

# Wonca 2023

26–29 October 2023 *Sydney, Australia*



# Building a diagnostic picture of asthma in primary care: Development of a novel jigsaw puzzle approach

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# Why?

## Asthma presents with common respiratory symptoms

- Physical exam is often normal
- **There is no single gold standard test**
- Under- and over-diagnosis are widespread- population based studies suggest 20-70% underdiagnosed....but physician-diagnosed asthma suggest that 30-35% of adults and children diagnosed with asthma do not have current asthma <sup>1 2</sup>

AND

## Large educational need to support asthma diagnosis in primary care

- 48% primary care respondents expressed a “ great” learning need for asthma education <sup>3</sup>
- IPCRG – research prioritization exercise <sup>4</sup> and I Q&A questions

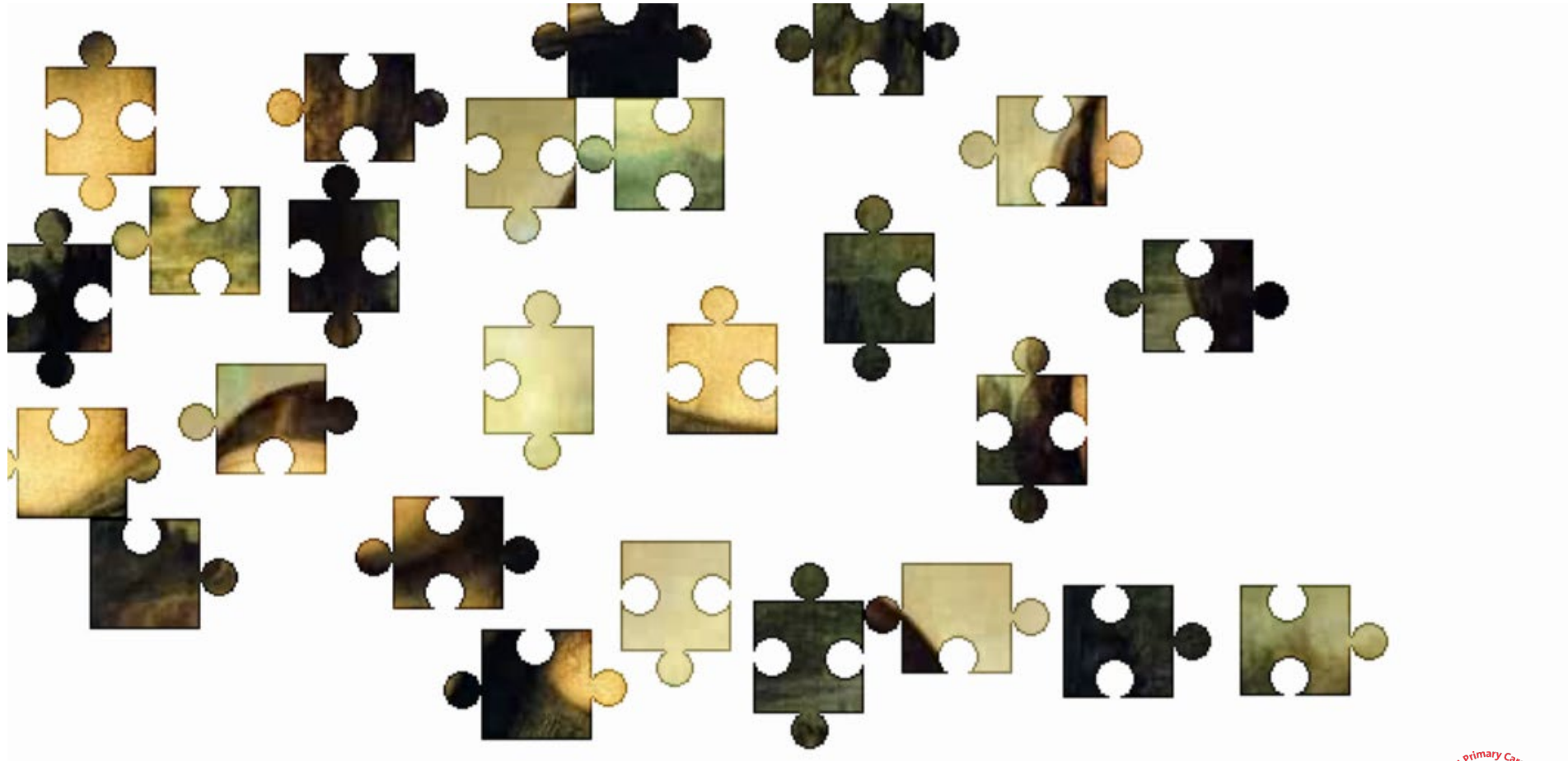


# Aims

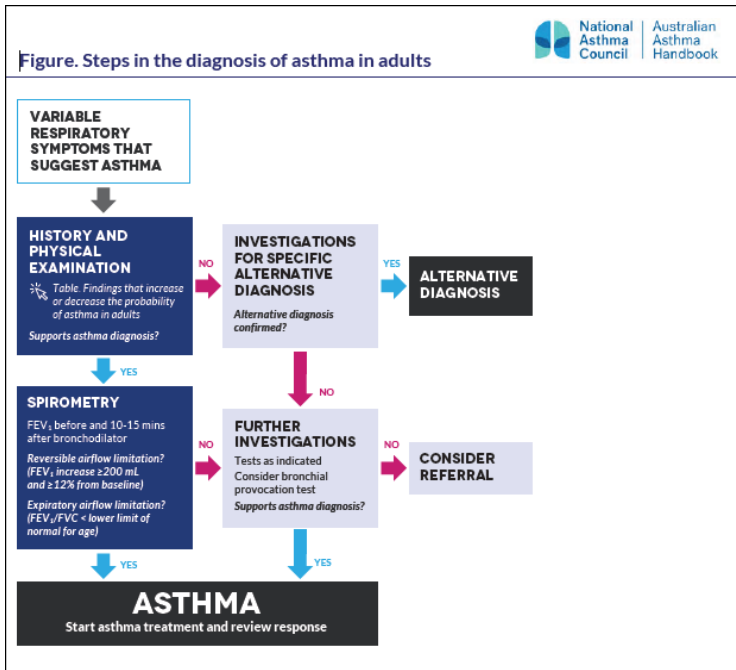
- 1 Use a (jigsaw) puzzle as an analogy for building a picture over time, which better represents clinical practice
2. Describe the process of defining the format and content of this approach with
  - the **aim** of improving the quality of asthma diagnosis in primary care and
  - to use in IPCRG education work (Desktop Helper)



# Patients present with many complex pieces of information



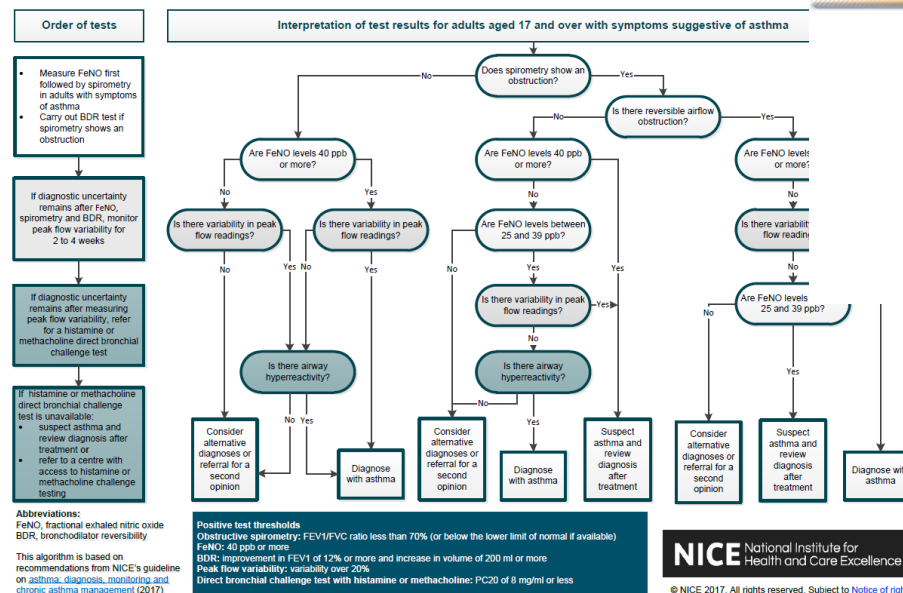
# Current guidelines - complexity and a linear algorithmic approach



