Asthma in the 21st Century

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Asthma has a long history

The term ‘asthma’ first appeared in Homer’s epic poem *The Iliad* composed in the 7\(^{\text{th}}\) or 8\(^{\text{th}}\) century BC.

The Trojan leader Hector ‘lying on the plain, while about him sat his comrades, and he was gasping with painful breath [*asthmati*]…’
The asthma attack

‘It’s onslaught is of very brief duration – like a squall, it is generally over within the hour. One could hardly, after all, expect anyone to keep drawing his last breath for long, could one? I have suffered every kind of unpleasant or dangerous physical complaint, but none worse than this. Not surprising, for anything else is just an illness, while this is gasping out your life-breath.’

Seneca, Epistulae Morales ad Lucilium, c. AD 62-5
Asthma is a long-term inflammatory disorder of the airways.

Asthma is characterised by breathlessness, chest tightness, wheezing, cough, sputum production, airflow obstruction, and hyper-responsiveness of the airways.
Scale of the problem

• 5.4 million people suffer with asthma in the UK
• Asthma attacks (‘exacerbations’) lead to
  – 67,000 A&E visits
  – 50,000 hospital admissions
• 40% are children under the age of 16
Economic Burden of Asthma

Direct Costs
- £1 billion
- Physician visits
- A&E visits
- Hospital admissions
- Diagnostics
- Medication (£800m)

Indirect Costs
- £6 billion
- Productivity loss
- Unemployment
- School days lost
- Travelling
- Disability costs

The most severe 5% of patients invoke 50% of total health care burden for asthma

Cost-enhancing factors
- Asthma severity
- Poor asthma control
- Comorbidity
There is no cure for asthma, the aim of treatment is to control symptoms and prevent asthma attacks.
Asthma Therapies Over the Ages

12th Century
‘Pickled fish, lungs of foxes, fat of rabbits’

1858

1882

1930

Dr. Batty’s
For Your Health
Asthma Cigarettes
Since 1882
For the temporary relief of paroxysms of asthma
Effectively treats: asthma, hay fever, foul breath, all diseases of the throat, head colds, canker sores, bronchial irritations
Not recommended for children under 6.
The Evolution of the Asthma Inhaler

1957: 2 puffs every 3-4 hours
1980: 2 puffs every 12 hours
1995: 1 puff every 24 hours
2015: [Image of inhaler]
Corticosteroids – excellent at controlling asthma, but at an expense...

- Obesity
- Diabetes
- Cataracts
- Psychiatric
- Skin disease
- Osteoporosis
- Reflux
- Glaucoma
The Era of Personalised Medicine for Asthma

- Recent asthma research has led to an improved understanding of the disease
  - New therapies target very specific parts of the inflammatory pathway
    - Reduce asthma attacks by up to 70%
    - No steroid-related side effects
  - Very expensive: ~£20,000 per patient per year
  - Only work if the correct patients are selected
  - To avoid inappropriate prescribing and spiralling NHS costs only specialist severe asthma units are permitted by NHSE to prescribe these new therapies
NHS England Severe Asthma Centres

Royal Brompton & Harefield
NHS Foundation Trust

Barts Health
NHS Trust

Guy’s and St Thomas’
NHS Foundation Trust
GSTT Severe Asthma Centre

- Receive referrals from GP’s and respiratory consultants from across South London, Kent and E. Sussex
- Asthma team: 3 consultants, 2 specialist asthma nurses, pharmacist, respiratory physiotherapist, health psychologist
- Fully investigate patients to understand why their asthma is so severe / difficult to control
- ~250 clinic appointments / month
- ~300 emergency adult asthma admissions / year
- Active asthma research programme
Thank you for your attention