rhinosinusitis
- Acute post-viral rhinosinusitis
- Acute bacterial rhinosinusitis

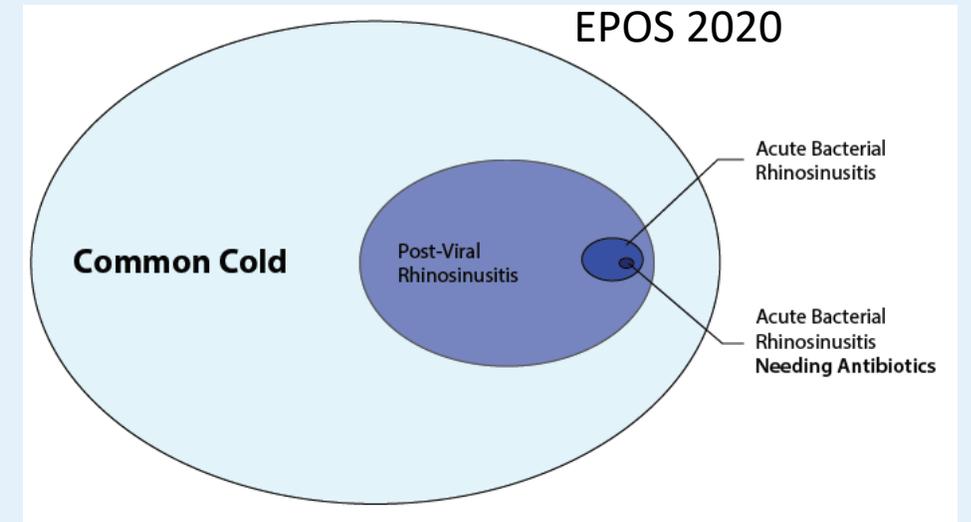
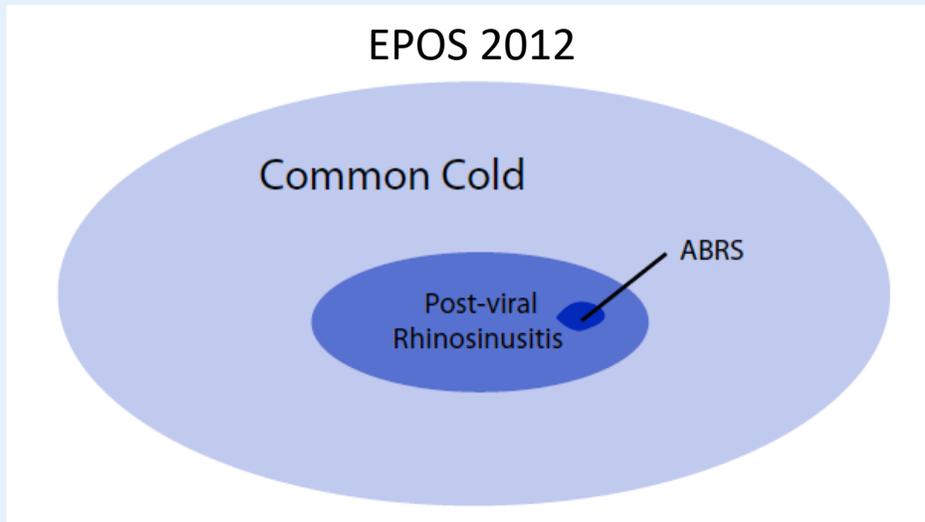


≈1-2%

(estimated in primary care)

Highlights:

1. **Post-viral ARS is a common condition** in the community, usually follow viral URTI
2. Observational evidence indicates that **antibiotic treatment** of ARS in general practice **does not prevent complications.**
3. Most acute common cold/URTI infection are **self-limiting.** ...
4. Bacterial infection may occur in ARS, but in most cases antibiotics have **little effect on the course of the illness.**





