

Risk assessment in asthma; predictors of severe attacks

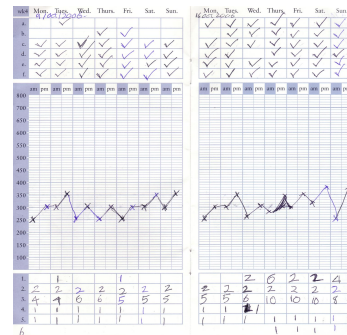
Maritime Health Seminar



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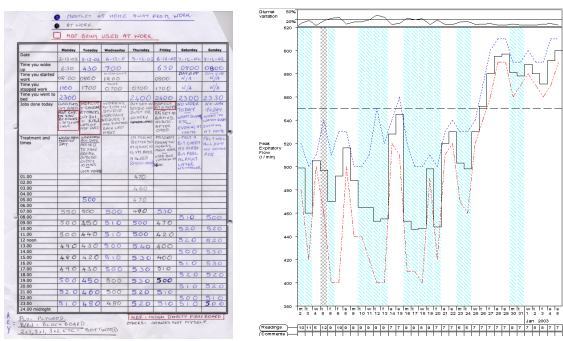
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Asthma is a variable condition



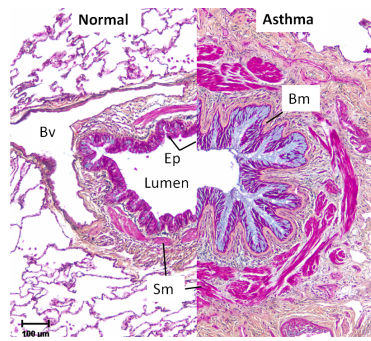
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External Stimuli are important



3

Asthma and airway inflammation



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1960

Annals of Internal Medicine

LATEST ISSUES CHANNELS CME/MOC IN THE CLINIC JOURNAL CLUB WEB EXCLUSIVES AUTHOR INFO

ORIGINAL RESEARCH 15 DECEMBER 1960

UNEXPECTED DEATH IN BRONCHIAL ASTHMA: A WARNING SIGN WITH A CLINICOPATHOLOGIC CORRELATION*

MICHAEL MARIE O'BRIEN, M.D., MATTHEW J. FERGUSON, M.D.

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1976

BRITISH MEDICAL JOURNAL 19 JUNE 1976 1483 PAPERS AND ORIGINALS

Asthma deaths in Cardiff 1963-74: 90 deaths outside hospital

J B MACDONALD, A SEATON, D A WILLIAMS

British Medical Journal, 1976, 1, 1483-1485

known to have occurred from this disease in the Cardiff area since 1963. Here we consider the deaths that occurred before the patient reached hospital.

Summary

In a detailed study of factors associated with death from bronchial asthma outside hospital 90 patients were investigated. The fatal attack was typically short and was most likely to occur in patients with a long history. Deaths often occurred before effective medical help was available, but occasionally the patient on the scene underestimated the severity of the attack. Patients especially at risk were those recently discharged from hospital after a previous attack. These deaths might be prevented by better patient education, a self-management service for medical supervision, and by discrete, easily objective measurements of severity of asthma for the control of treatment. The importance of corticosteroids is an important factor associated with death.

Methods

Cardiff and its surrounding towns had a population of around 300 000 during the period of the study. Since before 1963 over 200 deaths in the area had had "asthma" mentioned on the death certificate. Deaths were reviewed before effective medical help was available to the patient or to the general practitioner, obtaining all hospital notes, and reviewing the autopsy reports. In all cases this was done mainly over the death records. Names of those persons who attended the Cardiff asthma clinic and many of those dying outside hospital were reviewed. Over 6000 cases of asthma had been referred to our clinic.

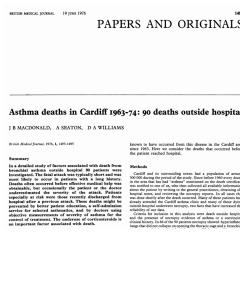
Criteria for inclusion in this analysis were death outside hospital and the presence of autopsy evidence of asthma or a convincing clinical history. In 44 of the 90 patients autopsy showed hyperinflated lungs but did not collapse on opening the thorax, and was described

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1976

“These deaths might be prevented by better patient education, a self-admission service for selected asthmatics, and by doctors using objective measurements of severity of asthma for the control of treatment.”

The underuse of corticosteroids is an important factor associated with death.”



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NRAD 2012-13

The national review of asthma deaths: what did we learn and what needs to change?

Summary

Despite the development and publication of evidence-based asthma guidelines nearly three decades ago, generally preventable factors are repeatedly identified in studies of the care provided for patients who die from asthma. The UK National Review of Asthma Deaths (NRAD), a confidential enquiry, was an exception: major preventable factors were identified in two thirds of asthma deaths. Most of these factors, such as inappropriate prescriptions and failure to provide patients with personal asthma action plans (PAAAs), could possibly have been prevented had asthma guidelines been implemented.

