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Understanding and Managing Asthma in the UK- A Public Health Persepective



NAME: MUHAMMAD HAMZA
STUDENT ID NUMBER: 2515820

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Lecturer: Dr. Aishat Bakre

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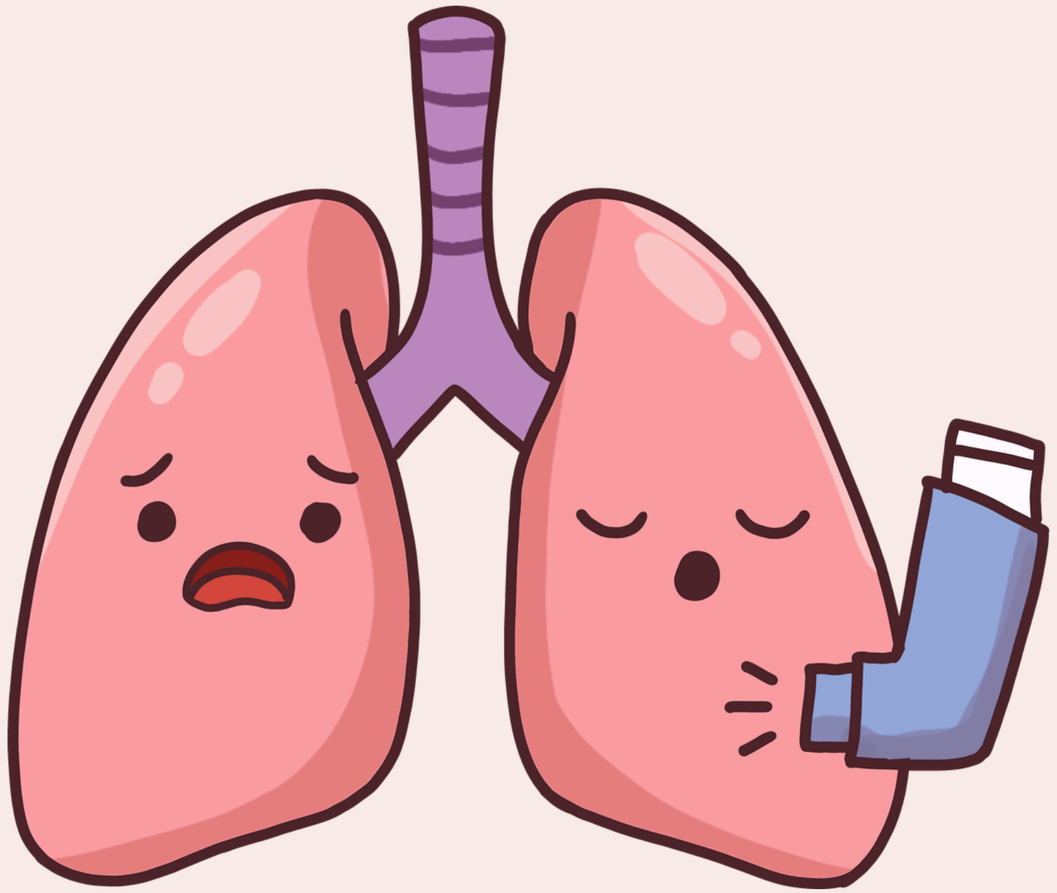
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What is Asthma

Asthma is a chronic respiratory disease that causes inflammation, and constriction of the passages of the lungs or airways of the lungs; thus producing excessive mucus; making it hard to breathe.

Many of the symptoms of asthma include; wheezing (i.e., a wheezing sound when breathing), coughing, shortness of breath and/or tightness in the chest. Symptoms can be mild to severe. Certain people may have an exacerbation (i.e., worsening) in their symptoms due to a "trigger," which could be an allergen, cold air, physical exertion [exercise], or an illness, such as the common cold.

Asthma is considered a chronic disease, but it can be controlled through the appropriate use of medicines and lifestyle management.



Types of Asthma

As there are many reasons why a person may get asthma, there are also different types of asthma that can be classified into various categories based on trigger/irritant and severity.

Allergic (Extrinsic) Asthma

Allergic asthma is triggered by allergens such as dust, pollen, animal hairs or fur (pet dander), and/or mold. Allergic asthma is the most common type of asthma and usually occurs in conjunction with other allergic conditions, such as hay fever and eczema.

