

# Patient case study.

Fever, sore throat and body aches

### #ListenToPain

Brought to you by the makers of





Presentation **=** 



# Mary

19 years.

Mary wakes up and isn't feeling very well.



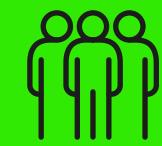
**She complains of** generalised body ache and weakness with fever.



**She complains of occasional** cough, cold and sore throat pain that's lasted 2 days.



**She mentions that recently** a few students in her class were down with flu.





























History





No loss of weight or appetite.



History of mild **asthma** since childhood.

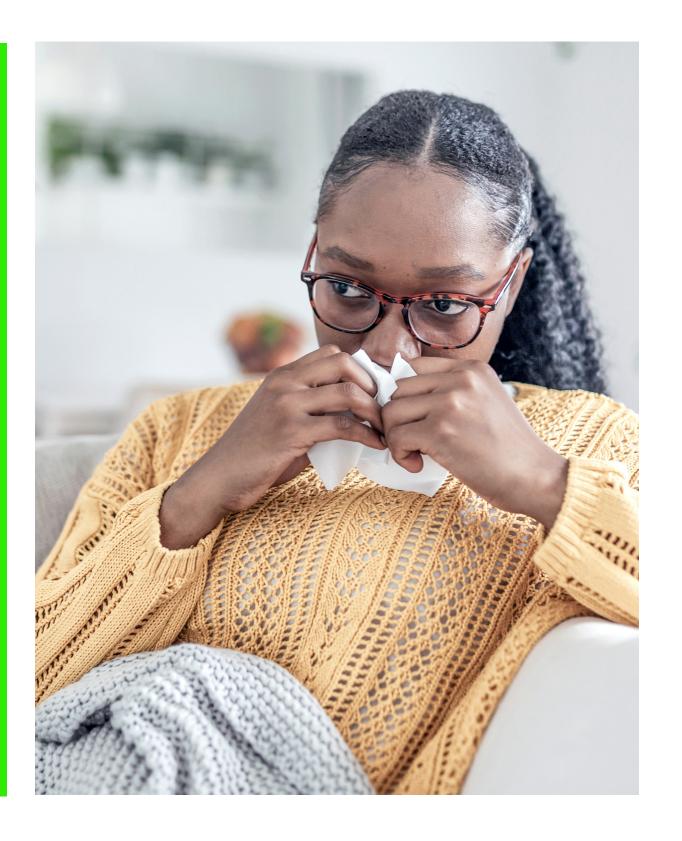


**No** history of drug allergy.



No significant family history.





























Q<sub>9</sub>

Clinical

examination







No pallor, edema, icterus or cyanosis.

BP: 120/86mmHg, PR: 89bpm, temperature: 38.3°C.

**BMI**: 22.0kg/m.

> Throat: Pharyngeal inflammation present.

CNS: Patient was conscious oriented to time, place, person.

CVS: S1S2 heard, no added sound.

R/S: NVBS, no crepts.

P/A: Soft, non-tender, no-palpable organomegaly.

> RT-PCR for COVID-19: Negative.

**Treatment** 

plan



BMI, body mass index; BP, blood pressure; CNS, central nervous system; CVS, cardiovascular system; NAD, nothing abnormal detected; NVBS, normal vesicular breath sounds; P/A, per abdomen; PR, pulse rate; R/S, respiratory system; RT-PCR, reverse transcription polymerase chain reaction; S1S2, heart sounds.







Clinical examination





**Differential** 

diagnosis















# Approach to diagnosis and management.

01

What could the cause of Mary's fever and sore throat be?

02

What is the management for fever and sore throat for this patient?

03

Will history of asthma in this patient alter our management?

















Differential diagnosis



What could be the possible causes for the symptoms in Mary?

Click an option to select your answer.

