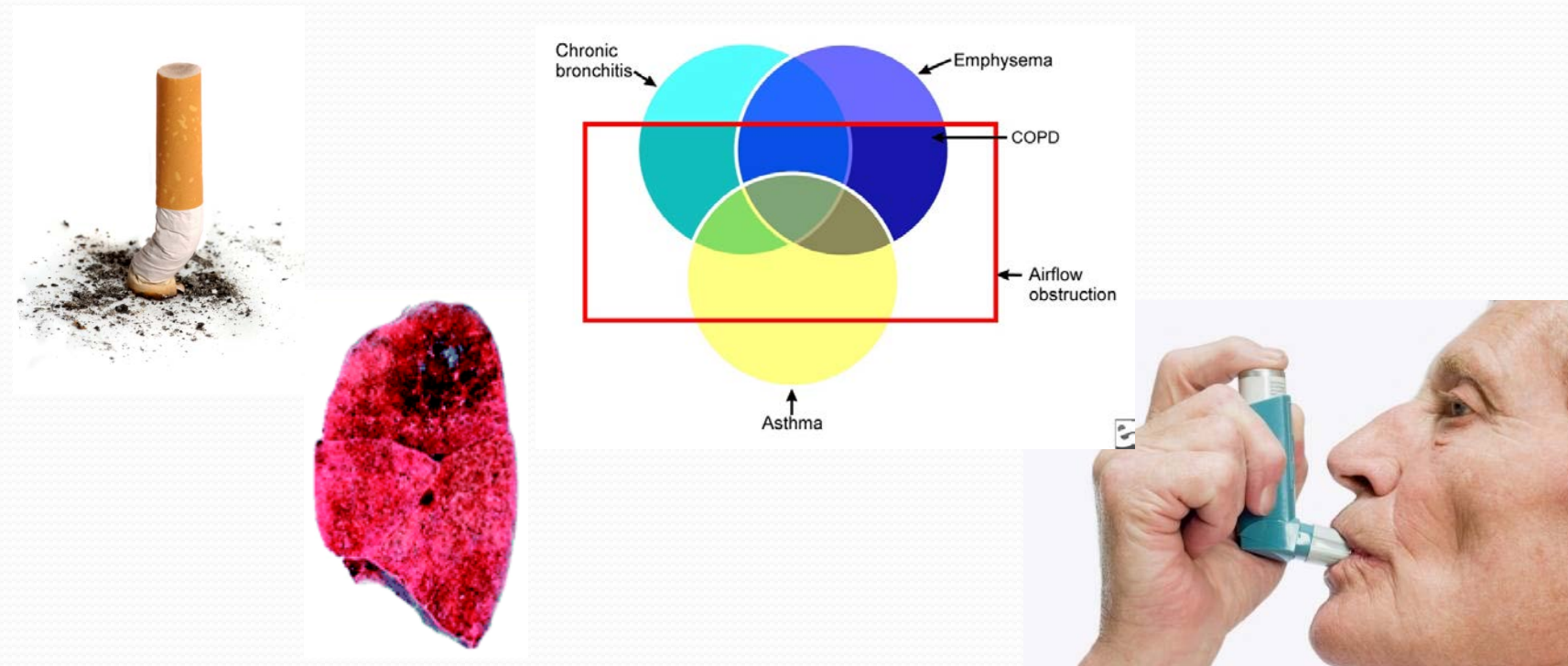


Identifying COPD in primary care: targeting patients at the highest risk

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What is COPD?

- Chronic obstructive pulmonary disease or COPD is a long-term inflammatory disease of the lungs, primarily caused by cigarette smoking.
- It includes emphysema and chronic bronchitis and overlaps with asthma.
- It results in increasing respiratory symptoms such as shortness of breath and in its severe stage can require long-term oxygen therapy.
- It can have a profound impact on quality of life and often results in premature death.



The problem

- COPD is the fifth leading cause of death in the UK.
- COPD costs the NHS ~£1 billion per year and is a major cause of hospital admissions.
- Much of the disease burden remains undiagnosed with an estimated 2 million undiagnosed cases in the UK.
- There is a national drive to identify patients with undiagnosed COPD so that they get better access to the healthcare they need.

