

### CANNOT SWALLOW **CANNOT TALK MISS WORK** IRRITABL BAD B FATIGU DIFFICULT IN BRE **ISOLATED FROM** LOVED O CANNOT DO PHYSICAL **ACTIVITIES** SLEEP AFFECTED

PM-PK-PAN-24-00067

## Patient case study. Fever, sore throat and body aches

## **#ListenToPain**

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Start here



Presentation

# Mary

## 19 years.

Mary wakes up and isn't feeling very well.

She complains of generalised body ache and weakness with fever.

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Presentation





Clinical examination



Differential diagnosis

### HALEON



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.



Treatment plan



Clinical evidence



Follow-up & summary









History



#### **Past history and family history:**

No loss of weight or appetite.

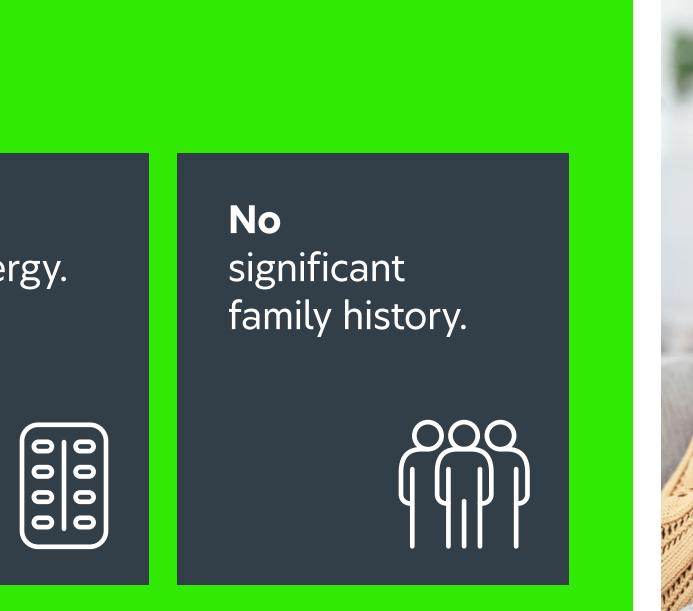


History of mild **asthma** since childhood.

No history of drug allergy.



