MALATTIE PROFESSIONALI 2

26 OTTOBRE 2019 ore 08.00-14.00

Scuola di Perfezionamento per le Forze di Polizia

Piazza di Priscilla, 6, 00199 Roma RM

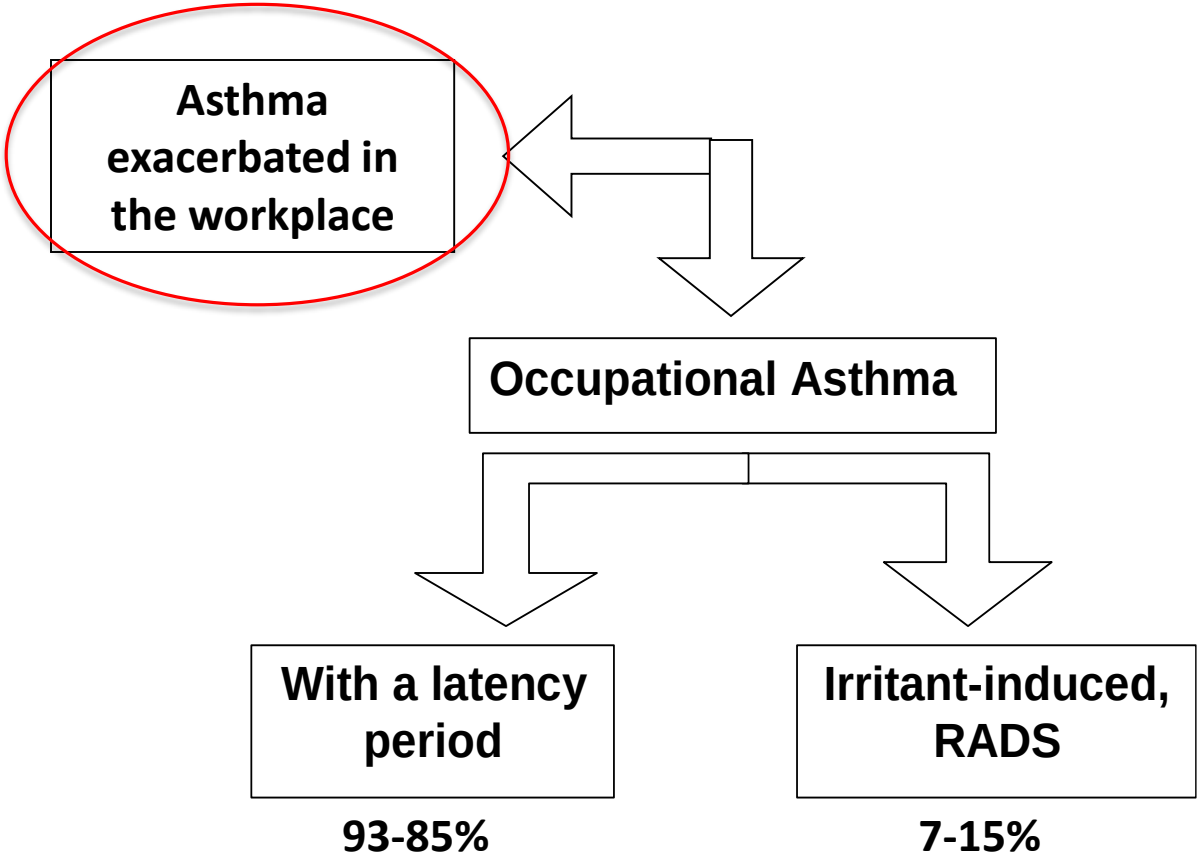
L'asma corrrelata al lavoro

Piero Maestrelli

Dipartimento di Scienze Cardiologiche, Toraciche e Vascolari

Università di Padova

Work-related asthma



The frequency of work-exacerbated asthma (WEA)

Reference		*%WEA (n employed adults with asthma)*
Saarinen et al (Finland)	ERJ 2003	21% (n= 64)
Henneberger et al. (Maine, USA)	Arch Env H 2003	25% (n= 969)
Henneberger et al. (USA)	Occ Env Med 2006	24% (n= 557)

Case definition of WEA

Criterion 1: Pre-existing or concurrent asthma.

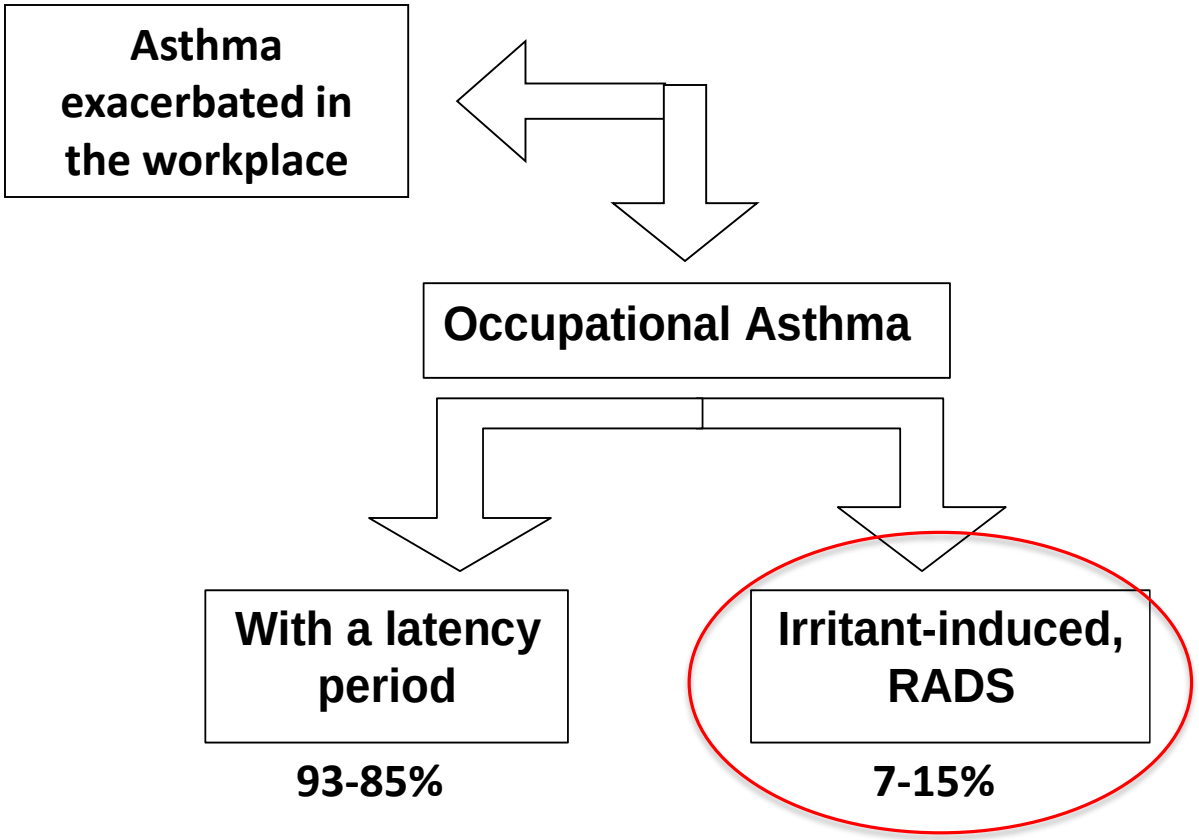
Criterion 2: Asthma–work temporal relationship.