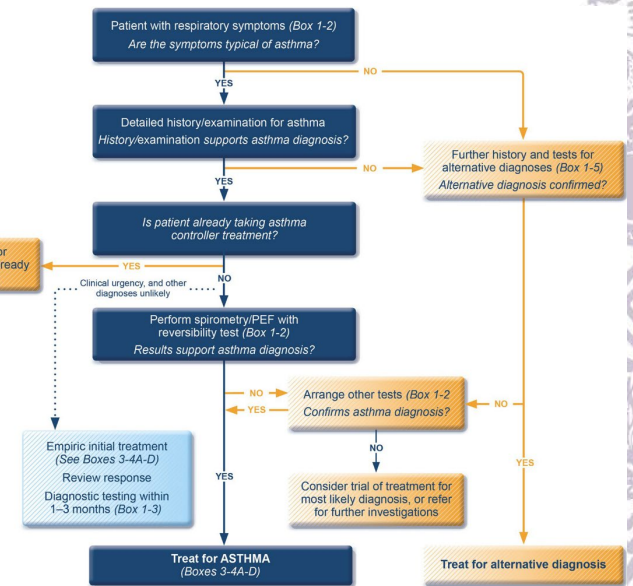
National Asthma Council Australian Asthma Handbook

AAH version 2.2, 2022

<https://www.astmahandbook.org.au/diagnosis/adults>



NICE, UK, 2017



GINA 2023

# Half-day 'puzzle' workshop

Four working groups in two rounds negotiated and categorised jigsaw pieces most relevant for building a clinical picture of asthma



This process can be repeated and adapted at national level - local context



# Defining the content for asthma diagnosis

Presentation	Symptoms and physical examination	History	Objective tests
<p><i>Why has the person come to see you?</i></p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Tight chest</li> <li>• Wheeze</li> <li>• Cough</li> <li>• 'Infection'</li> <li>• Breathless</li> <li>• Chest pain</li> </ul>	<p><i>Ask about symptoms &amp; conduct physical exam</i></p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Wheeze</li> <li>• Night-time symptoms</li> <li>• Fatigue               <ul style="list-style-type: none"> <li>• Exercise intolerance</li> </ul> </li> </ul>	<p><i>Personal and family</i></p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Occupation</li> <li>• Atopy</li> <li>• Smoking</li> <li>• Hobbies               <ul style="list-style-type: none"> <li>• Rhinitis</li> </ul> </li> </ul>	<p><i>Airway dysfunction, Biomarkers</i></p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Spirometry with reversibility</li> <li>• Serial peak flow</li> <li>• Microspirometry               <ul style="list-style-type: none"> <li>• <i>Other: FeNO, biomarkers</i></li> </ul> </li> </ul>