**URTI (UPPER** RESPIRATORY TRACT INFECTION)

**ALLERGIC RHINITIS SINUSITIS** 





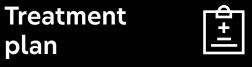






















**Differential** diagnosis



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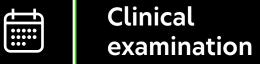
SINUSITIS































**Differential** diagnosis



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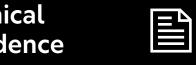














Follow-up & summary





HALEON

URTI (UPPER RESPIRATORY TRACT INFECTION)

ALLERGIC RHINITIS

× SINUSITIS

Differential diagnosis

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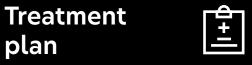




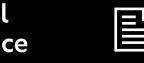












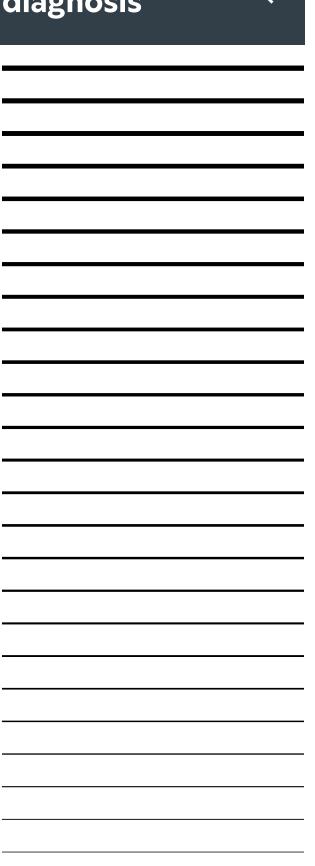






Differential diagnosis



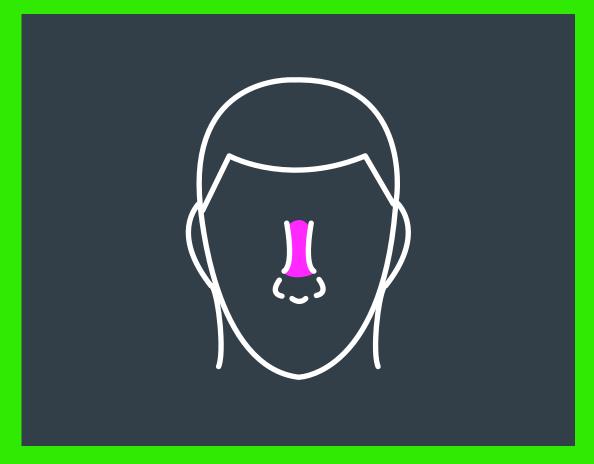






### Sinusitis

Mary does not have the typical symptoms of sinusitis, such as thick nasal discharge, yellow nasal discharge, frontal headache and nasal congestion, so sinusitis is ruled out on the basis of her history.



### Allergic rhinitis

Symptoms of allergic rhinitis, such as itchy eyes, mouth or skin, frequent sneezing and nasal congestion, are absent in Mary.

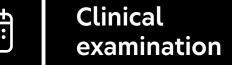
Therefore, we can rule out allergic rhinitis in this patient.

American College of Allergy, Asthma & Immunology. Sinus infection. Available at: www.acaai.org/allergies/types/sinus-infection (last accessed May 202