Criterion 3: Conditions exist at work that can exacerbate asthma.

Criterion 4: Asthma caused by work (i.e., occupational asthma) is unlikely.

Henneberger et al. Am J Respir Crit Care Med 2011;184:368–378

Work-related asthma



Criteria for the diagnosis of RADS

- Documented absence of preceding respiratory complaints.
- Other types of pulmonary diseases were excluded.
- Onset after specific exposure incident or accident.
- Exposure to a gas, smoke, fume or vapour, present in high concentrations and with irritant qualities.
- Onset of symptoms within 24 hours of the exposure and persistence for at least 3 months.
- Symptoms clinically consistent with asthma, with cough, wheezing and dyspnea predominating.
- Appropriate challenge testing demonstrated increasing airway responsiveness.
- Pulmonary function tests may show airflow obstruction.

Cause di RADS

- **Gas** cloro, SO_2, cloramine, NOx
- **Acidi** acetico, cloridrico, fluoridrico,
- **Alcali** ammoniaca, idrazina
- **Biocidi** formalina, insetticidi, cloruro di Zn
- **Alogenati** Br-Cl-difluorometano, CFC, lacrimogeni
- **Solventi** percloroetilene
- **Fumi** incendi, dietilaminoetanolo
- **Polveri** WTC
- **Sensibilizzanti** isocianati, anidride ftalica

(Vandenplas et al. Allergy 2014)

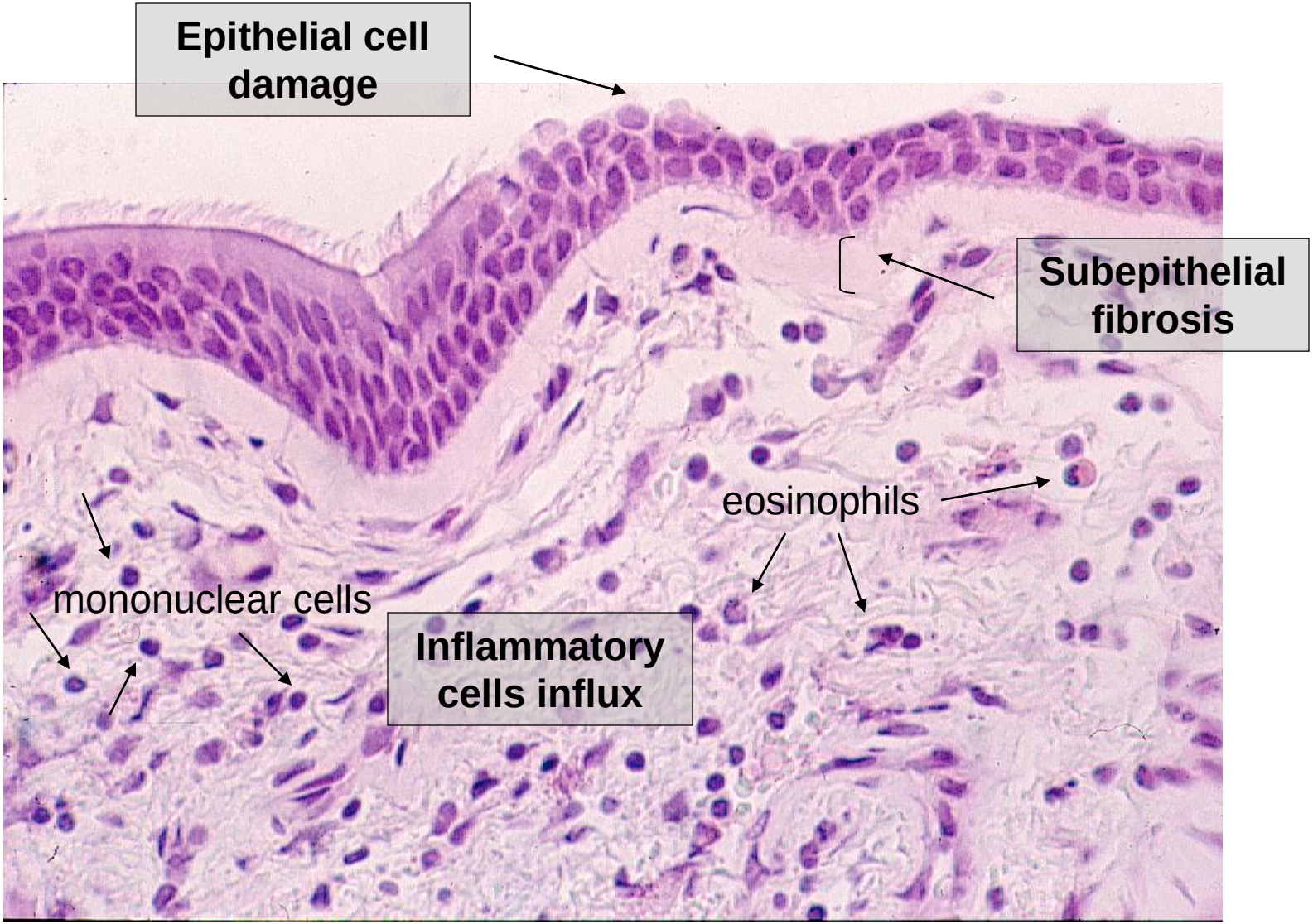
SIMILARITIES:
Occupational asthma - RADS

- **Symptoms**
- **Lung function (reversible airflow limitation, bronchial hyperresponsiveness)**
- **Persistence of functional and pathologic abnormalities**

DISCREPANCIES:

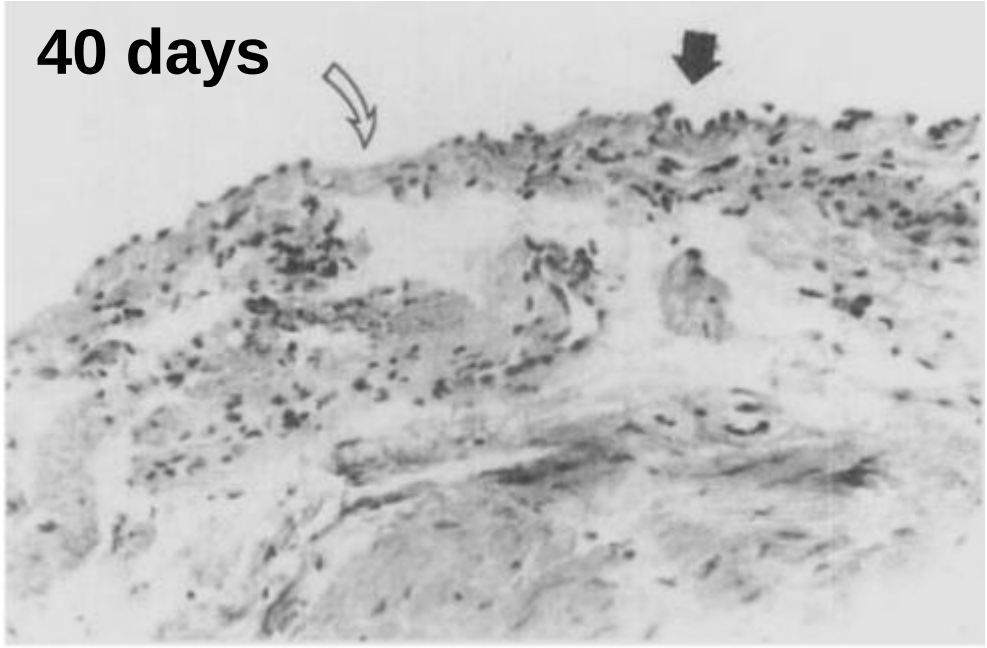
	Occupational asthma	RADS
Onset	latency	no latency
Inducing concentrations	low	high
Genetic predisposition	yes	no
Airway pathology	Eosinophils Mast cells T lymphocytes Subepithelial fibrosis	Epithelial damage Less cells More fibrosis
Mechanism	mostly immunologic	unknown