**These factors and their relative importance may differ at national level**

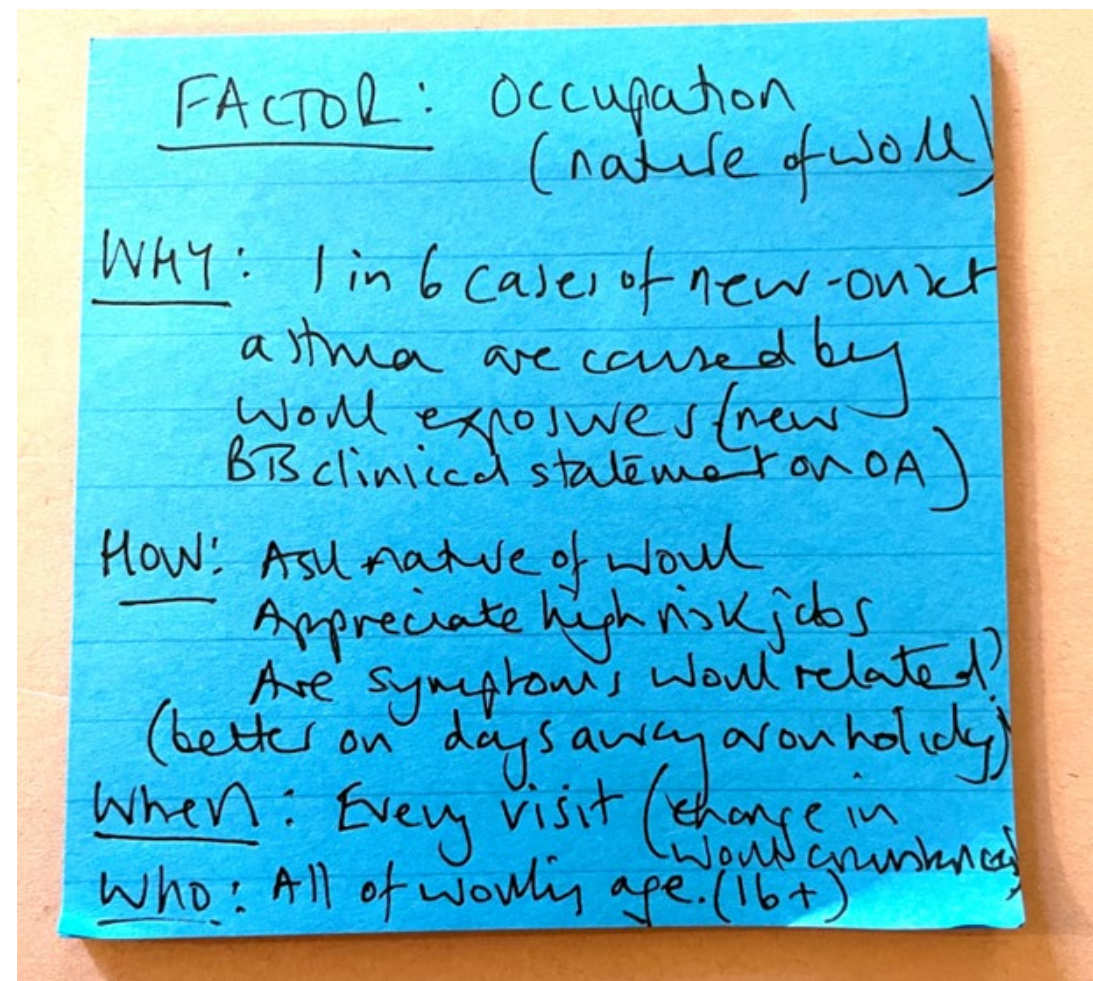




# Puzzle piece: Occupation (example)

Each group was asked to suggest pieces using this format

WHY?	How will it influence decision-making?
HOW?	How will you elicit it? (question, test, observation, other); How will you interpret the answer? How will you code it?
WHEN?	When would you ask? (first consultation, subsequent, every time, once...)
WHO?	All, child, adult, sub-group?