NRAD focused on death severity by clinicians of the asthma care for 495 people who were classified with asthma as the underlying cause of death in real life. A striking finding was that a third of these patients did not actually die from asthma, and many had not been classified as asthma as the underlying cause of death in real life. A striking finding was that a third of these patients did not actually die from asthma, and many had not been classified as asthma as the underlying cause of death in real life. A striking finding was that a third of these patients did not actually die from asthma, and many had not been classified as asthma as the underlying cause of death in real life.

Introduction

published on World Asthma Day in 2014, attracted a lot of media attention in the UK and elsewhere in the world. Surprisingly, despite modern drug, devices and evidence based

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NRAD 2012-13; asthma deaths

Table 2 Demographics

Characteristic*	
Duration of asthma (n=104)	0-62 years (median 11 years)
Age at diagnosis (n=102)	10 months-90 years (median 37 years)
Age at death (n=193)	4-97 years (median 58 years)
Severity of asthma (n=153) [†]	
Mild	14 (9%)
Moderate	76 (49%)
Severe	61 (39%)
Previous hospital admission (n=190)	90 (47%)
Accident and Emergency attendances (n=115)	40 (34%)
Intensive care admissions (n=18)	27 (15%)
Current smokers (n=193)	39 (20%) [‡]
Psychosocial and learning disability factors (n=190)	84 (44%)
Obesity (BMI ≥30 kg m ⁻² at most recent assessment) (n=12)	3 (25%)

Data are presented as n (%), unless otherwise stated. * data return from doctors was incomplete; † assessable data for each parameter are shown in parentheses; ‡ classified by clinicians; † 2 out of 28 children and young people (under 20 years-old) were classified with mild or moderate asthma by their clinicians; † a further 27 (10%) were exposed to smoke at work.

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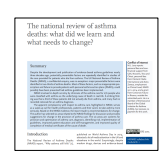
NRAD 2012-13

Care satisfactory in 16% (4% of children)

Avoidable risk factors identified

Missed opportunities

- Over prescribing of β_2 agonists alone without inhaled steroids
- Failure to monitor asthma
- Failure to refer for specialist assessment and treatment
- No implementation of UK guidance (e.g. BTS SIGN)

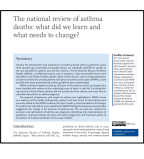


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NRAD 2012-13

Risk factors

- Asthma severity (treatment number/complexity)
- Excess use of short acting β_2 agonists
- Low levels of prophylactic use
- Environmental tobacco smoke exposure
- Asthma attack (particularly in hospital)

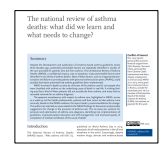


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NRAD 2012-13

Which of the following are risk factors for asthma attacks

- Well controlled asthma
- Inadequate use of preventer (controller) medication
- Poor inhaler technique
- Excess use of SABA
- Previous asthma attack




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NRAD 2012-13


Which of the following are risk factors for asthma attacks

- a. Well controlled asthma
- b. Inadequate use of preventer (controller) medication
- c. Poor inhaler technique
- d. Excess use of SABA
- e. Previous asthma attack



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Asthma Guidelines 2019



Healthcare Improvement Scotland | SIGN
Evidence-based clinical guidelines


SIGN 158
British guideline on the management of asthma

A national clinical guideline
First published 2003
Revised edition published July 2019

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Asthma Guidelines 2019

National Clinical Guideline
First published 2003
Revision edition July 2019




Rationale
Asthma is common, with significant morbidity and mortality
Some of the above relates to poor management or preventative approaches

Formats
Hardcopy
Online
Patient versions available

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Asthma Guidelines 2019




Key Areas
Diagnosis
Monitoring of asthma
Supported self management
Non-pharmacological management
Pharmacological management
Inhaler devices
Management of acute asthma
Difficult asthma
Asthma in adolescents
Asthma in pregnancy
Occupational asthma
Organisation and delivery of care

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Asthma Guidelines 2019

Asthma Control



Measurement	Methodology	Measurement characteristics	Comments
Score of Control of Physicians' Questionnaire	Physicians or general practitioners respond to three questions about the impact of asthma symptoms on their patients' quality of life, work, and school.	Direct questions consistent with the impact of asthma symptoms on patients' quality of life, work, and school.	Used in the RCP3 study.
Asthma Control Questionnaire (ACQ) ^{1,2,3,4}	Five questions about symptoms over the preceding week (no seasonal variation).	Well validated in adults and children aged 5 and over. Available in many languages.	Used in the RCP3 study.
Asthma Control Test (ACT) ^{5,6,7,8,9,10,11}	ACT has questions about symptoms over the preceding week (no seasonal variation).	Well validated in adults and children aged 5 and over. Available in many languages.	Used in the RCP3 study.
Mini Asthma Quality of Life Questionnaire (mAQOL) ^{12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100}	15 questions in four domains: symptoms, functional limitation, emotional function, and environmental sensitivity.	Well validated in adults and children aged 5 and over. Available in many languages.	Used in the RCP3 study.

RCP 3 questions
Asthma Control Questionnaire (ACQ)
Asthma Control Test
Mini Asthma QOL Questionnaire

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Asthma Guidelines 2019

Asthma Control Questionnaire

Five questions and lung function
Assesses the last week only
Well validated in adults
Multiple languages
Poor control < 20

Asthma Control Questionnaire

Please answer Questions 1-6. Circle the number of the response that best describes how you have been during the past week.