Pathology of occupational asthma



Reactive airways dysfunction syndrome induced by exposure to a mixture containing isocyanate: functional and histopathologic behaviour

C. Lemière[1], J.-L. Malo[1],
L.-P. Boulet[2], M. Boutet[2]



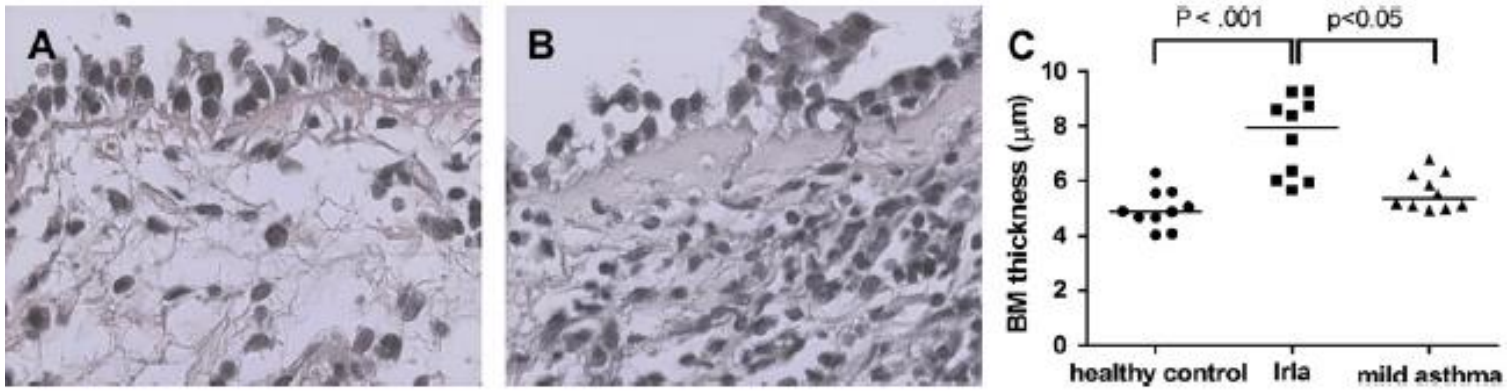
- **Loss of epithelial cells**
- **Subepithelial oedema**
- **Inflammatory cells (lymphocytes)**

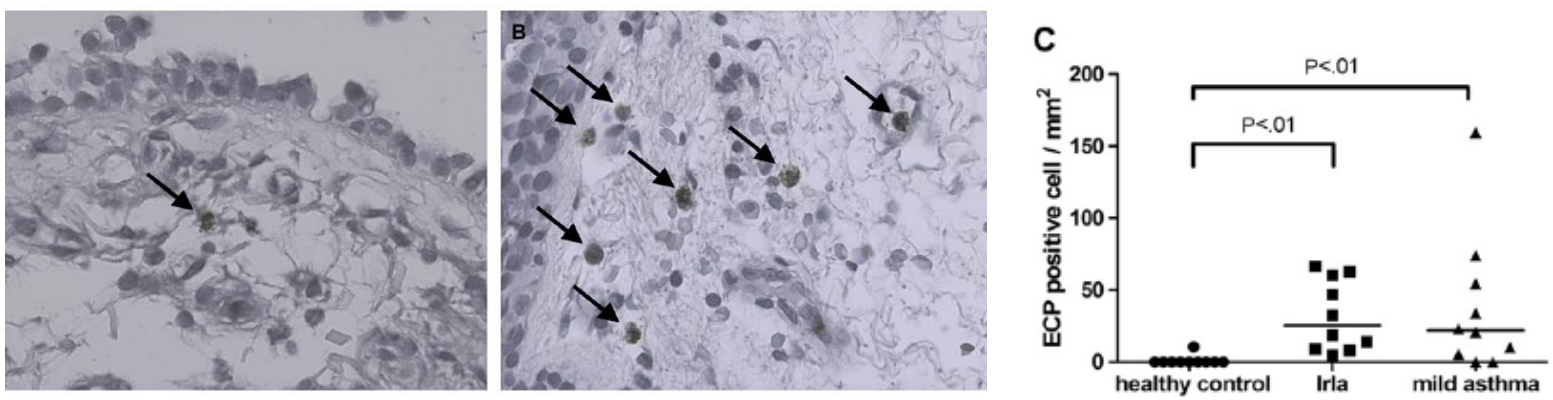
Allergy 1996;51:262-5

Long-term pathologic consequences of acute irritant-induced asthma

Naoya Takeda, MD, PhD,[a] Karim Maghni, DSc, PhD,[b] Sylvie Daigle, RN,[b] Jocelyne L'Archevêque, RT,[b] Lucero Castellanos, RT,[b] Wisam Al-Ramli, BSc,[a] Jean-Luc Malo, MD,[b] and Qutayba Hamid, MD, PhD[a] *Montreal, Quebec, Canada*

4-20 yr follow up





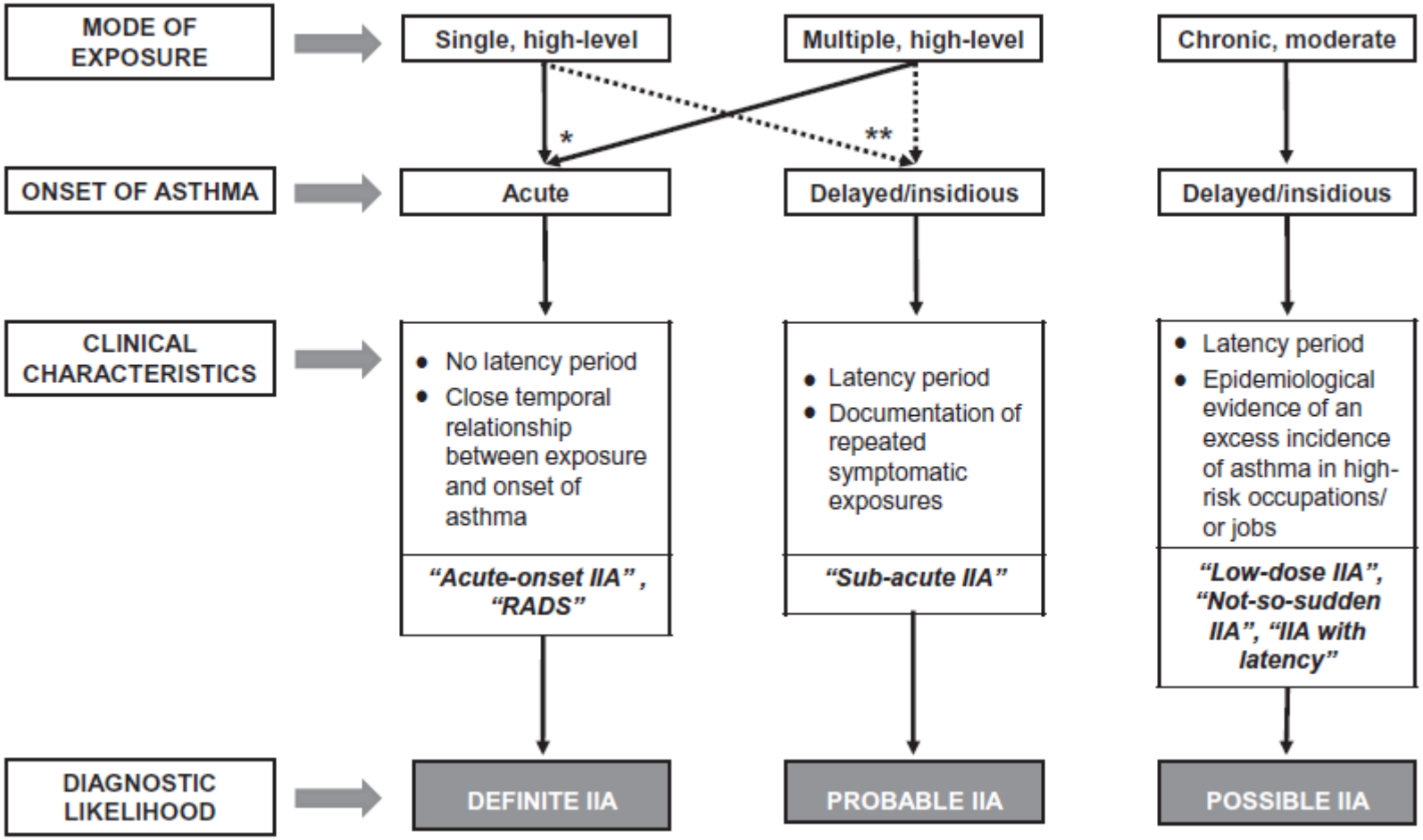
healthy control **irritant-induced asthma**