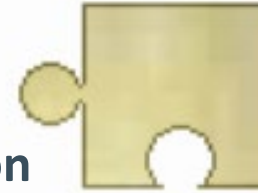


# Some people prefer starting with the corners ....

Presentation



Symptoms and  
Physical examination



Building the picture or assembling the information,  
problem solving approach

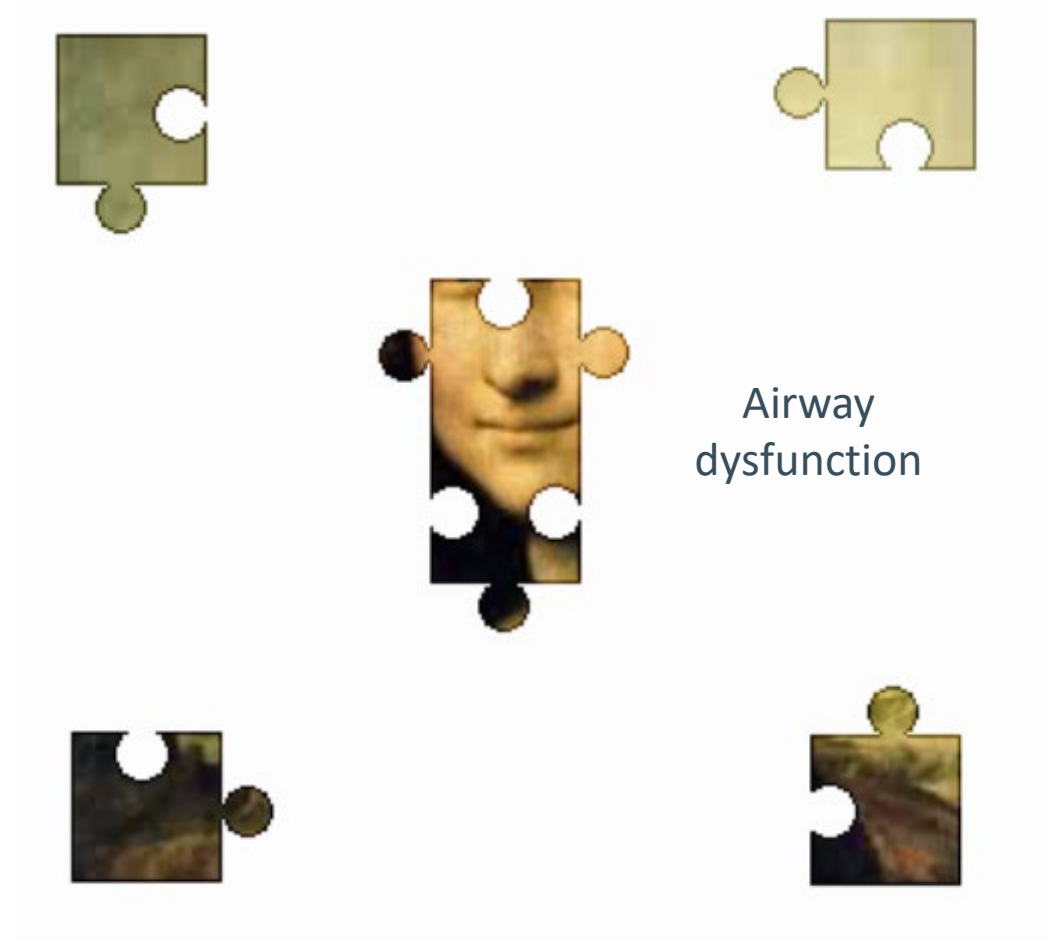
History



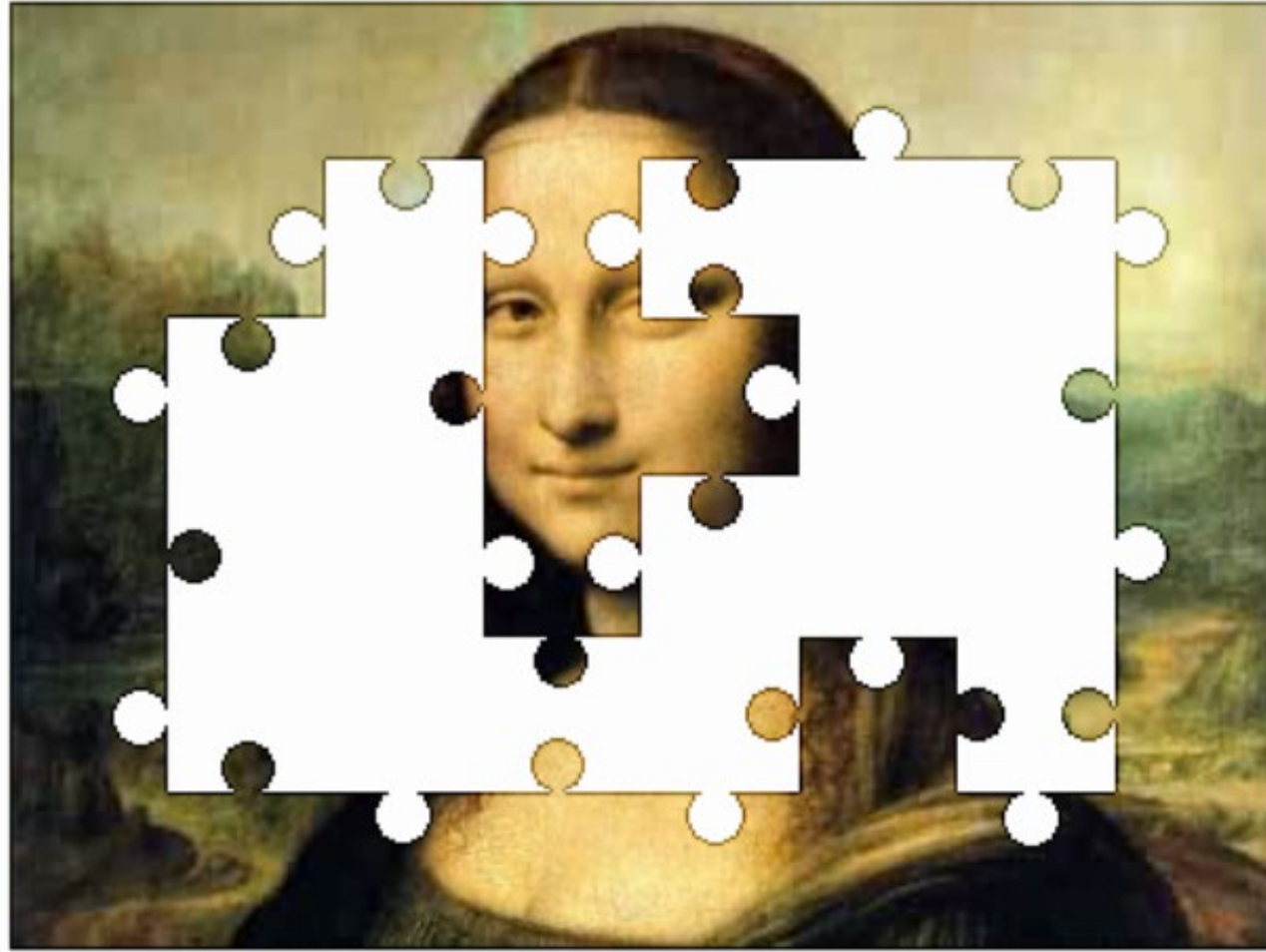
Objective tests