Antibiotic Prescription

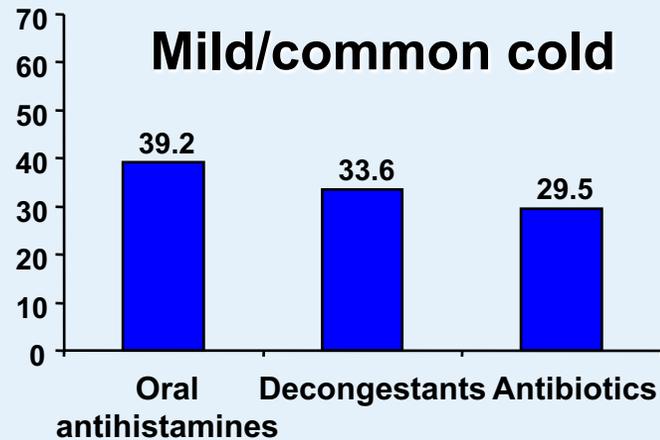
- Rhinosinusitis is the 5th most common diagnosis for which an antibiotic is prescribed.
- In 2002 rhinosinusitis account for 9% and 21% of all pediatric and adult antibiotic prescriptions respectively

National ambulatory Medical Care Survey

(Anon JB et al. 2004)

Top 3 treatments for ARS by Physician

(GPs, ENTs and pediatricians)

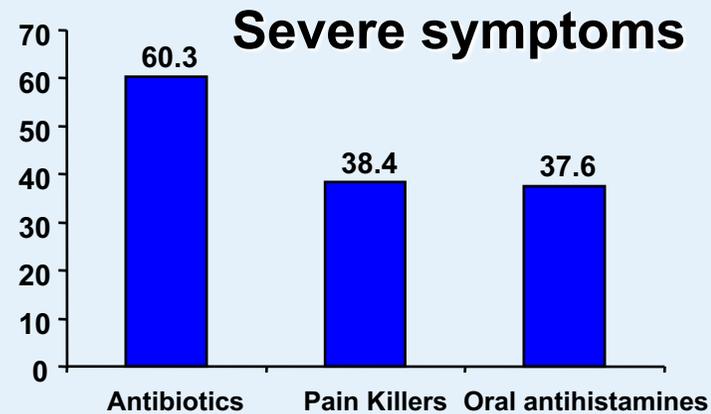
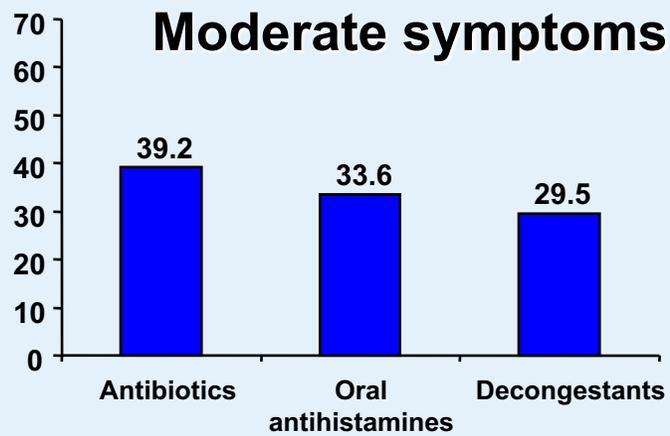