Non-allergic (Intrinsic) Asthma

Non-allergic asthma does not result from an allergen (triggers that cause asthma symptoms, refer to the list above). A non-allergic asthma attack can happen when the person is under a lot of stress, breathing in cold air, exposure to smoke, or developing a respiratory infection.

Exercise-induced Asthma

Exercise-induced asthma refers to asthma symptoms that occur during or immediately after physical activity/exercise due to airway narrowing from breathing faster and colder.

Occupational Asthma

Occupational asthma occurs due to exposure to irritants in the workplace, such as chemicals, fumes, and/or dust.

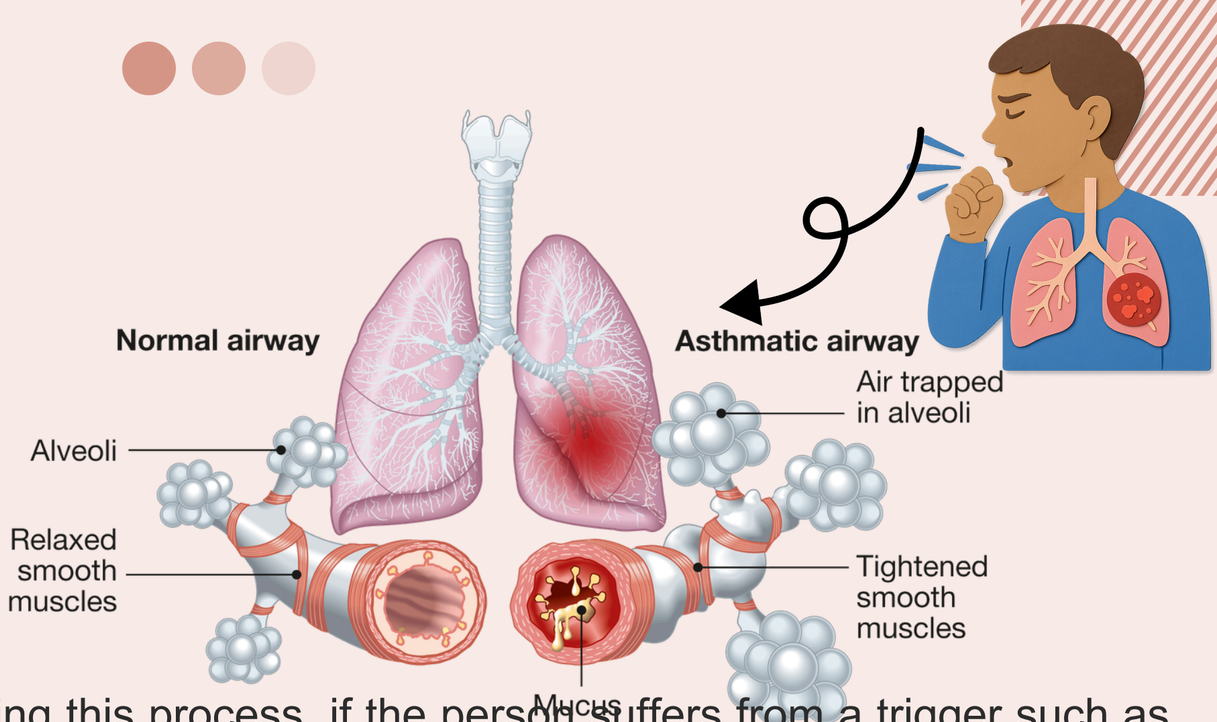
Severe Asthma

Severe asthma is a persistent type of asthma that cannot be controlled with regular medications alone.

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Aetiology (Causes)

- Genetic predisposition
- Environmental (pollution, allergens, tobacco smoke)
- Exposure in the workplace
- Respiratory infection during childhood



Pathophysiology:

Chronic inflammation of the airways is how asthma presents. During this process, if the person suffers from a trigger such as smoke, dust, cold air or some kind of allergen, the body's immune response is too high and as a result, histamine and cytokines are released from the immune system. The inflammation caused by the release of these mediators can cause the lining of the airways to swell.

After swelling occurs in the lining of the bronchial tubes, muscles surrounding the bronchial tubes undergo contraction or tightening, narrowing the air passages through which air must pass. In addition to narrowing of the air passages there is also an increased amount of mucus that forms. Both of these factors further impede the flow of air into and out of the lungs, especially when air is being exhaled from the lungs.

Repeated inflammation within the lungs causes airway hyper-responsiveness; this means that the airways are better able to detect a trigger that would normally go undetected. The result of this hyper-responsiveness is repeated episodes of wheezing, coughing, chest tightness, and/or shortness of breath. Asthma can be treated, and while the inflammation that remains will typically be reversed, the inflammation that has become chronic may lead to long-term changes in the structure of the airway.