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Treatment plan



Clinical evidence



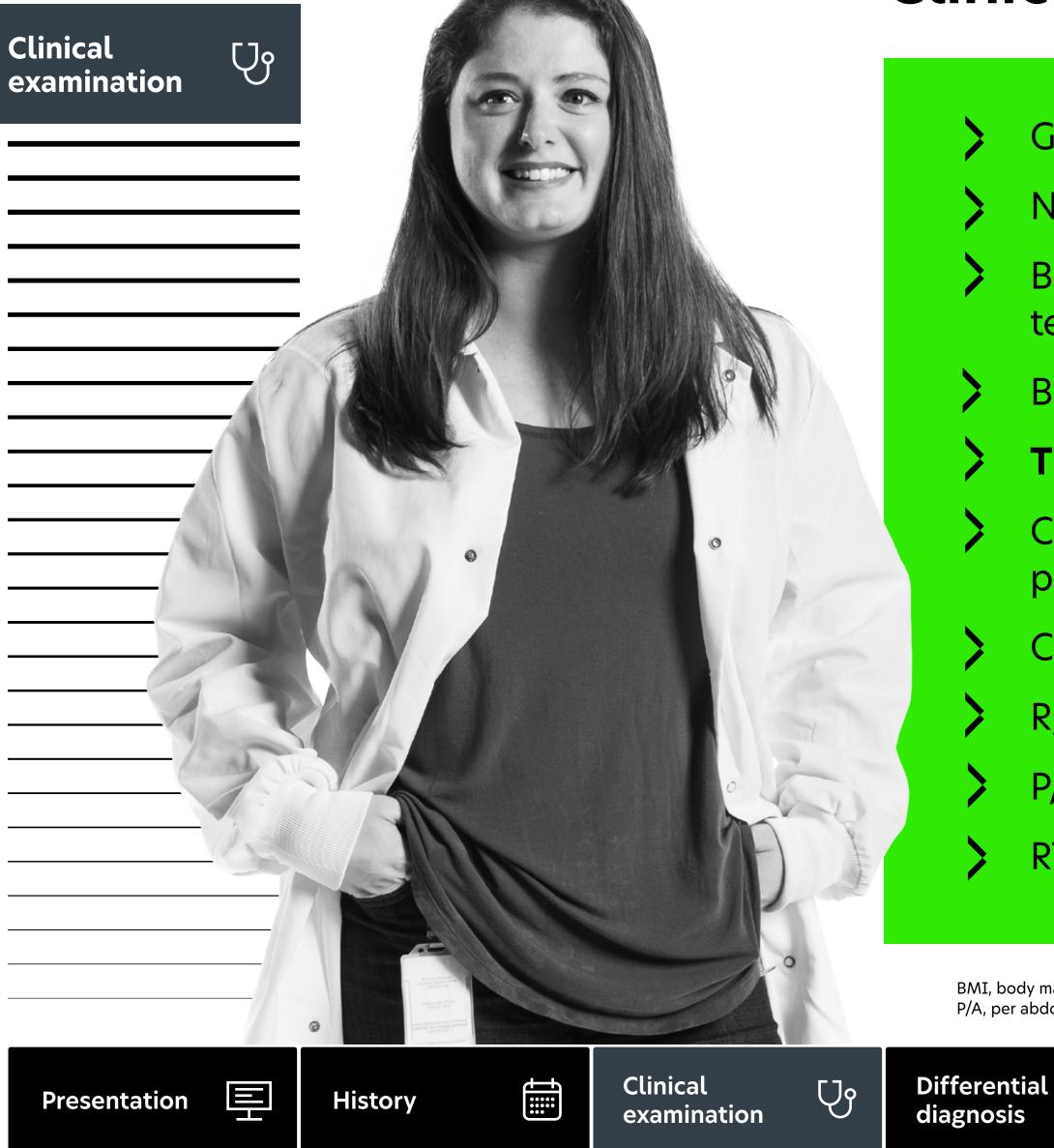
Follow-up & summary











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### Clinical examination.

- General appearance: Well-nourished.
- 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.**



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



## Approach to diagnosis and management.



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?

Will history of asthma in this patient alter our management?





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Clinical examination



Differential diagnosis

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Differential diagnosis

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

Q

Click an option to select your answer.

**URTI (UPPER** RESPIRATORY **ALLERGIC** 

# RHINITIS

### **SINUSITIS**

URTI, upper respiratory tract infection.







Clinical examination



Differential diagnosis

# **TRACT INFECTION)**



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Clinical evidence



Follow-up & summary



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Differential diagnosis

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

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Click an option to select your answer.

### URTI (UPPER RESPIRATORY **TRACT INFECTION)**

# ALLERGIC RHINITIS

### SINUSITIS

URTI, upper respiratory tract infection.







Clinical examination

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Differential diagnosis

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#### Treatment plan



Clinical evidence



Follow-up & summary



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Differential diagnosis

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

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URTI (UPPER RESPIRATORY **TRACT INFECTION)** 

ALLERGIC RHINITIS

### **× SINUSITIS**

URTI, upper respiratory tract infection.







Clinical examination



Differential diagnosis



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Treatment plan



Clinical evidence



Follow-up & summary



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Differential diagnosis

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

Q

Click an option to select your answer.

## **URTI (UPPER** RESPIRATORY **TRACT INFECTION)** ALLERGIC RHINITIS

SINUSITIS

URTI, upper respiratory tract infection.