J Allergy Clin Immunol 2009;124:975-81

EAACI position paper: irritant-induced asthma

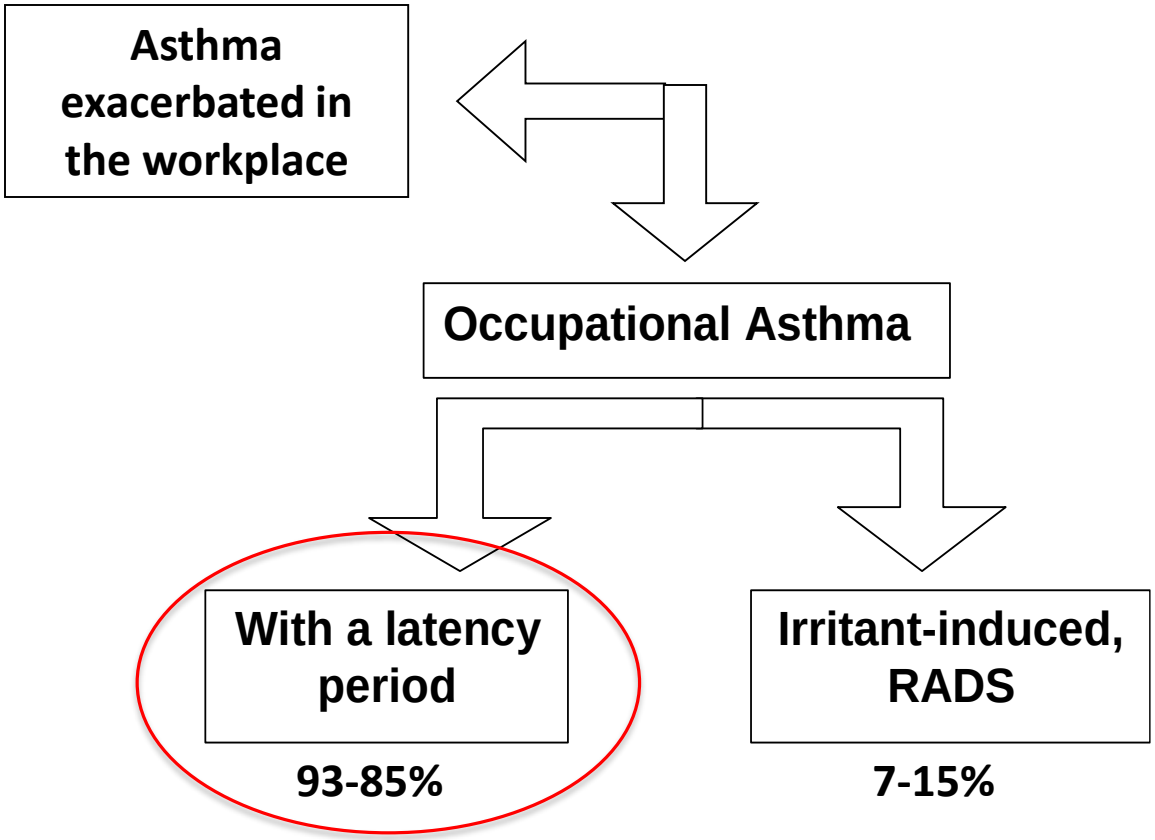
O. Vandenplas[1], M. Wiszniewska[2], M. Raulf[3], F. de Blay[4], R. Gerth van Wijk[5], G. Moscato[6], B. Nemery[7], G. Pala[8], S. Quirce[9], J. Sastre[10], V. Schlünssen[11], T. Sigsgaard[11], A. Siracusa[12], S. M. Tarlo[13,14,15], V. van Kampen[3], J.-P. Zock[16,17,18,19] & J. Walusiak-Skorupa[2]

Diagnostic algorithm for IIA



Allergy 2014

Work-related asthma



ASMA A MECCANISMO IMMUNOLOGICO, CON LATENZA	
Agente causale	**Lavoratori a rischio**
Composti ad alto peso molecolare	
Farine di cereali	Fornai, mugnai
Allergeni derivati da animali	Allevatori, tecnici di laboratorio
Latice	Operatori sanitari
Pollini, insetti, miceti	Agricoltori, giardinieri
Enzimi proteolitici	Produzione detersivi
Amilasi, ovoproteine	Fornai, cuochi
Crostacei, pesci	Industria alimentare
Acari	Agricoltori
Composti a basso peso molecolare meccanismo IgE-dipendente	
Anidridi acide organiche	Lavorazione resine epossidiche
Metalli (platino, nichel)	Saldatura, fonditura, placcatura
Composti a basso peso molecolare meccanismo non IgE-dipendente	
Isocianati	Verniciatori, uso di adesivi ed inchiostri, produzione e uso di resine poliuretaniche,
Polvere di legno, ac. plicatico	Falegnami
Persolfati	Parrucchieri
Colofonia	Saldatori in industria elettronica
Cianoacrilati, metacrilati	Uso di adesivi, dentisti, chirurghi
Farmaci	Operatori sanitari, industria farmaceutica
Coloranti	Industria tessile, pellicceria
Glutaraldeide	Operatori sanitari, endoscopisti
Cobalto	Metallurgia, pulitura diamanti

Regolamento CLP 1272/2008:

- ***Frasi H (indicazione di pericolo) sostituiscono le frasi R***

H334 – Può provocare sintomi allergici o asmatici o difficoltà respiratorie se inalato

R42 può provocare sensibilizzazione per inalazione

H335 – Può irritare le vie respiratorie

R37 Irritante per le vie respiratorie

Pittogramma		
Avvertenza	Pericolo	Attenzione
Indicazione di pericolo	**H334** Può provocare sintomi allergici o asmatici o difficoltà respiratorie se inalato	**H335** Può irritare le vie respiratorie

Causes of occupational asthma

http://www.csst.qc.ca/en/prevention/reptox/occupational-asthma

CNESST > Santé et sécurité du travail > English > Prevention > Répertoire toxicologique > Occupational Asthma > **Occupational Asthma**

- Notice to English users
- About the Répertoire
- List of products according to WHMIS 2015
- List of products according to WHMIS 1988

Occupational Asthma

Identification of causes

The occupational origin of asthma, even though sometimes obvious, can often be difficult to confirm. Identifying the cause is an important part of this confirmation. Since the causes are numerous and have diverse origins (both animal, and plant and chemical), it is important to have tools that allow quick identification.