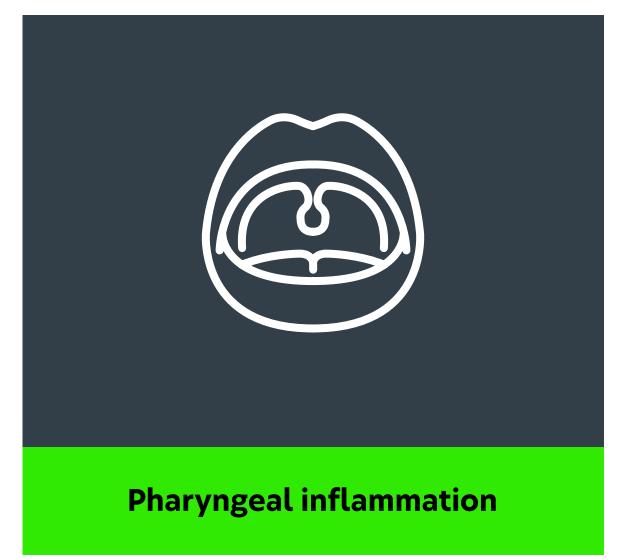
Differential diagnosis

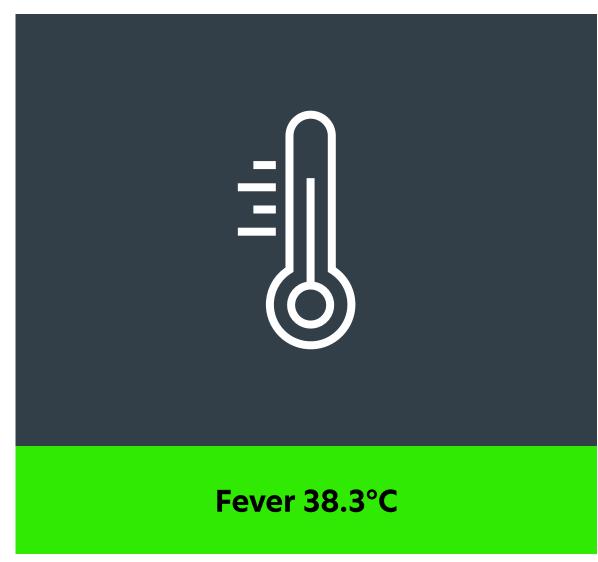


- > URTI is a self-limiting infection most commonly caused by viruses.
- > It results in irritation and swelling of the upper airways, causing cough.











### **Upper respiratory tract infection**

- > Mary has typical symptoms of URTI.
- > Mary has a history of asthma; people with asthma have an increased incidence of developing URTI.1

JRTI, upper respiratory tract infection

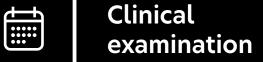
1. Thomas M, Bomar P. Treasure Island (FL): StatPearls Publishing 2020. Upper respiratory tract infection. Available at: www.ncbi.nlm.nih.gov/books/NBK532961 (last accessed May 2021).





History













**Treatment** 













**Treatment** plan



# How should we treat Mary?

Click an option to select your answer.

1. Thomas M, Bomar P. Treasure Island (FL): StatPearls Publishing 2020. Upper respiratory tract infection. Available at: www.ncbi.nlm.nih.gov/books/NBK532961 (last accessed May 2021). 2. Mayo Clinic. Cold remedies: What works, what doesn't, what won't hurt. Available at: https://www.mayoclinic.org/diseases-conditions/ common-cold/in-depth/cold-remedies/art-20046403 (last accessed May 2021).

**REST** 

**ADEQUATE HYDRATION** 

**TOPICAL NASAL DECONGESTANTS** 

**ANTIPYRETICS** FOR FEVER

**ALL OF** THE ABOVE

### HALEON

































**Treatment** plan



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Clinical examination

diagnosis









Follow-up & summary



HALEON

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ADEQUATE HYDRATION

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Follow-up & summary







**Treatment** plan



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ADEQUATE HYDRATION

TOPICAL NASAL **DECONGESTANTS** 

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**Treatment** plan



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REST

ADEQUATE HYDRATION

TOPICAL NASAL **DECONGESTANTS** 

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### HALEON







Clinical





















**Treatment** plan



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**Presentation** 



- TOPICAL NASAL DECONGESTANTS
- ALL OF THE ABOVE

### HALEON

























Treatment plan



## How should we treat Mary?

- > Symptom relief is required to treat this patient.1
  - > Adequate hydration to prevent dehydration.1
  - > Salt water gargling to soothe sore throat.1
  - Antipyretics for symptomatic management of fever and sore throat pain.<sup>2</sup>
- Antibiotics are not recommended since most URTls are viral.<sup>3</sup>



URTI, upper respiratory tract infection





























<sup>1.</sup> Thomas M, Bomar P. Treasure Island (FL): StatPearls Publishing 2020. Upper respiratory tract infection. Available at: www.ncbi.nlm.nih.gov/books/NBK532961 (last accessed May 2021).