ORIGINAL CONTRIBUTION

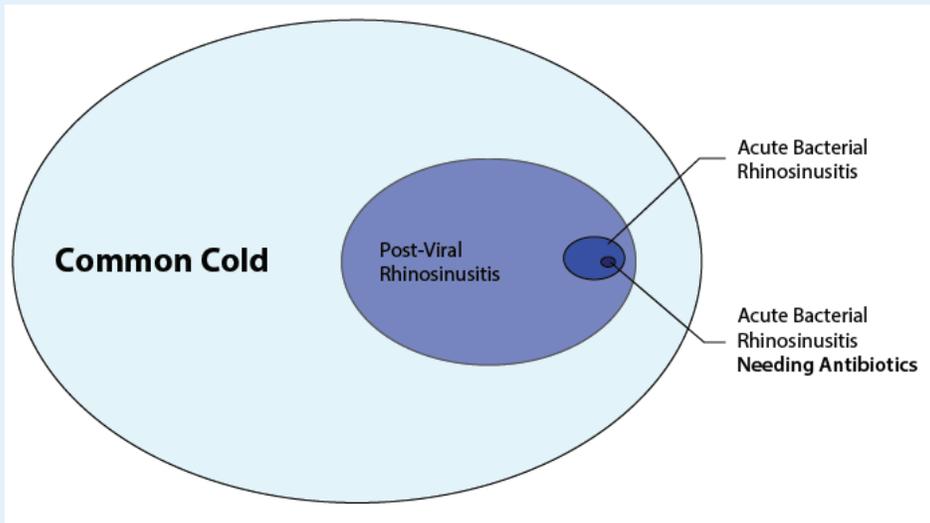
Rhinology 49: 264-271, 2011

A survey on the management of acute rhinosinusitis among Asian physicians*

De-Yun Wang¹, Retno S. Wardani², Kuljit Singh³, Sanguansak Thanaviratnanich⁴, Gil Vicente⁵, Geng Xu⁶, Mohammed Rashid Zia⁷, Achal Gulati⁸, Sheen-Yie Fang⁹, Li Shi¹⁰, Yiong-Huak Chan¹¹, David Price¹², Valerie J. Lund¹³, Joaquim Mullol¹⁴, Wytse J. Fokkens¹⁵



EPOS2020



- Bacterial rhinosinusitis is greatly **over-diagnosed** with concomitant **overuse of** both diagnostic tools and of antibiotics, with up to 60% receiving a course of antibiotics on day 1 of an event.
- Furthermore, early administration of antibiotics appears to have **little or no bearing** on the development of complications of ARS .
- Antibiotics are thought to be useful in at least part of the patients with ABRS but poor patient selection increases the risk of **unwanted antibiotics resistance**.



Antibiotics for the common cold and acute purulent rhinitis (Review)

Kenealy T, Arroll B

Kenealy T, Arroll B.
Antibiotics for the common cold and acute purulent rhinitis.
Cochrane Database of Systematic Reviews 2013, Issue 6. Art. No.: CD000247.
DOI: [10.1002/14651858.CD000247.pub3](https://doi.org/10.1002/14651858.CD000247.pub3).

N= 11 studies (2005-2013)

Conclusion:

- There is no evidence of benefit from antibiotics for the **common cold** or for persisting acute purulent rhinitis in children or adults.
- There is evidence that antibiotics cause significant adverse effects in adults when given for the **common cold** and in all ages when given for acute purulent rhinitis.

1) **Six studies:** common cold (1047 participants)

Receiving antibiotics for the **common cold** vs **placebo**:

- Persistence of symptoms: **RR 0.95, 95% CI:0.59 to 1.51**
- Adverse effect (**antibiotic group**): **RR 1.8, 95% CI: 1.01 to 3.21**
 - Adults: RR 2.62, 95% CI 1.32 to 5.18
 - Children: RR 0.91, 95% CI 0.51 to 1.63

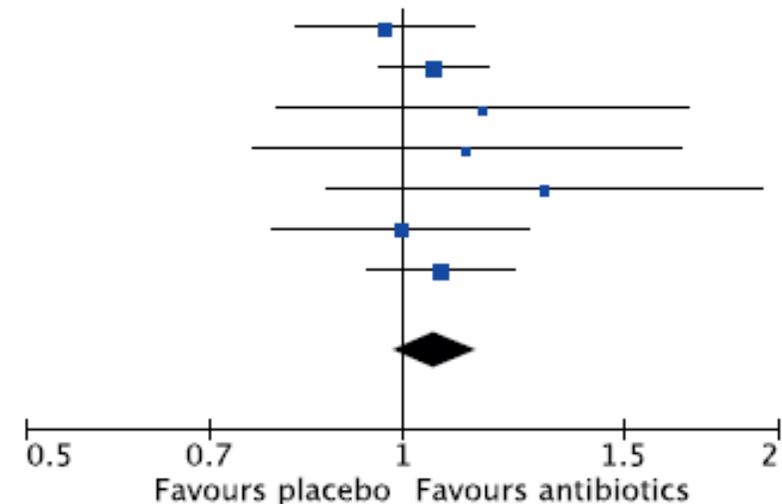
2) **Five studies:** purulent rhinitis (791 participants).