- List of agents causing occupational asthma.
  List of agents causing occupational asthma and related professions, more references and data test results from the literature
  Pdf format (224Kb) **January 2017**

http://www.aoecdata.org/ExpCodeLookup.aspx

AOEC Association of Occupational and Environmental Clinics

Description of Exposure Codes | Exposure Code Lookup | Video Center | Member Login

Enter a hazard or keyword (a partial entry is okay)

Hazard/Keyword

Search | Clear | Display All Asthmagens | Display All Hazards | Export to Excel | Instructions

Allergen list - Windows Internet Explorer

http://www.eaaci.org/sections-a-igs/ig-on-occupational-allergy/allergen-list.html

File Modifica Visualizza Preferiti Strumenti ?

Preferiti | Login | Università degli Studi di Pad... | Valutazione della Qualità del... | Area riservata | COMUNE DI GALLIO - WEBC... | Database Personale Scientifico | Dipartimento di Medicina Am.

Allergen list

Pagina Sicur

Member Login

EAACI Membership No

Password

LOGIN

» Forgot Password?

Become a member

EAACI member benefits

ACTIVITIES | ORGANISATION | SECTIONS & IGs | JUNIORS | RESOURCES | JOURNALS | MEDIA

Home > SECTIONS & IGs > IG on Occupational Allergy > Allergen list

More

SECTIONS & IGs

- Asthma Section
- Dermatology Section
- ENT Section
- Immunology Section
- Pediatrics Section
- IG on Aerobiology & Pollution
- IG on Allergy, Asthma & Sports
- IG on Allergy Diagnosis

Occupational Allergens List

Text size + -

The Occupational Allergy IG now offers the new Allergens List through a flexible and easy-to-use Search Engine. Search by Agents, Name, Abbreviation, Occupation/Process or all of them and find the occupational allergens you are looking for!

Dowload the new Allergen List now!

Sensitizing Agents Inducers of Occupational Asthma and Hypersensitivity Peumonitis

Joaquín Sastre & Santiago Quirce Fundación Jiménez Diaz, Servicio de Alergia, Universidad Autonoma de Madrid, Spain jsastre@fjd.es, sequirce@fjd.es Modifyed from: Patología Respiratoria Alérgica Ocupacional. Joaquín Sastre & Santiago Quirce. Emisa Ed, Madrid, 2003. ISBN 84-86917-58-1

EAACI Archives
Find an old file or more information

EAACI

HAVE YOU PAID YOUR 2013 EAACI MEMBERSHIP?

Renew your membership through the new Members Area (login box above) and continue enjoying the benefits of being a member of the Academy.

Food Allergy and Anaphylaxis Meeting

European network for the PHenotyping of OCcupational Asthma (Task force E-PHOCAS, EAACI)

Manchester, UK

Birmingham, UK

London, UK

Leuven-Yvoir, B

Strasburg, F

Barcellona, S

Madrid, S

Bergen, N

Helsinki, F

Odense, DK

Hamburg, D

Bochum, D

Lodz, Pol

Prague, Czech

Pavia, I

Padova, I

Pisa, I

Perugia, I

European network for the PHenotyping of OCcupational ASthma (E-PHOCAS, EAACI)

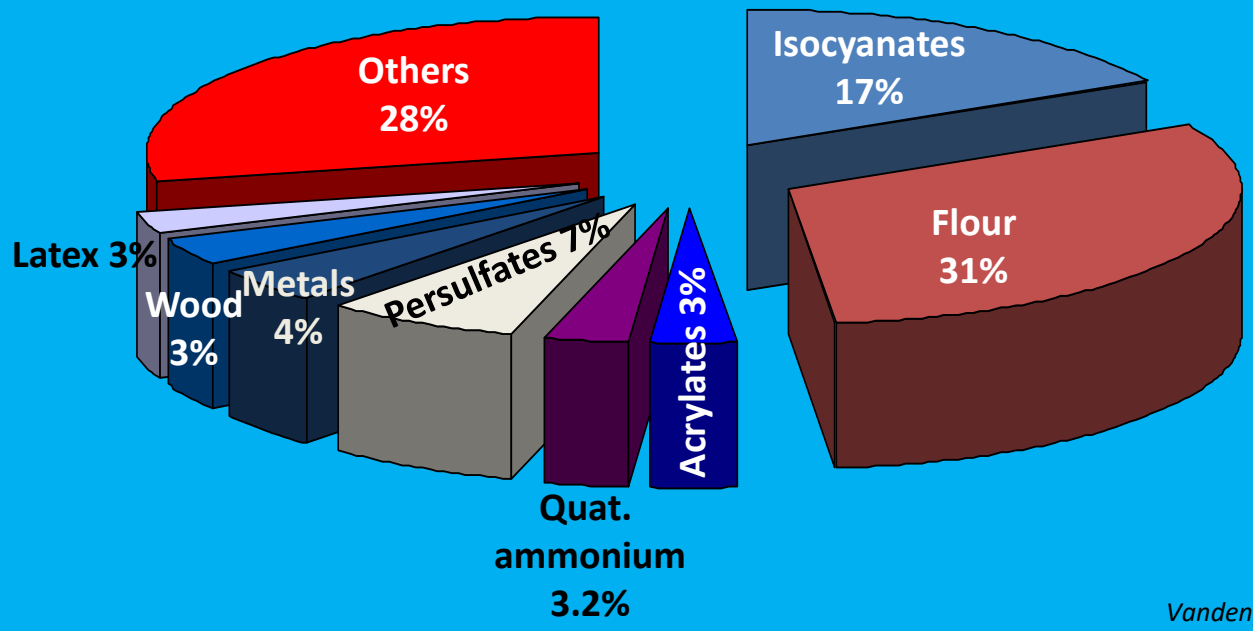
Retrospective multicenter study (2006-2015)
20 tertiary centers from 11 European countries
1.180 subjects with positive specific inhalation challenge

LOW-MOLECULAR-WEIGHT AGENTS
(n=544)

HIGH-MOLECULAR-WEIGHT AGENTS
(n=635)

European network for the PHenotyping of OCcupational ASthma (E-PHOCAS, EAACI)

Occupational asthma SIC-confirmed, 2006-2015 (n= 1167)



Vandenplas et al., Allergy 2019

Incidenza di asma professionale in Italia

- **Incidenza asma in adulti: 1.5-2 casi/1000/anno***

*** De Marco et al. JACI 2002**

Incidenza di asma professionale in Italia

- **Incidenza asma in adulti: 1.5-2 casi/1000/anno***
- **Forza lavoro in Italia** *(ISTAT 2012):* ***24*** *x* $\boldsymbol{10^6}$