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Sign and symptoms of Asthma

Asthma is a chronic respiratory disease caused by inflammation of the airways and constriction of the airways.

- Shortness of breath (dyspnea)
- Wheezing (whistling sounds during breathing)
- Tightness in chest
- Coughing (usually at night or early in morning)
- Difficulty breathing when exercising or when exposed to environmental allergens
- Extra mucus production in your air passages

Detecting asthma early on is crucial in avoiding major asthma attacks and reducing lung damage in the long run.

Importance of Early Detection:

- Prevention of severe asthma attacks
- Improvement of control over lung function
- Reduced chances for hospitalization
- Provision of opportunity for early treatment and improved overall quality of life

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Epidemiology and Disease Burden

United Kingdom data: Approximately 8 million people currently receiving treatment (Asthma + Lung UK, 2024).
Around 1,200 deaths per year due to exacerbations related to poorly controlled asthma.
Increased prevalence of asthma in socio-economically deprived and ethnically diverse groups.

Global Context

Over 262 million cases reported (WHO, 2023).Asthma is one of the top 20 causes of years lived with disability (YLDs).
Public Health Challenge: A preventable long-term condition that presents an ongoing burden in economic and service delivery to the NHS.

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Economic and Social Implications

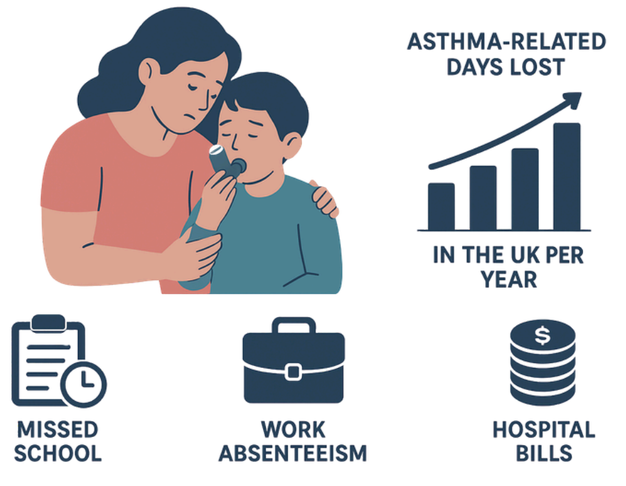


Direct costs to the NHS: >£1 billion annually on hospital admissions, prescriptions, and emergency care.

Indirect costs: reduced productivity, school absence, and carer burden.

Psychosocial issues: anxiety, insomnia, and stigma related to chronic illness.

Health disparities may worsen disease-specific outcomes for socio-economically deprived urban communities.



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Diagnosis and Clinical Assessment

Guidelines: NICE NG80 (2024); BTS/SIGN (2019)

Diagnostic Pathway:

Objective Testing: Spirometry (FEV_1/FVC ratio <70%), Fractional Exhaled Nitric Oxide (FeNO), and peak expiratory flow variability.

Clinical Assessment: Symptom diary, nocturnal symptoms, and atopic history.

Risk Stratification: Identifying phenotypes at high risk for potential treatment response (eosinophilic asthma, steroid-resistant asthma) to construct an individualized therapeutic approach.



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Role of Community Nurses and Primary Care Teams



- **Assessment of the Bio-Psycho-Social Model**
- Medical: Look for symptoms, lung function, inflammation and frequency of exacerbations.
- Psychological: Evaluate stress levels, anxiety, beliefs about asthma, and whether or not the patient adheres to medications.
- Social: Explore socioeconomic status, family support, environmental factors that trigger an attack, and lifestyle barriers.
- By using this holistic approach, a better understanding of how psychological and social factors impact perceived symptoms, control and medical treatment.

Asthma Action Plans

- Create individualized asthma action plans for all patients according to the severity of their asthma, their personal triggers and lifestyle.
- Utilize a motivational interviewing approach, to encourage patients to explore their beliefs about their asthma, increase their motivation and improve their adherence to their asthmatic medications.
- Review individualized asthma action plans regularly with the patient to evaluate control and achievement of personal goals.
- Using a comprehensive, patient-centered approach to care enables the practitioner and patient to make shared decisions, and be more successful in self-managing the disease.