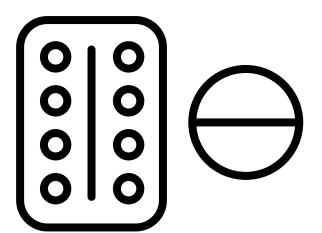
<sup>2.</sup> Chiappini E, et al. J Pediatr 2017;180:177-183.e1. 3. National Institute for Health and Care Excellence (NICE), United Kingdom. Cough (acute): antimicrobial prescribing NICE guideline 120. Available at: www.nice.org.uk/guidance/ng120 (last accessed May 2021).

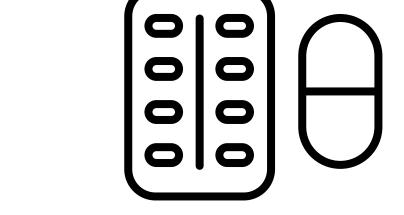


**Treatment** 1+ plan



What are the options available to treat fever and sore throat in this patient?





**Paracetamol** 

NSAIDs e.g., ibuprofen

1. Rizzoli P, Mullally W. Am J Med 2018;131(1):17-24.





























Clinical evidence



### What do guidelines recommend for fever?

Most of the guidelines recommend paracetamol or ibuprofen as antipyretics for adults and children.

- Systematic reviews suggested that ibuprofen (5-10mg/kg) was **similar or more efficacious** than paracetamol (10-15mg/kg) for treatment of pain and fever in adults and children, and was equally safe.
- Both paracetamol and ibuprofen exhibited comparable profiles for gastrointestinal symptoms, asthma and renal adverse effects in paediatric pain and fever.































#### References

- 1. Baraff L, et al. Pediatrics 1993;92(1):1-12.
- 2. National Institute for Health and Care Excellence (NICE), United Kingdom. Fever in under 5s: assessment and initial management NICE Guideline NG143. Available at: www.nice.org.uk/guidance/ng143 (last accessed May 2021).
- 3. UK Health Security Agency and NHS. Using paracetamol to prevent and treat fever after MenB vaccination. Available at: www.assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/717281/PHE\_paracetamol-menB-A4-2018\_01.pdf (last accessed May 2021).
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- 9. Luo S, et al. CJEBP 2016;11:81-96.
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- 12. Green R, et al. S Afr Med J 2013;103(12):948-954.
- 13. Pierce C, Voss B. Ann Pharmacother 2010;44(3):489-506.
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- 15. Perrott O, et al. Arch Pediatr Adolesc Med 2004;158(6):521.
- 16. Wong T, et al. Cochrane Database of Syst Rev 2013;(10):C0009572.
- 17. Purssell E. Arch Dis Child 2011;96(12):1175-1179.



**Presentation** 



History





Clinical





**Differential** 

diagnosis





















Clinical evidence



### Guideline recommendations for URTI.



Most guidelines recommend over-the-counter medications like paracetamol or ibuprofen for cold, cough and sore throat associated pain and fever to ease discomfort in children and adults.

Both drugs have comparable efficacy and are the most frequently used drugs for symptomatic treatment of URTI.

There is no effective therapy for the common cold; most medications are symptomatic.

Clinical



URTI, upper respiratory tract infection.