*** De Marco et al. JACI 2002**

Incidenza di asma professionale in Italia

- **Incidenza asma in adulti: 1.5-2 casi/1000/anno***
- **Forza lavoro in Italia** *(ISTAT 2012):* ***24*** *x* $\boldsymbol{10^6}$
- **36000-48000 casi/anno**

*** De Marco et al. JACI 2002**

Incidenza di asma professionale in Italia

- **Incidenza asma in adulti: 1.5-2 casi/1000/anno***
- **Forza lavoro in Italia** *(ISTAT 2012):* ***24*** *x* $\boldsymbol{10^6}$
- **36000-48000 casi/anno**
- **PAR 15% work-related asthma (WRA)** = 5400-7200**

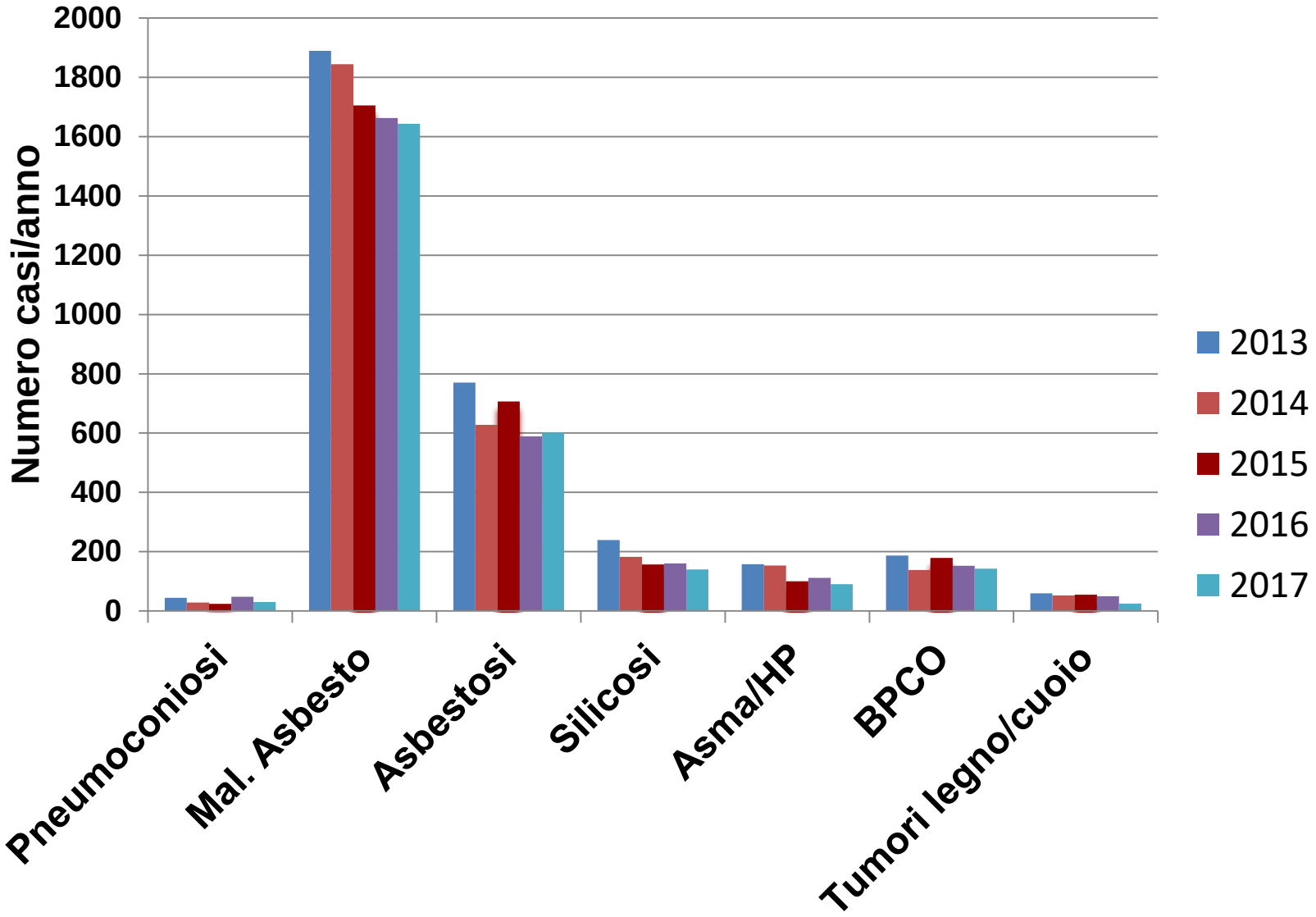
*** De Marco et al. JACI 2002**
****Balmes J et al. *Am J Respir Crit Care Med* 2003**

Incidenza di asma professionale in Italia

- **Incidenza asma in adulti: 1.5-2 casi/1000/anno***
- **Forza lavoro in Italia** *(ISTAT 2012):* ***24*** *x* $\boldsymbol{10^6}$
- **36000-48000 casi/anno**
- **PAR 15% work-related asthma (WRA)** = 5400-7200**
- **Stima conservativa OA 40% = circa 2500 casi/anno**

* De Marco et al. JACI 2002
**Balmes J et al. *Am J Respir Crit Care Med* 2003

Principali malattie professionali dell'apparato respiratorio denunciate all'INAIL nel periodo 2013-2017 nei settori Industria, Servizi e Agricoltura



Barriers to the recognition and reporting of occupational asthma by Canadian pulmonologists

Anu Parhar MD[1], Catherine Lemiere MD MSc[2], Jeremy R Beach MBBS MD[1]

Barriers to considering

- Patients' low awareness of the condition means they do not consider work.

- Physicians' low awareness of the condition means they do not ask about work.

- The majority of cases of new onset adult asthma are not work related.

- Most physicians do not have sufficient knowledge of the workplace to confidently include this possibility in their differential diagnosis.

- There are many causes of work-related asthma making identifying a link with work time consuming and difficult.

- There is no benefit for patients in considering a diagnosis of work-related asthma.

- There is a lack of clear guidance about how best to manage work-related asthma.

Barriers to diagnosing

- The lack of time in clinical .practice to obtain an accurate history of work-related changes in symptoms

- It is difficult to obtain a detailed work history and accurate information on relevant workplace exposures.

- The complexity of the condition means it is difficult to diagnose with confidence.

- There is a lack of sensitive and/or specific tests for work-related asthma.

- There is a lack of test facilities or referral centres where appropriate investigations may be carried out.

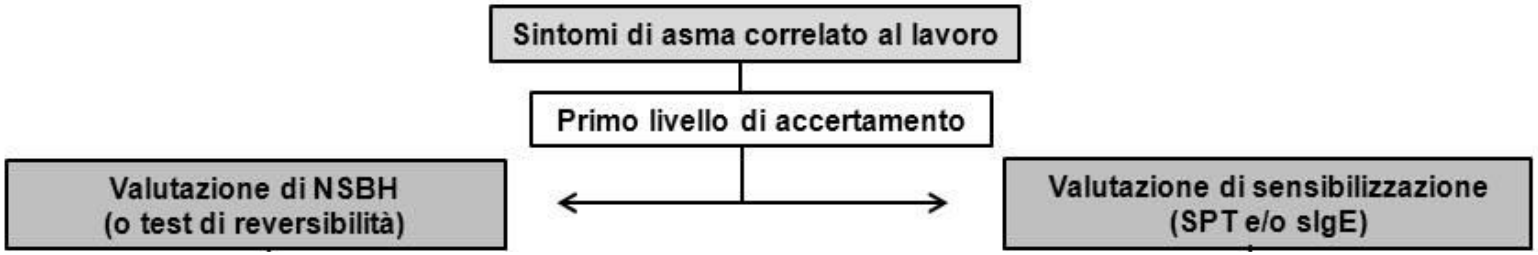
- It is not useful to diagnose a patient's asthma as being work-related.