Stable Continuity of Care

- Collaboration with the physician, pharmacist, respiratory specialist.
- Daily assessment of patient-compliant medications and correct use of inhaler.
- Across all healthcare providers involved in caring for a patient with asthma, share information, evaluate treatment and make recommendations to achieve optimal long-term control, and decrease any care gaps.
- To improve adherence to evidence-based guideline management of asthma, collaboration among healthcare providers will enhance patient outcomes.

Proactive Anticipatory Care Planning

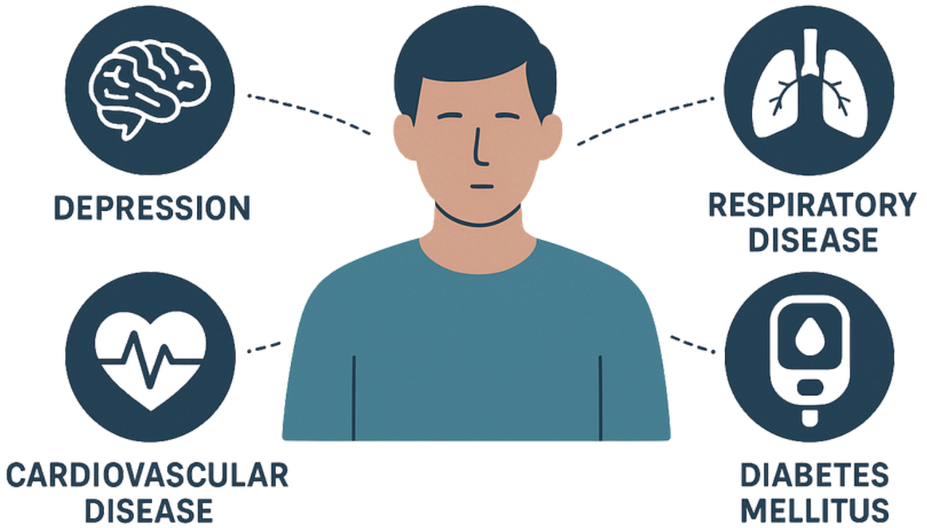
- Identify patients at risk for poor asthma control or frequent exacerbations.
- Provide early intervention and follow-up on these patients.
- Educate the patient about the first signs of an asthma exacerbation and how to prevent additional visits to the emergency department.
- Early identification and intervention through proactive anticipatory planning, can reduce the number of acute care hospital admissions.

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Comorbidities and Multimorbidity Considerations

Frequent Co-existing Conditions

- Allergic Rhinitis,
- Eczema,
- Obesity,
- GERD,
- Depression



Clinical Implications

- Increased severity of disease and burden of symptoms,
- Increased complexity and unpredictability of treatment,
- Decreased quality of life and control of disease.

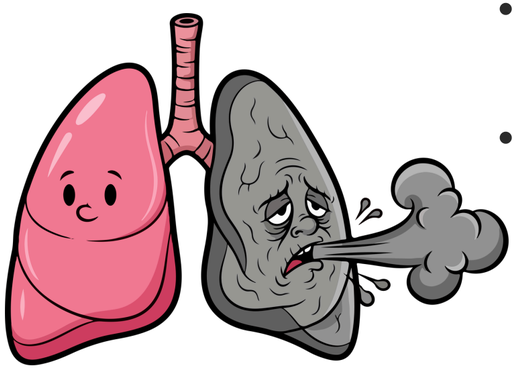
Management Approach

- Use integrated and patient-centered care paths,
- Use biopsychosocial models for assessment and management/treatment. Manage all coexisting conditions together for optimal outcome.

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Prevention and Public Health Strategies





- Primary Prevention: Pollution mitigation policies, smoking cessation, and maternal education regarding children's respiratory health.
- Secondary Prevention: Diagnosis in primary care, using spirometry screening.
- Tertiary Prevention: Community-based self-management programs and patient empowerment programs
- Policy Alignment: Aligned to the NHS Long Term Plan (2019) to reduce health inequalities in the context of respiratory health.



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Co-productive and Person-Centred Care

Important Principles: Respect, empowerment, and collaboration to support professionals and service user partnership.

Most Important Skills: Cultural competence, active listening, and shared decision making.

Co production promotes adherence, builds therapeutic alliances, and supports sustainable changes in behaviors.

Example: Nurse lead self management clinics have shown better peak flow measures and lower rates of hospital readmission.

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The House of Care Model for Asthma Management in the UK

NHS England has devised a framework to transform care for individuals with long-term conditions, including asthma.