History









**Differential** 

diagnosis



**Treatment** 



















- 1. National Institute for Health and Care Excellence (NICE), United Kingdom. Cough (acute): antimicrobial prescribing NICE guideline 120. Available at: www.nice.org.uk/guidance/ng120 (last accessed May 2021).
- 2. National Institute for Health and Care Excellence (NICE), United Kingdom. Common cold. Available at: www.cks.nice.org.uk/topics/common-cold
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**Presentation** 



History









plan

**Differential** 

diagnosis















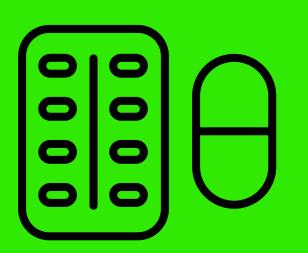


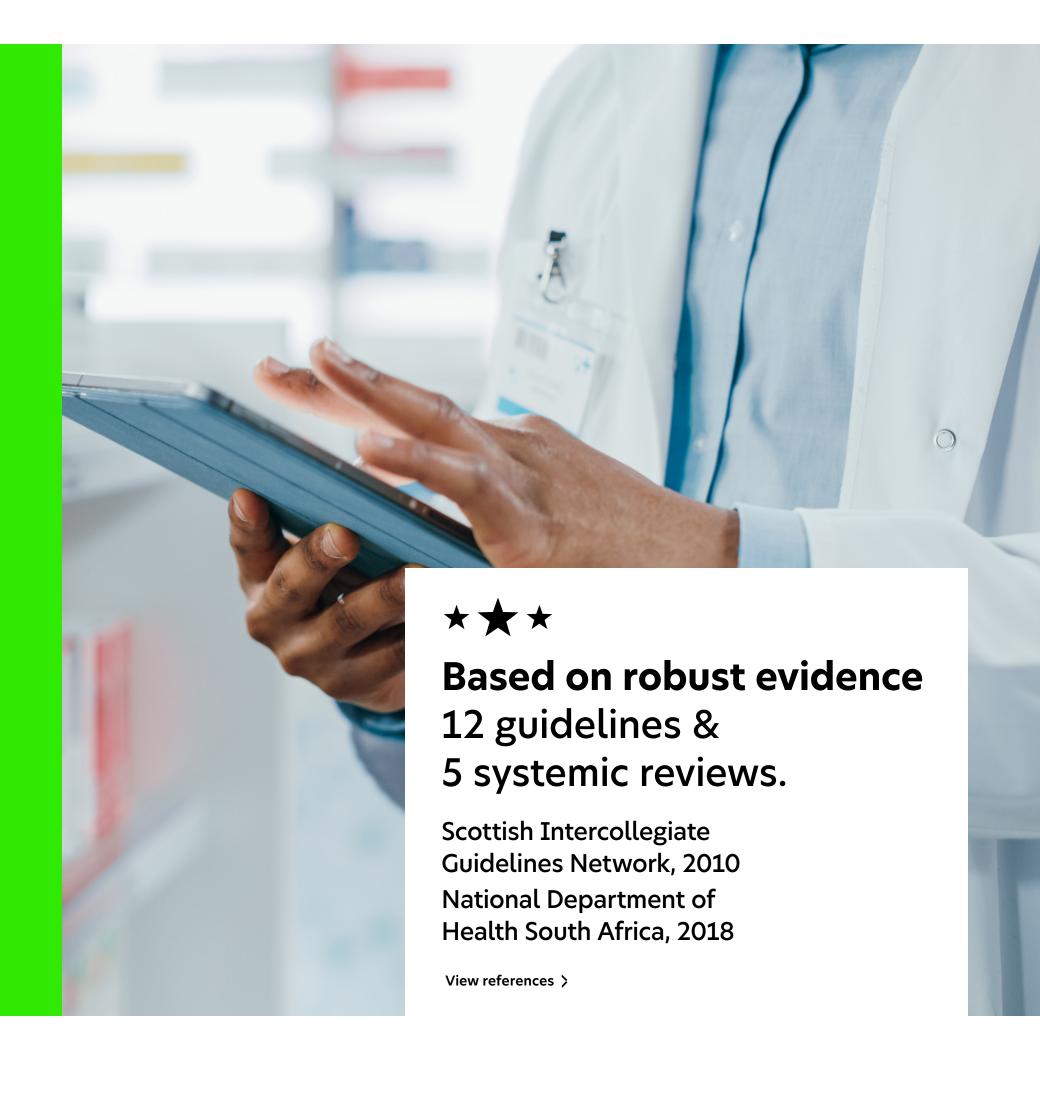
**Clinical** evidence



## What do guidelines say about ibuprofen?

- > Amongst NSAIDs, ibuprofen is the most commonly used and studied molecule with favourable benefit-risk profile at OTC doses (e.g., lowest GI adverse events, minimal renal and CV effects).
- **However, dehydration plays an important role** in triggering renal damage with ibuprofen. It should not be given to patients with vomiting and diarrhoea, especially in children and adolescents.





v, cardiovascotar, dr, gastrolittestillat, NSAID, non-steroldat anti-illitallillatory drog, drc, over-the-counter.

History















**Treatment** 



















#### References

- 1. Baraff L, et al. Pediatrics 1993;92(1):1-12.
- 2. National Institute for Health and Care Excellence (NICE), United Kingdom. Fever in under 5s: assessment and initial management NICE Guideline NG143. Available at: www.nice.org.uk/guidance/ng143 (last accessed May 2021).
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**Presentation** 