Can Respir J 2011

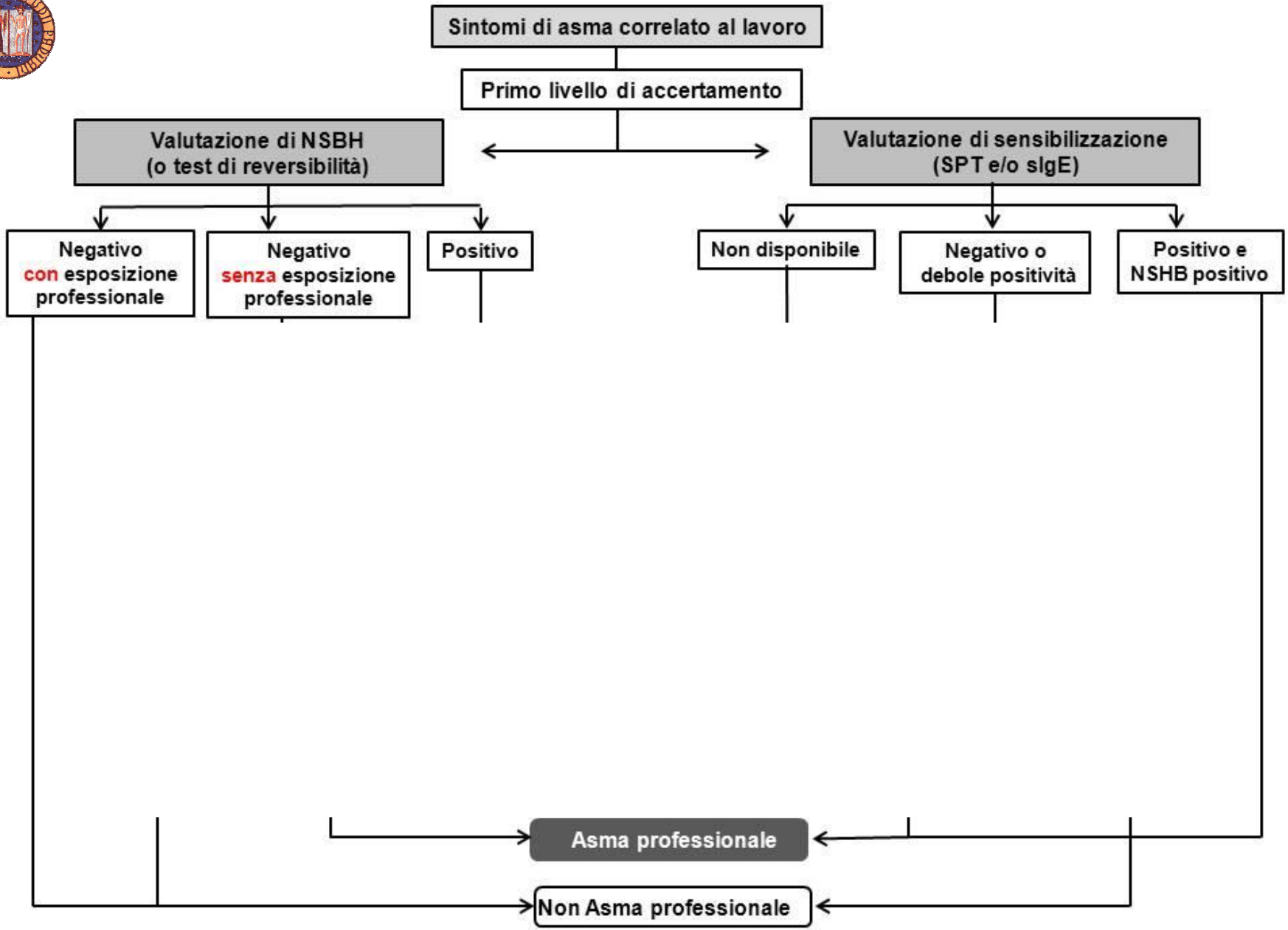
Diagnosis of occupational asthma: medical history

- Symptoms: chest (+ nasal and ocular)
- Onset of the disease
- Time relationship of symptoms with work-shift
- Job and products at work (safety data sheet)