- Persisting acute purulent rhinitis with antibiotics vs placebo was: **RR 0.73 (95% CI 0.47 to 1.13)**.
- Increase in adverse effects in the studies of antibiotics for acute purulent rhinitis: **RR 1.46, 95% CI 1.10 to 1.94**.

1. Adult patients with acute post-viral ARS: antibiotic vs placebo

- The used of antibiotics was not associated with greater cure at days 10-14 (**RR 1.06, 95% CI: 0.98 = 1.14**) ($p=0.13$)

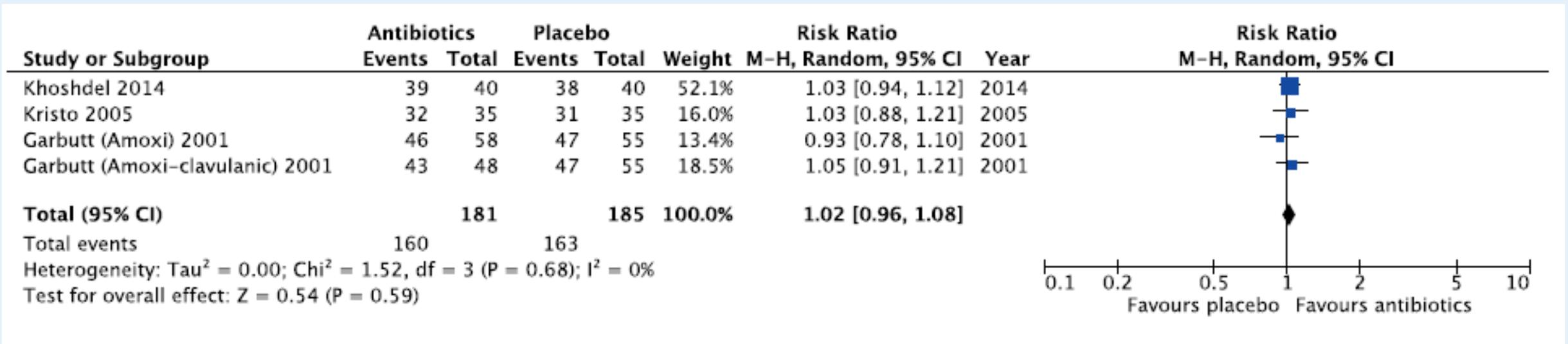
Garbutt 2012	63	81	57	71	18.8%	0.97 [0.82, 1.14]
Haye 2000	80	86	72	82	22.9%	1.06 [0.96, 1.17]
Lindbaek 1998 (Amoxy)	17	22	14	21	4.4%	1.16 [0.79, 1.69]
Lindbaek 1998 (pen V)	15	20	14	21	4.2%	1.13 [0.76, 1.67]
Merenstein 2005	32	67	25	68	7.7%	1.30 [0.87, 1.94]
Stalman 1997	56	94	55	92	17.2%	1.00 [0.79, 1.26]
Van Buchem 1997	87	105	78	101	24.7%	1.07 [0.94, 1.23]
Total (95% CI)		475		456	100.0%	1.06 [0.98, 1.14]
Total events	350		315			
Heterogeneity: $\text{Chi}^2 = 2.75$, $\text{df} = 6$ ($P = 0.84$); $I^2 = 0\%$						
Test for overall effect: $Z = 1.50$ ($P = 0.13$)						