History





Clinical





**Differential** 

diagnosis









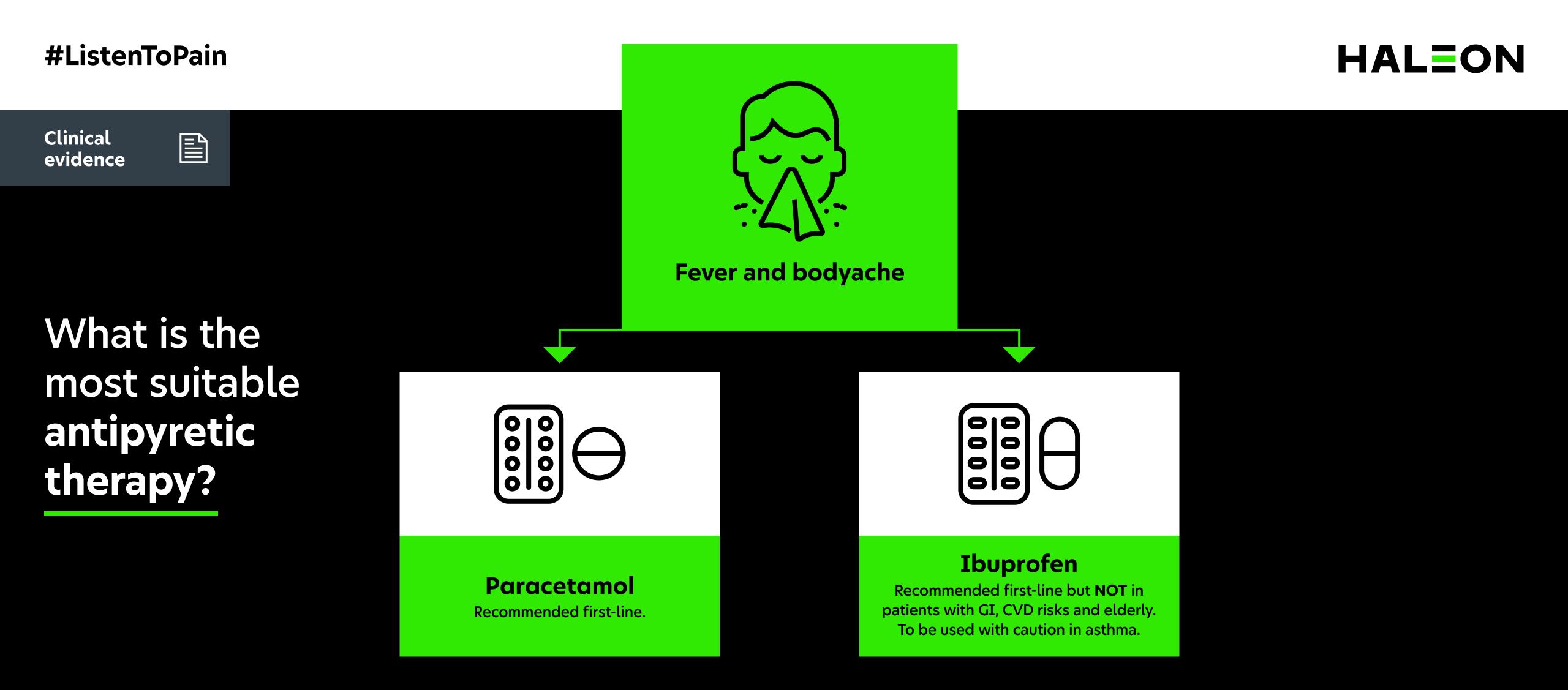












CVD, cardiovascular disease; GI, gastrointestinal 1. Pierce C, Voss B. Ann Pharmacother 2010;44(3):489-506.





History

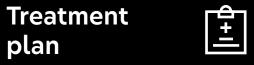


Clinical examination



**Differential** diagnosis



















**Clinical** evidence



## What's suitable for Mary?

#### Ibuprofen<sup>1,2</sup>

- > A few guidelines\* recommend using ibuprofen with caution in asthma.
- > Therefore, ibuprofen should be used with caution in Mary's case since she has a history of asthma.



#### Paracetamol is the most suitable option for Mary<sup>3,4</sup>

> Oral paracetamol, 500mg to 1000mg, taken every 4 to 6 hours as required.

The lowest dose necessary to achieve efficacy should be used for the shortest duration of treatment.

Clinical

examination

- > It is recommended that paracetamol should be used as first-line treatment for fever.
  - **Dosage:** For adults and children aged 12 years and older: 500mg to 1000mg, taken every 4 to 6 hours, up to a maximum of 4000mg daily.

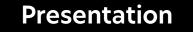




\*NSW guidelines, 2019, and Italian Pediatric Society Guidelines, 2017

1. NSW Health, Australia. Infants and children: Acute management of sore throat. Available at: www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=GL2014\_021 (last accessed May 2021). 2. Chiappini E, et al. J Pediatr 2017;180:177-183.e1. 3. Pierce C, Voss B. Ann Pharmacother 2010;44(3):489-506.

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History













**Treatment** 

















#### References

- 1. Baraff L, et al. Pediatrics 1993;92(1):1-12.