Clinical examination



Differential diagnosis





plan

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Clinical evidence

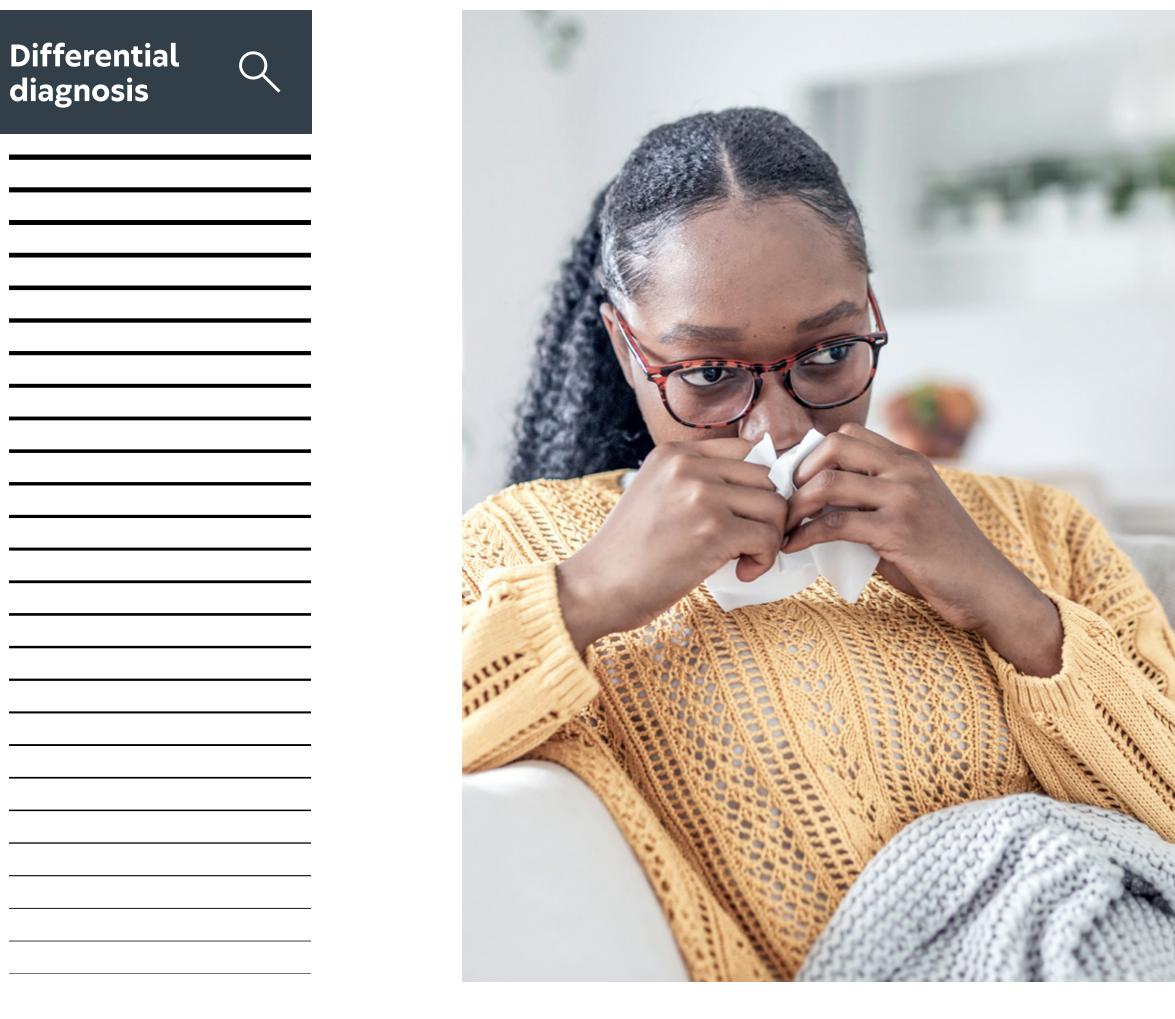


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1. American College of Allergy, Asthma & Immunology. Sinus infection. Available at: www.acaai.org/allergies/types/sinus-infection (last accessed May 2021).

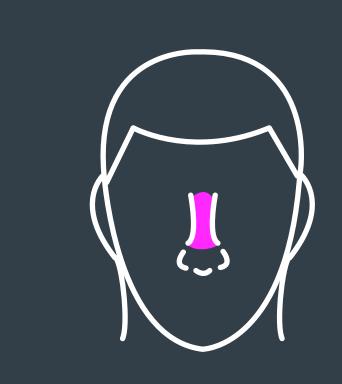








Mary does not have the typical symptoms of sinusitis, such as thick nasal discharge, yellow nasal discharge, frontal headache and nasal congestion, so sinusitis is ruled out on the basis of her history.



#### 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.



Treatment plan



Clinical evidence



Follow-up & summary













Differential diagnosis

#### What is the most probable cause of fever in Mary?

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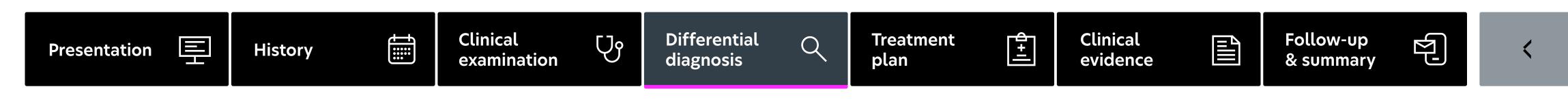
- URTI is a self-limiting infection most  $\mathbf{>}$ commonly caused by viruses.
- > It results in irritation and swelling of the upper airways, causing cough.



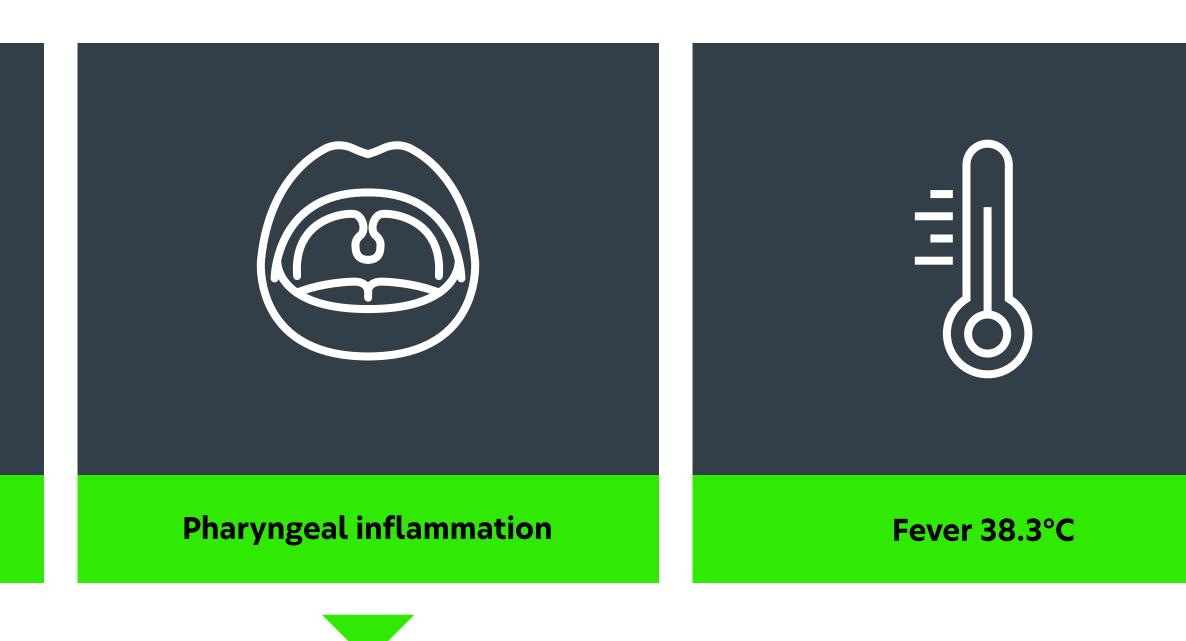
#### Cough, cold and sore throat pain



URTI, 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).







#### **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.<sup>1</sup>





Treatment plan



### How should we treat Mary?

Click an option to select your answer.