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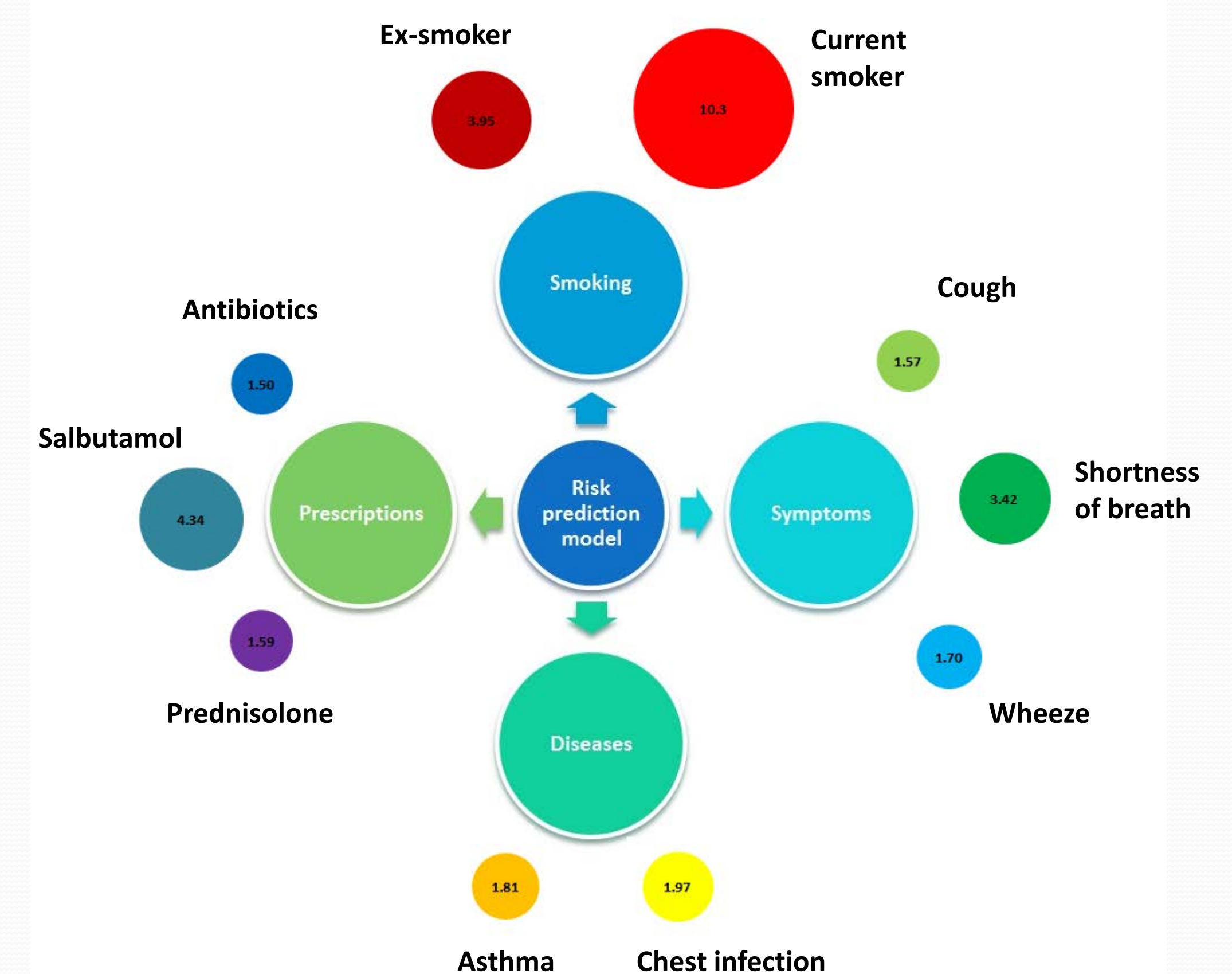
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Our solution

- Developed a risk prediction model that can be used by general practitioners to help identify patients with undiagnosed COPD.
- Compared risk factors routinely recorded in primary care between 9397 patients with COPD and 17829 patients without COPD.
- We used a statistical method called multiple logistic regression to develop a risk prediction model that incorporates risk factors significantly associated with COPD (see figure- the numbers indicate the size of the association between the risk factor and COPD).
- We tested the accuracy of the model on a separate group of patients consisting of 4615 with COPD and 8756 without COPD.
- Accuracy of the model was assessed using a statistic called the area under the receiver operator characteristic curve (or AUC). An AUC of 1 indicates perfect accuracy while an AUC of 0.5 indicates an indiscriminate model.
- Our model had an AUC of 0.87 which demonstrates a promising ability to identify patients with undiagnosed COPD.
- Our model could detect up to 80% of patients with undiagnosed COPD.
- We aim to further develop and validate this model using data from a large randomised controlled trial (Birmingham Lung Improvement Studies, TargetCOPD)



Application

- Simple scoring system used by a clinician with or without the aid of software.
- Incorporation into primary care information systems to estimate COPD risk scores for an entire population.
- Allow clinicians in primary care to identify patients at high risk of COPD who might benefit from further clinical assessment and treatment.