1. On average, during the past week, how often were you woken by your asthma during the night?

0 Never
1 Healthy ear
2 A few times
3 Several times
4 Many times
5 A great many times
6 Unable to sleep because of asthma

2. On average, during the past week, how bad were your asthma symptoms when you woke up in the morning?

0 No symptoms
1 Very mild symptoms
2 Mild symptoms
3 Moderate symptoms
4 Quite severe symptoms
5 Severe symptoms
6 Very severe symptoms

3. In general, during the past week, how limited were you in your activities because of your asthma?

0 Not limited at all
1 Very slightly limited
2 Slightly limited
3 Moderately limited
4 Very limited
5 Extremely limited
6 Totally limited

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Asthma Guidelines 2019

Asthma Control Test

5 questions

Well validated

Poor control < 20

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Asthma Guidelines 2019

Asthma Review

- Current control
- Future risks of attacks
- Tests
- Management
- Supported self management

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Asthma Guidelines 2019

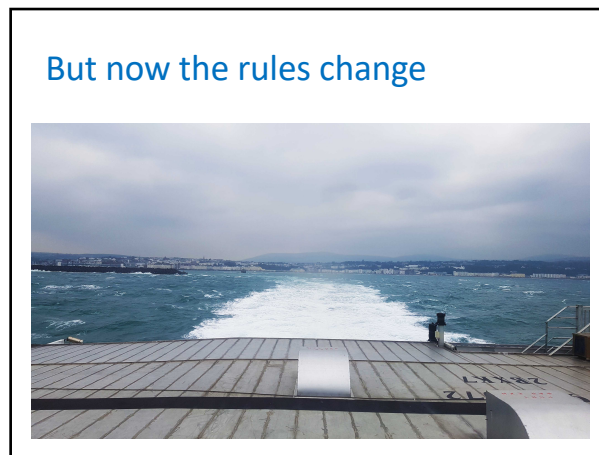
Asthma Review

- Current control
- Future risks of attacks
- Tests
- Management
- Supported self management

Future Risks of Attacks

- Past history of attacks
- Poor asthma control
- Oral steroid use
- Frequent SABA and infrequent inhaled steroids
- Older age
- Female
- Reduced lung function
- Obesity
- Tobacco smoke exposure
- Depression

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MCA 2019

Approved Doctor's Manual

Seafarer Medical Examinations

July 2019

This manual is intended to be read in conjunction with MSN 1886 (M+F) Medical Fitness Standards

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MCA 2019

Chapter 4: Asthma

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Asthma

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Asthma Guidelines 2019



1. Asthma Severity and symptoms
 Recommends exclusion of various categories; severe childhood, moderate or severe adult asthma

2. Recruitment age and past experience leading to 3 and 4

3. Permits acceptance of stable asthma

4. Permits acceptance of stable exercise induced asthma

5. Permits acceptance of certain stable moderate asthmatics

Future Risks of Attacks

- Past history of attacks
- Poor asthma control
- Oral steroid use
- Frequent SABA and infrequent inhaled steroids
- Older age
- Female
- Reduced lung function
- Obesity
- Tobacco smoke exposure
- Depression

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Asthma caused by work

Based only on longitudinal, population based studies

Reporting incidence
 Occupational risk factors
 9 studies



Incident asthma PAF 16% [95% CI 10-22]
 [similar to previous estimate]

Limited data upon which to draw inference

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COPD caused by work

Based on 7 reviews, 2 metaanalyses and 48 papers longitudinal, population based studies

Population based or case control studies, occupational risk factors, LLN defined and JEM exposure attribution favoured. Varying smoking strata.

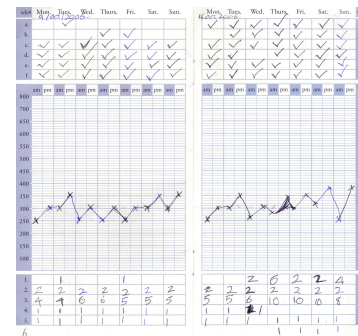


COPD PAF 14% [95% CI 10-18]
 [28 estimates, 26 studies, similar to previous estimates]

Never smoker COPD PAF 31% [95 CI 18-43]
 [6 studies]

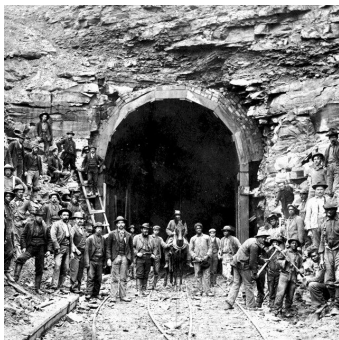
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Asthma is a variable condition



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Learning from the past



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Risk assessment in asthma; predictors of severe attacks

Maritime Health Seminar



Professor David Fishwick
 Consultant Respiratory Physician
 Sheffield Teaching Hospitals NHS and
 Chief Medical Adviser, HSE and HSE
 Northern Ireland
 Level 1 and 2d diving physician

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