REST **ADEQUATE HYDRATION TOPICAL NASAL** DECONGESTANTS **ANTIPYRETICS FOR FEVER** ALL OF **THE ABOVE** 

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).







Clinical examination



Differential diagnosis

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Treatment

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Treatment plan



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REST X

> ADEQUATE HYDRATION

**TOPICAL NASAL** DECONGESTANTS

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Clinical examination



Differential diagnosis

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Treatment plan

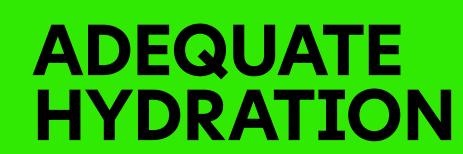


### How should we treat Mary?

Click an option to select your answer.

REST





**TOPICAL NASAL** DECONGESTANTS

**ANTIPYRETICS FOR FEVER** 

ALL OF THE ABOVE

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Clinical examination



Differential diagnosis

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Treatment plan



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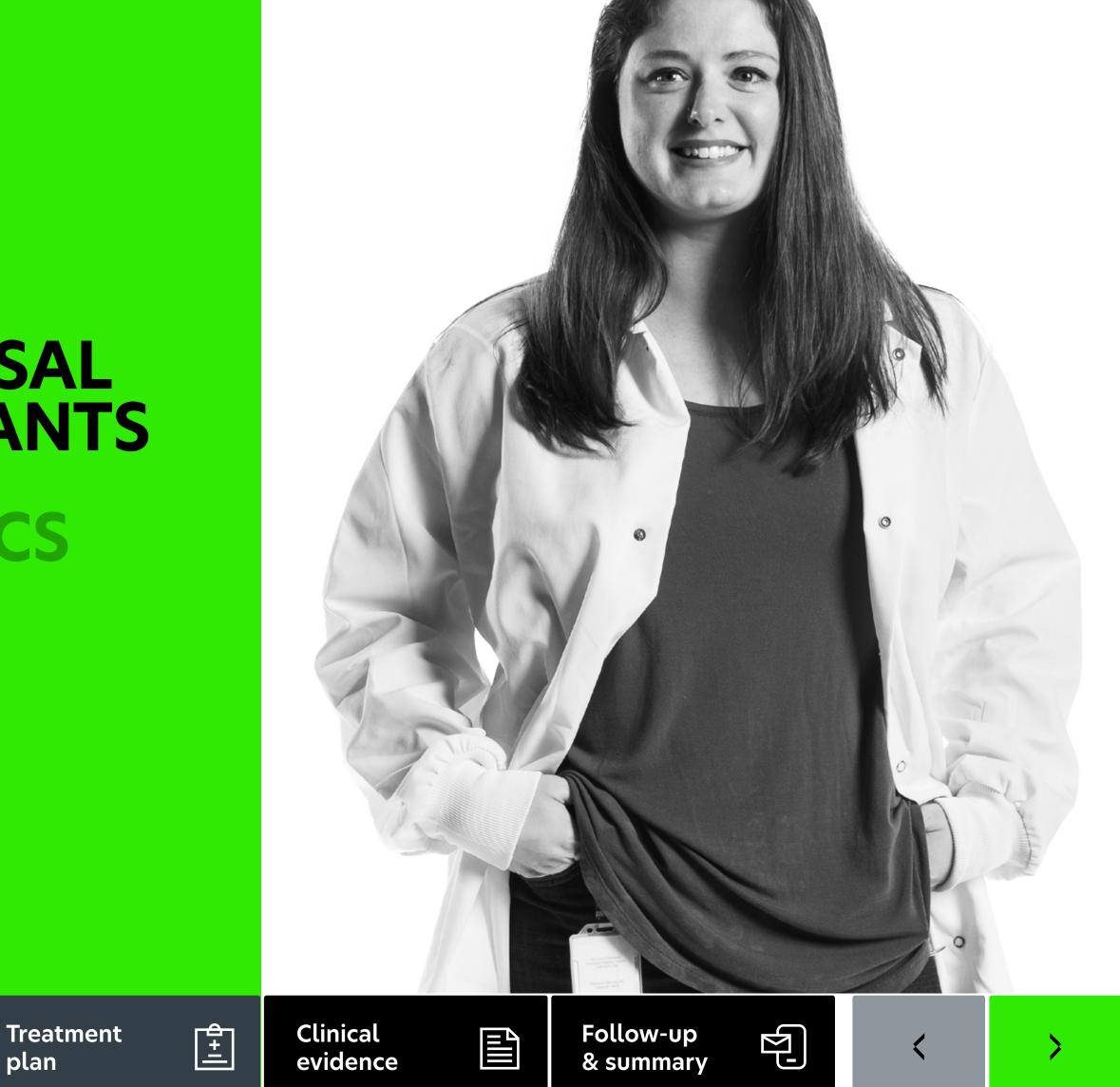
Clinical examination

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Differential diagnosis

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Treatment plan



### How should we treat Mary?

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ADEQUATE HYDRATION

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**ANTIPYRETICS FOR FEVER** ALL OF