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**Presentation** 



History





Clinical





**Differential** 

diagnosis





















Follow-up & summary



### What next?

Mary was asked to follow up after 3 days.

If fever remains persistent: On follow-up, her symptoms had subsided since the most likely cause Further evaluation would be required of fever was viral infection. to determine the exact cause.

1. National Institute for Health and Care Excellence (NICE), United Kingdom. Cough (acute): antimicrobial prescribing NICE guideline 120. Available at: www.nice.org.uk/guidance/ng120 (last accessed May 2021).

































### Summary

#### Mary, 19 years old:

- Complained of general body aches, weakness, fever and sore throat.
- Had a sore throat and body aches for 2 to 3 days.
- Negative for COVID-19.
- Flu was circulating among classmates.
- History of asthma since childhood.

Diagnosed with URTI.

#### **She was recommended:**

- Rest.
- Hydration.
- Topical nasal decongesants.
- Antipyretics.

#### **Further recommendation:**

- > Oral paracetamol (500mg to 1000mg, taken every 4 to 6 hours as required up to a maximum of 4g daily).
- > The lowest dose necessary to achieve efficacy should be used for the shortest duration.
- This was the first-line treatment in this patient as recommended by most guidelines.

RT-PCR, reverse transcription polymerase chain reaction; URTI, upper respiratory tract infection.

History

1. Canadian Pharmacists Association (CPhA). Fever, central nervous system conditions. Available at: www.pharmacists.ca/cpha-ca/assets/File/store/MA-Fever.pdf (last accessed May 2021).

























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