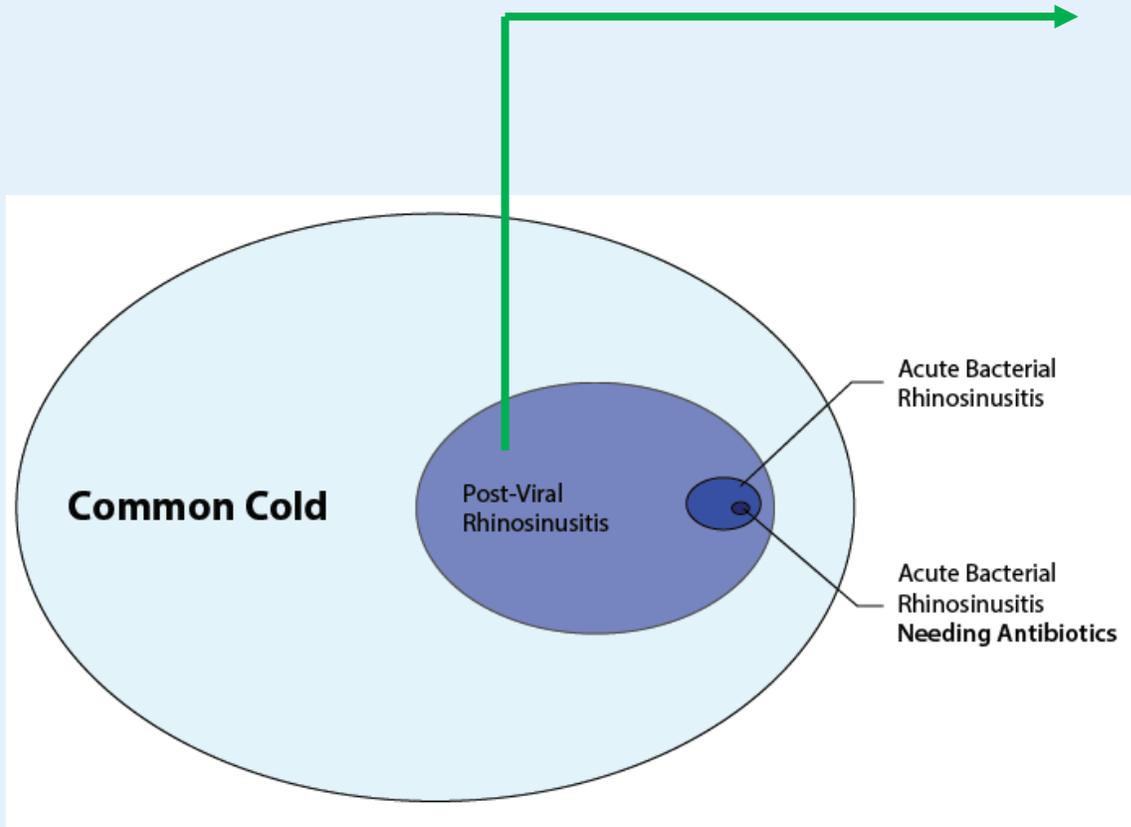
- Antibiotics group has significantly **more adverse events** compared to the placebo group although there was a significant heterogeneity (1341 patients, (**RR 1.28, 95% CI: 1.06 – 1.54, I²=79%**))

2. Children with acute post-viral ARS: antibiotic vs placebo

- The effect of antibiotic vs placebo to assess improvement at days 10-14 (**RR 1.02, 95% CI: 0.96-1.08**) ($p=0.35$)



- Antibiotics group has significantly **more adverse events** compared to the placebo group (2 RCT, **RR 1.29, 95% CI: 0.69-4.38**) ($p=0.44$)



In conclusion (EPOS 2020):

- There is no benefit of prescribing antibiotics for **post viral ARS** in both adults and children.
- There is no effect on cure or duration of disease and there are more adverse events.
- Based on the moderate level of evidence and the fact that acute post-viral rhinosinusitis is a self-limiting disease,
- **The EPOS2020 steering group advises against the use of antibiotics for both adults and children in this situation.**