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Clinical examination

X



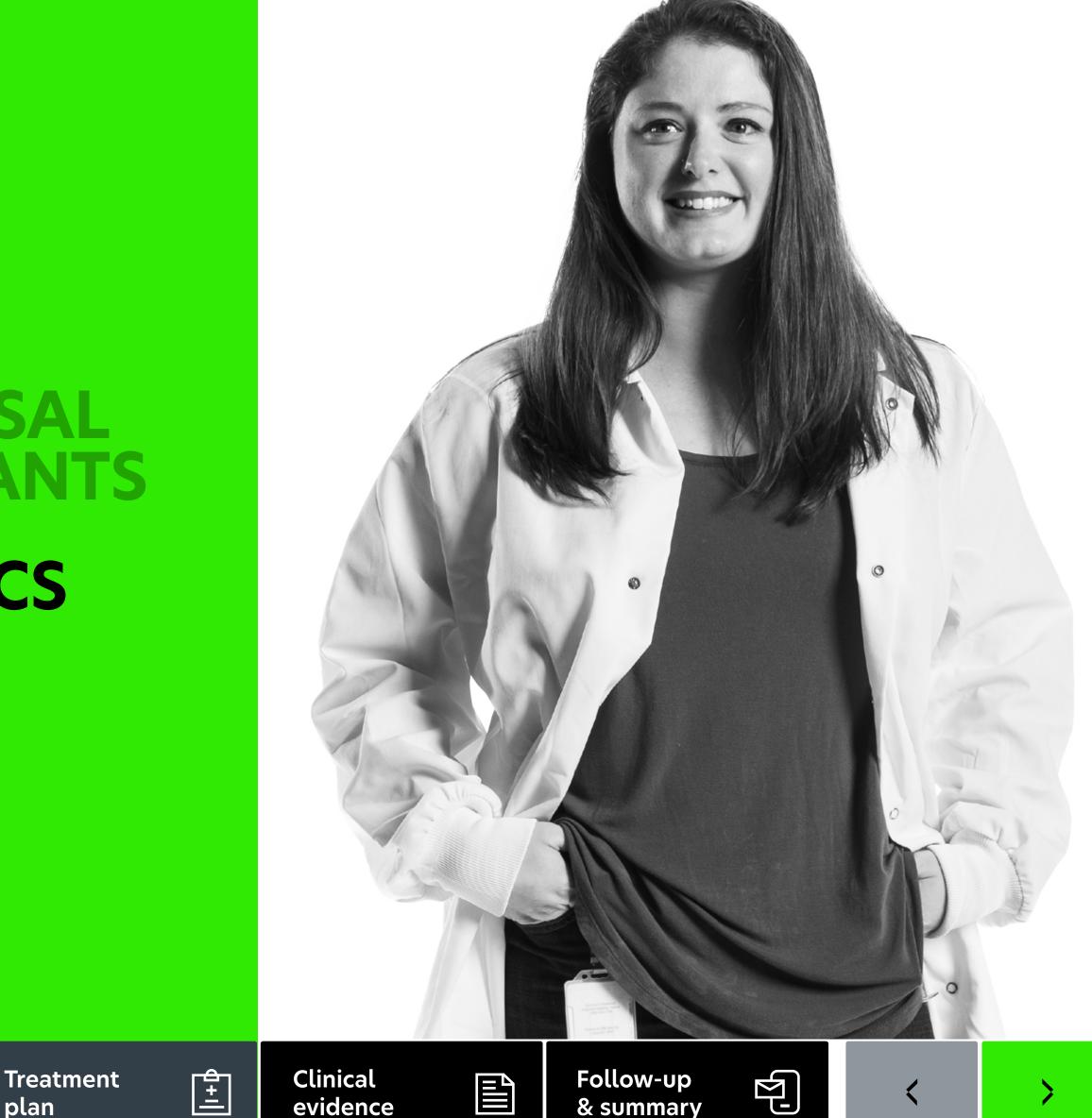
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Treatment plan



### How should we treat Mary?

Click an option to select your answer.

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Clinical examination



Differential diagnosis



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ALL OF THE ABOVE

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Treatment plan



### How should we treat Mary?

- Symptom relief is required to treat this patient.<sup>1</sup>
  - Adequate hydration to prevent dehydration.<sup>1</sup>
  - Salt water gargling to soothe sore throat.<sup>1</sup>
  - > 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.

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. 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).