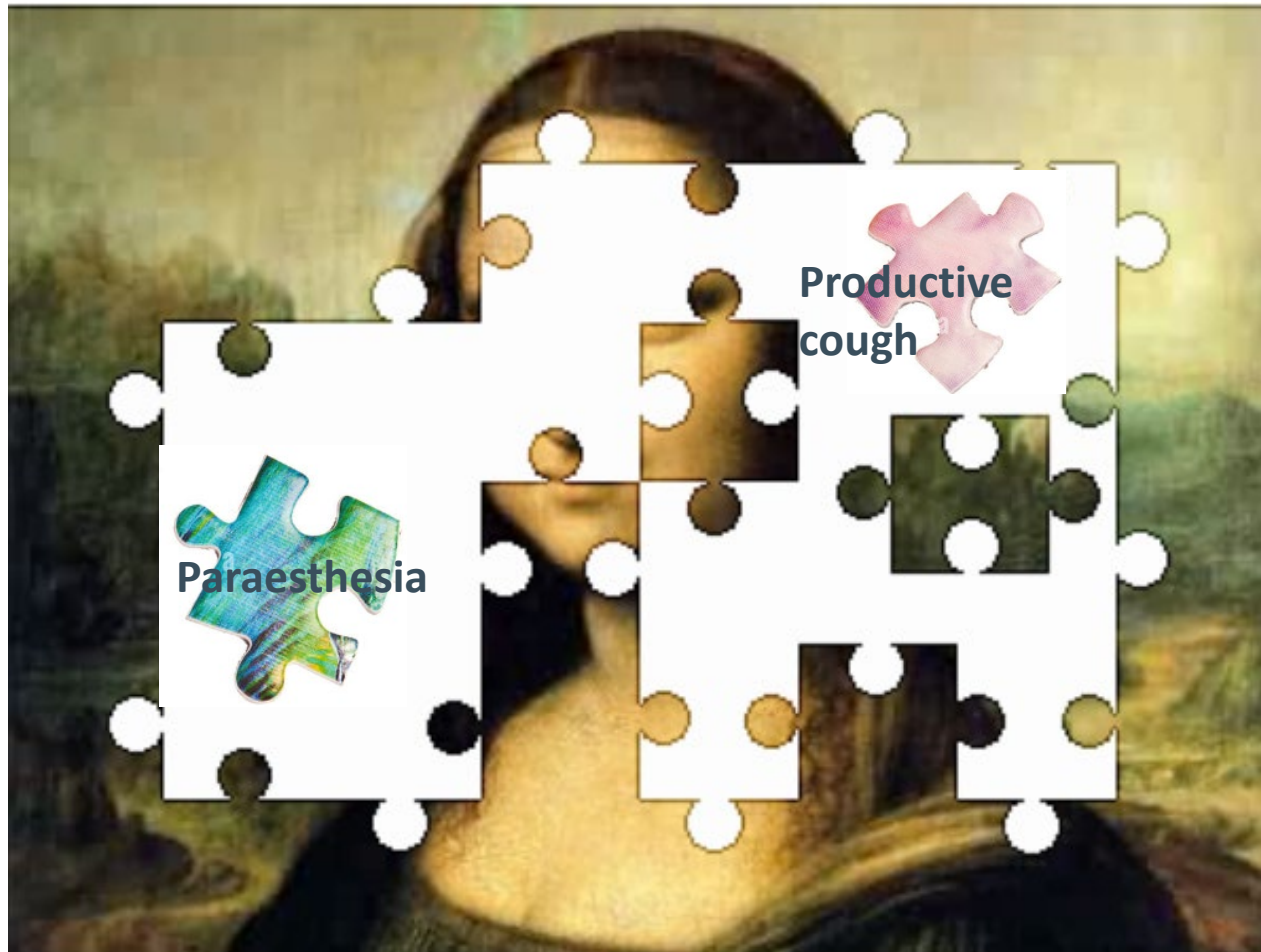
**Sometimes we find clinical clues that are so relevant, they almost allow us to see the whole picture right away**