It places an emphasis on collaborative care planning and shared decision-making with patients.

The "House" represents four parts that are interdependent and must work in unison:

Engaged and informed individuals and carers (right side)

Healthcare professionals who are committed to partnership working (left side)

Organizational systems and processes (the roof)

Commissioning and policy support (the foundation)

The care planning conversation is in the centre, supporting shared decision-making and self-management.



Figure 1. The House of Care Model (NHS England). Reidy, C. (2019). ResearchGate.

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NHS Comprehensive Model of Personalised Care

Guidance for the personalised management of people with long-term conditions to support the NHS Long Term Plan.

Involves six evidence-based elements:

1. **Shared decision making**
2. **Personalized care and support planning**
3. **Supported self-management**
4. **Choice and social prescribing**
5. **Community-based and peer support**
6. **Integrated health and care systems**

For asthma, it endorses joint goal setting, access to digital monitoring tools (for example, MyAsthma app), and empowerment to self-manage within communities.

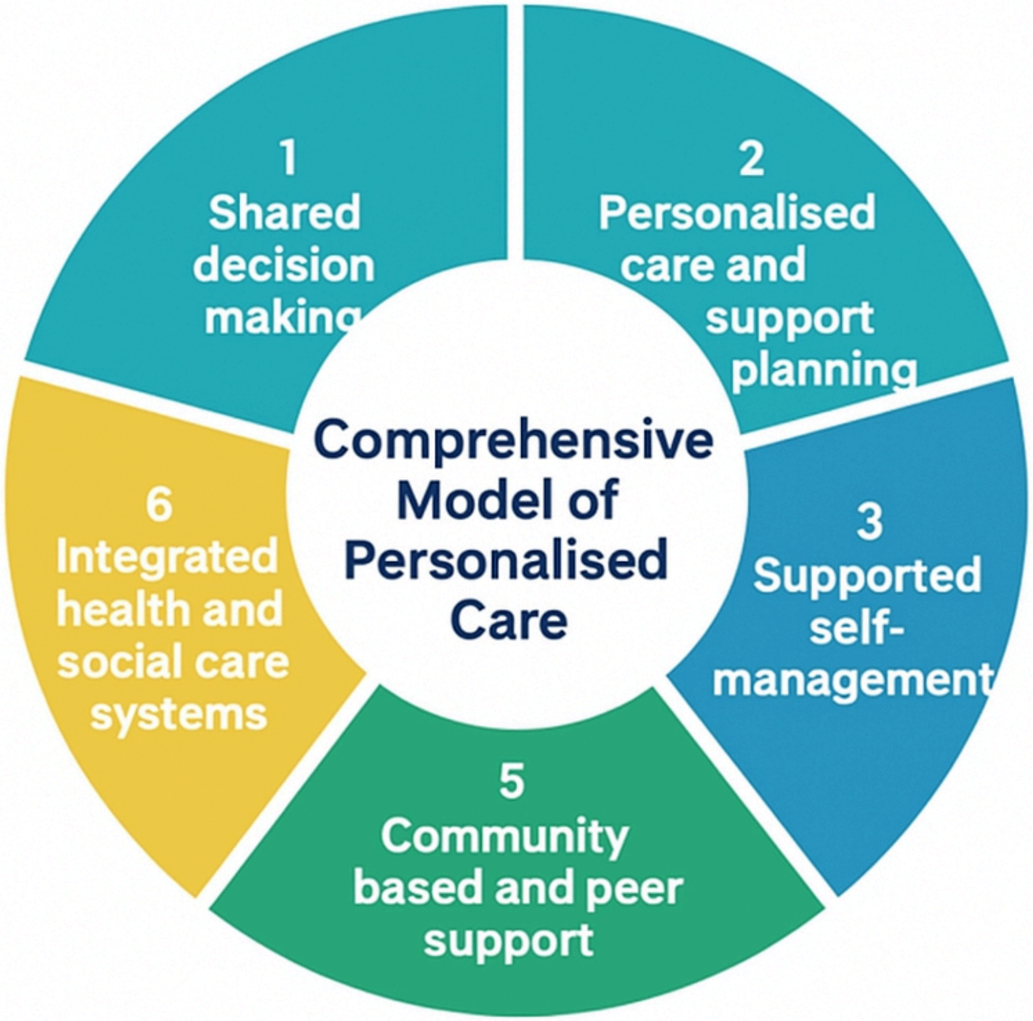


Figure 2. Comprehensive model of personalised care (NHS England).

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Thanks

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