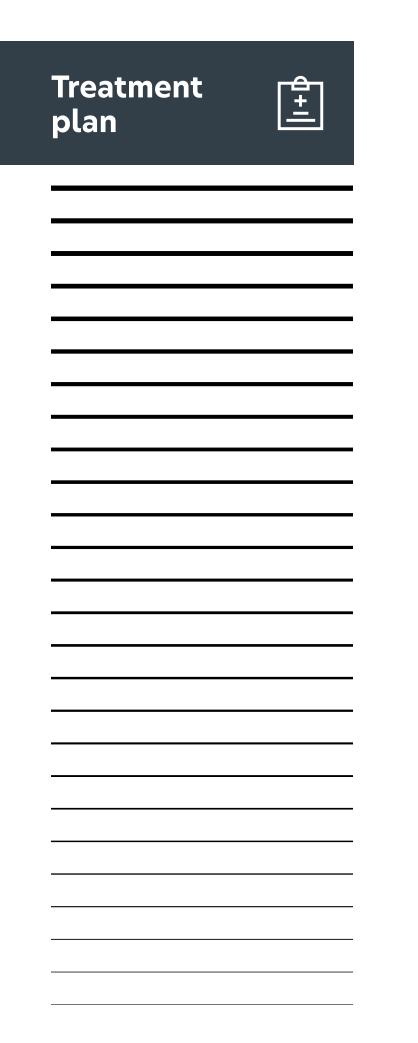


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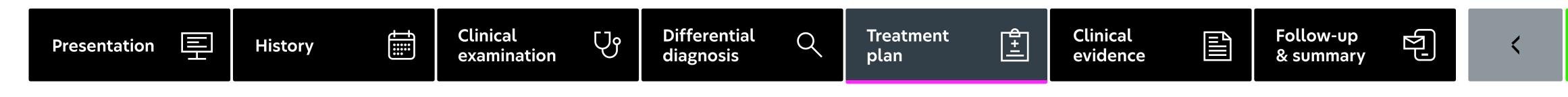






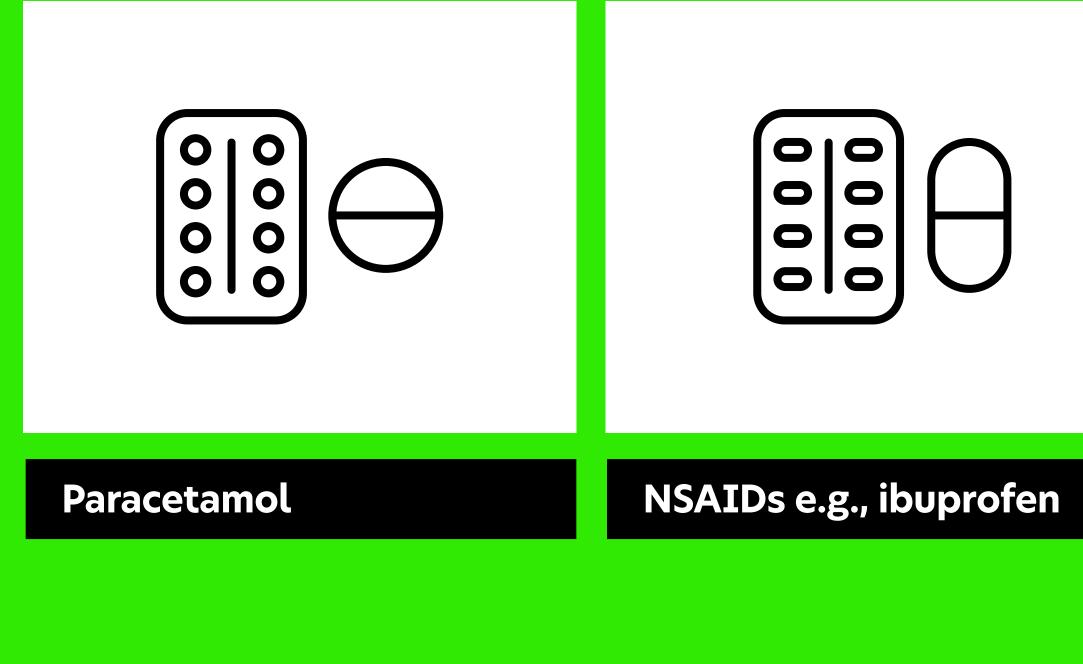


NSAID, non-steriodal anti-inflammatory drug 1. Rizzoli P, Mullally W. Am J Med 2018;131(1):17-24.



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







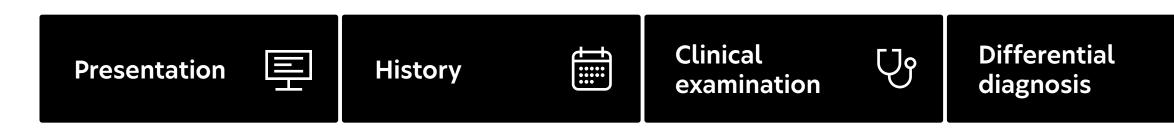
Clinical evidence

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## 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.



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#### **Based on robust evidence** 12 guidelines & 5 systemic reviews.

National Institute for Health and Care Excellence (NICE) guidelines, 2019 South Australian Paediatric **Clinical Practice Guideline Canadian Pharmacists Association, 2013** National Department of Health South Africa, 2018

View references >

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Follow-up & summary









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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).

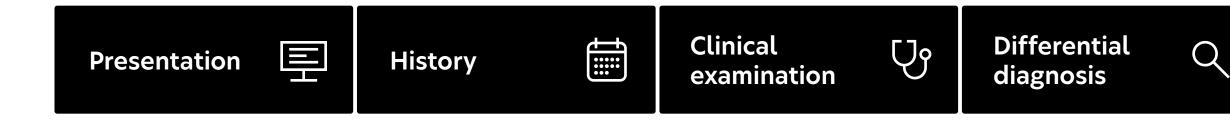
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12. Green R, et al. S Afr Med J 2013;103(12):948-954.

13. Pierce C, Voss B. Ann Pharmacother 2010;44(3):489-506.

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16. Wong T, et al. Cochrane Database of Syst Rev 2013;(10):C0009572.