**Even if not all the clinical signs and symptoms are present, the diagnosis may be obvious**

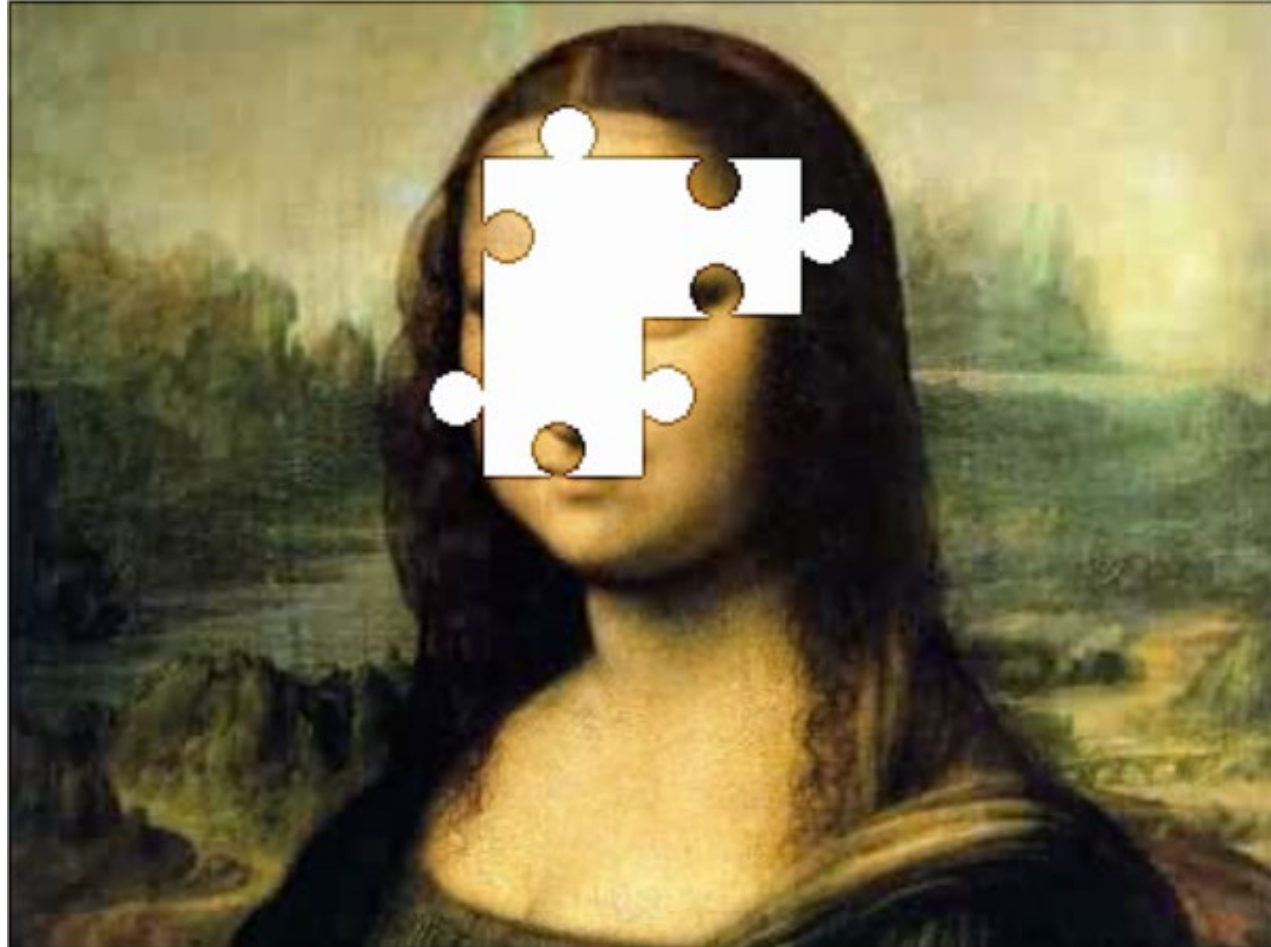


# Some clinical signs and symptoms might not fit in the overall picture



Pieces which do not fit should prompt a search for another picture/ alternative diagnosis

# Now we are fairly sure



# Now we are really sure



**Productive  
cough**



**Paraesthesiae**



# Developing a teaching and learning tool to support asthma diagnosis

- The asthma (jigsaw) puzzle is a new teaching and learning strategy
- Created using a context-specific problem-solving diagnostic process reinforcing pattern recognition
- Enables primary care practitioners to visualize the clinical picture and decide on the likelihood of an asthma diagnosis
- Further tools are being developed using the puzzle metaphor





# References

1 Aaron SD, Boulet LP, Reddel HK, Gershon AS. Underdiagnosis and Overdiagnosis of Asthma. *Am J Respir Crit Care Med*. 2018 Oct 15;198(8):1012-1020. doi: 10.1164/rccm.201804-0682CI. PMID: 29756989

2 Kavanagh J, et al. Over- and under-diagnosis in asthma. *Breathe (Sheff)* 2019;15:e20-e27

3 Ryan D, Angier E, Gomez M, Church D, Batsiou M, Nekam K, Lomidze N, Gawlik R. Results of an allergy educational needs questionnaire for primary care. *Allergy*. 2017 Jul;72(7):1123-1128. doi: 10.1111/all.13134. Epub 2017 Mar 17. PMID: 28122131.

4 Abdel-Aal A, Lisspers K, Williams S, Adab P, Adams R, Agarwal D, Barnard A, Bouloukaki I, van Boven JFM, Chavannes N, Dickens AP, van Gemert F, Escarrer M, Haroon S, Kayongo A, Kirenga B, Kocks JWH, Kotz D, Newby C, McNulty C, Metting E, Moral L, Papadakis S, Pinnock H, Price D, Ryan D, Singh SJ, Correia de Sousa J, Ställberg B, Szeffler SJ, Taylor SJC, Tsiligianni I, Turner A, Weller D, Yusuf O, Tabyshova AK, Jordan RE. Prioritising primary care respiratory research needs: results from the 2020 International Primary Care Respiratory Group (IPCRG) global e-Delphi exercise. *NPJ Prim Care Respir Med*. 2022 Jan 28;32(1):6. doi: 10.1038/s41533-021-00266-4. PMID: 35091570.



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