17. Purssell E. Arch Dis Child 2011;96(12):1175-1179.



Treatment plan



Clinical evidence

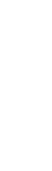


Follow-up & summary









Clinical evidence



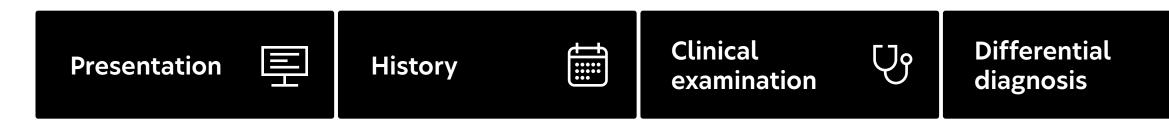
## Guideline recommendations for URTI.

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.

URTI, upper respiratory tract infection.



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#### **Based on robust evidence** 12 guidelines & 5 systemic reviews.

National Institute for Health and Care Excellence (NICE) guidelines, 2019 National Clinical Guidelines, Qatar, 2019 **Chinese Clinical Practice Guidelines**, 2018 National Department of Health, South Africa, 2018

View references >

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Follow-up & summary









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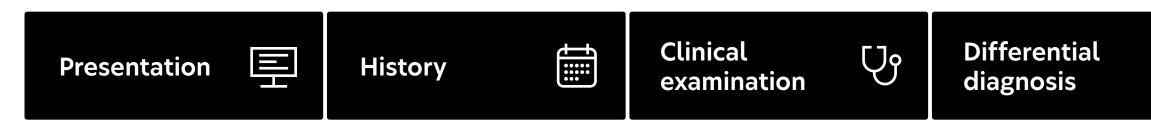
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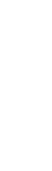
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## What do guidelines say about ibuprofen?

- 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.



CV, cardiovascular; GI, gastrointestinal; NSAID; non-steroidal anti-inflammatory drug; OTC, over-the-counter



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#### **Based on robust evidence** 12 guidelines & 5 systemic reviews.

Scottish Intercollegiate Guidelines Network, 2010 National Department of Health South Africa, 2018

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#### References

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

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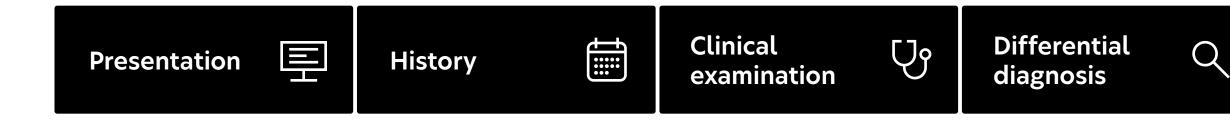
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9. Luo S, et al. CJEBP 2016;11:81-96.

10. Chiappini E, et al. J Pediatr 2017;180:177-183.e1.

11. Department: Health, Republic of South Africa. Standard treatment guidelines and essential medicines list for South Africa. Primary healthcare level 2018. Available at: https://extranet.who.int/ncdccs/Data/ZAF\_D1aia\_STG%20and%20EML%20PHC%202018.pdf (last accessed May 2021).

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Treatment plan



Clinical evidence

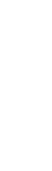


Follow-up & summary





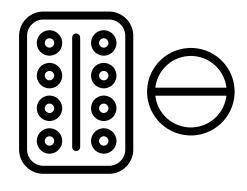




Clinical evidence



### What is the most suitable antipyretic therapy?



#### Paracetamol

**Recommended first-line.** 

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





Differential diagnosis

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#### Ibuprofen

Recommended first-line but **NOT** in patients with GI, CVD risks and elderly. To be used with caution in asthma.



**Fever and bodyache** 

Treatment plan



Clinical evidence



Follow-up & summary







Clinical evidence



### What's suitable for Mary?

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

- A few guidelines<sup>\*</sup> 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>

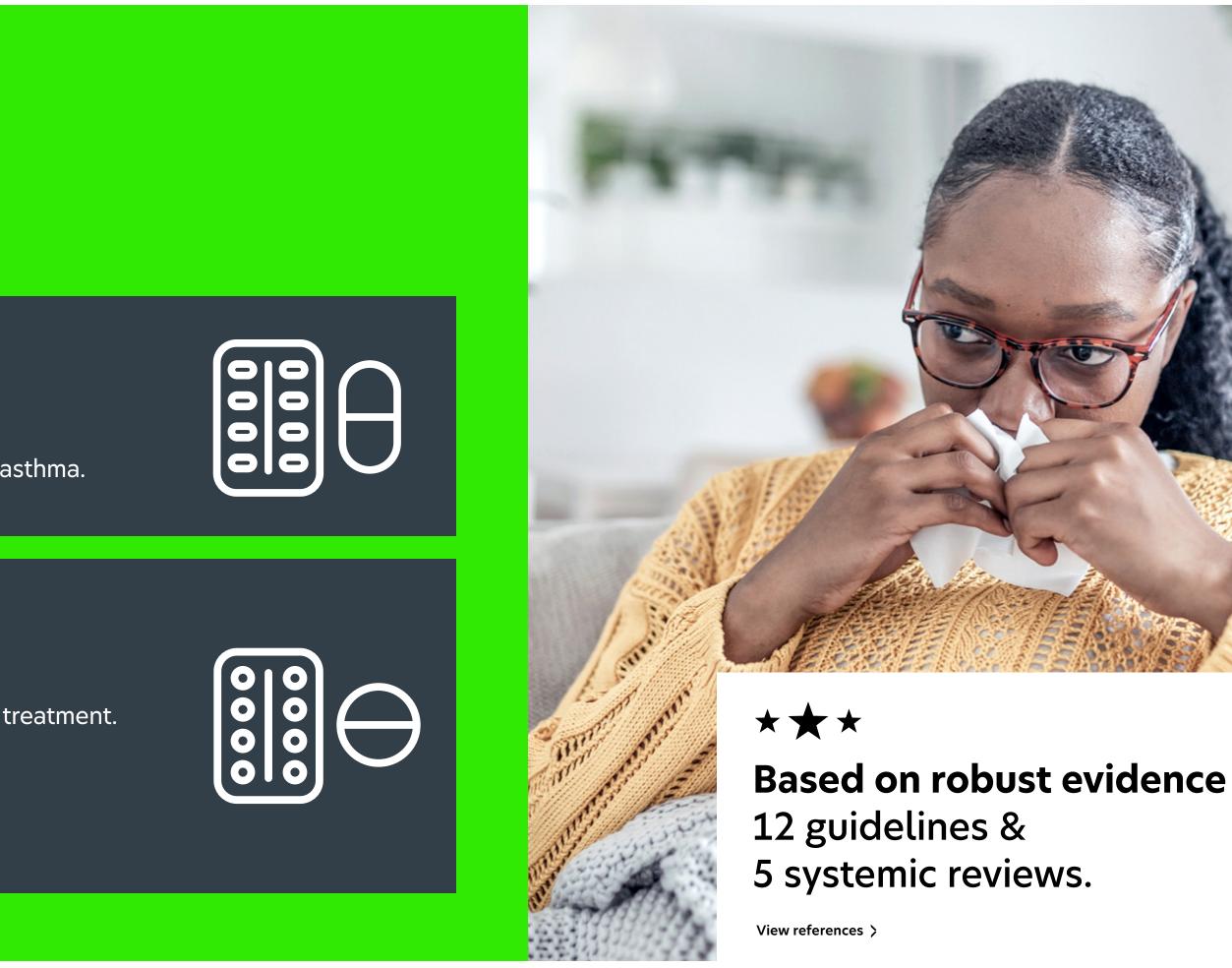
- Oral paracetamol, 500mg to 1000mg, taken every 4 to 6 hours as required. The lowest dose necessary to achieve efficacy should be used for the shortest duration of treatment.
- It is recommended that paracetamol should be used as first-line treatment for fever. - Dosage: For adults and children aged 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). 2. Chiappini E, et al. J Pediatr 2017;180:177-183.e1. 3. Pierce C, Voss B. Ann Pharmacother 2010;44(3):489-506. 4. Department: Health, Republic of South Africa. Standard treatment guidelines and essential medicines list for South Africa. Primary healthcare level 2018. Available at: https://extranet.who.int/ncdccs/Data/ZAF\_D1aia\_STG%20and%20EML%20PHC%202018.pdf (last accessed May 2021).



### HALEON





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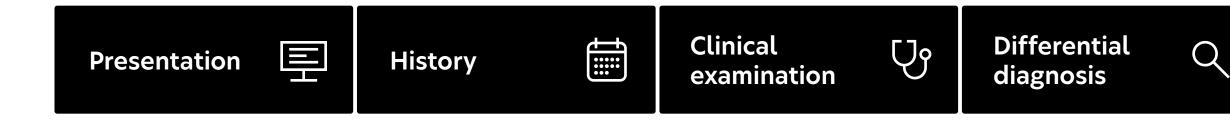
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16. Wong T, et al. Cochrane Database of Syst Rev 2013;(10):C0009572.

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Treatment plan



Clinical evidence

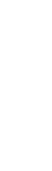


Follow-up & summary





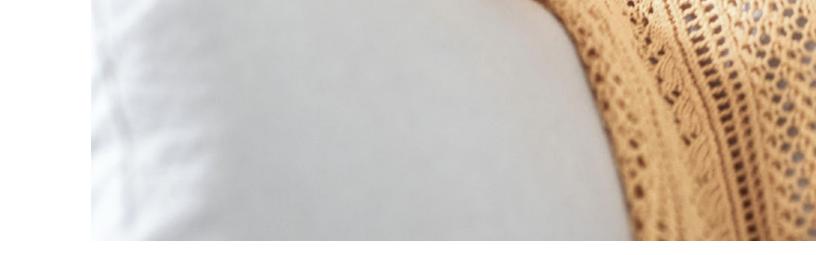






### What next?

Mary was asked to follow up after 3 days. **On follow-up**, her symptoms had subsided since the most likely cause of fever was **viral infection**.



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).







Clinical examination



Differential diagnosis

### HALEON

If fever remains persistent: Further evaluation would be required to determine the exact cause.



Treatment plan



Clinical evidence



Follow-up & summary









Follow-up & summary

#### Mary, 19 years old:

Image: Constraint of the second secon

- 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.
- Antipyretics.

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



### HALEON

### Summary

**Topical nasal decongesants.** 

#### **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.

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).



Treatment plan



Clinical evidence



Follow-up & summary









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	Dr.

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### Has completed the course: Patient Case Study. Fever, sore throat and body aches