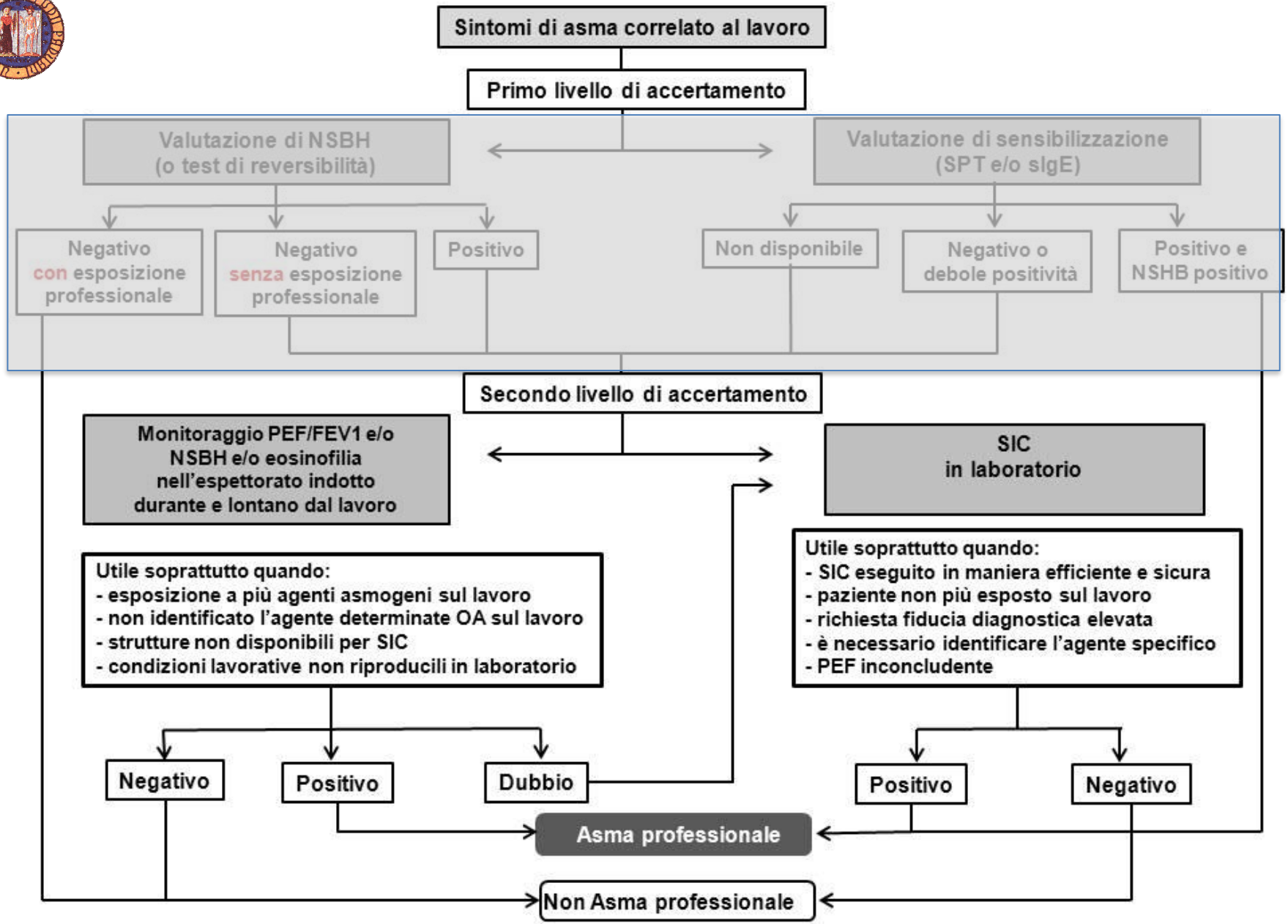
sensitive but not specific



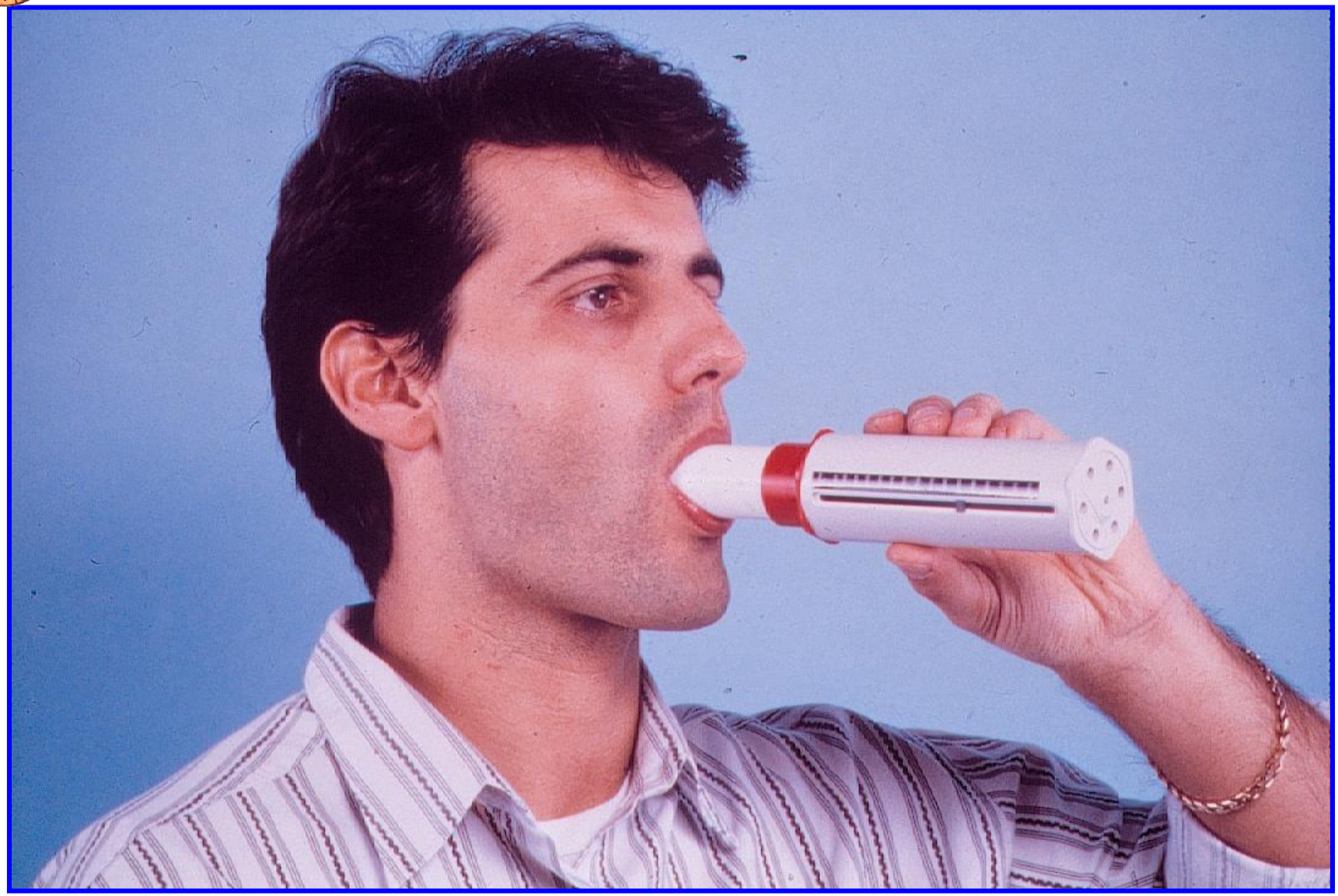
Algoritmo diagnostico dell'asma professionale (OA)
modificato da Vandenplas O et al. Diagnosing occupational asthma Clin Exp Allergy. 2017;47(1):6-18



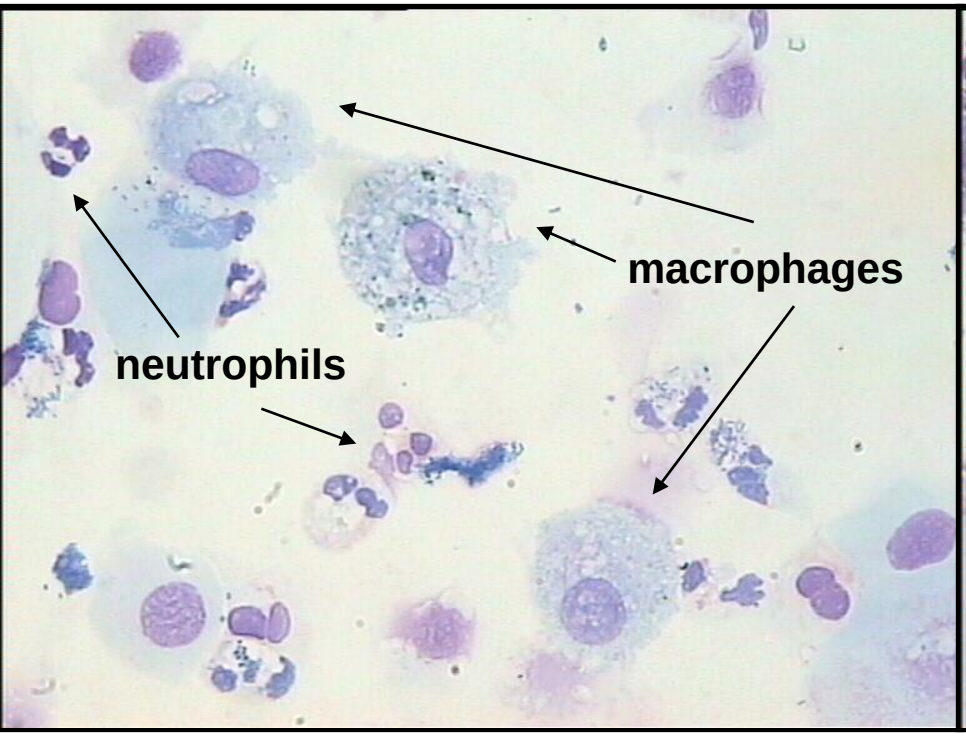
Algoritmo diagnostico dell'asma professionale (OA)
modificato da Vandenplas O et al. Diagnosing occupational asthma Clin Exp Allergy. 2017;47(1):6-18



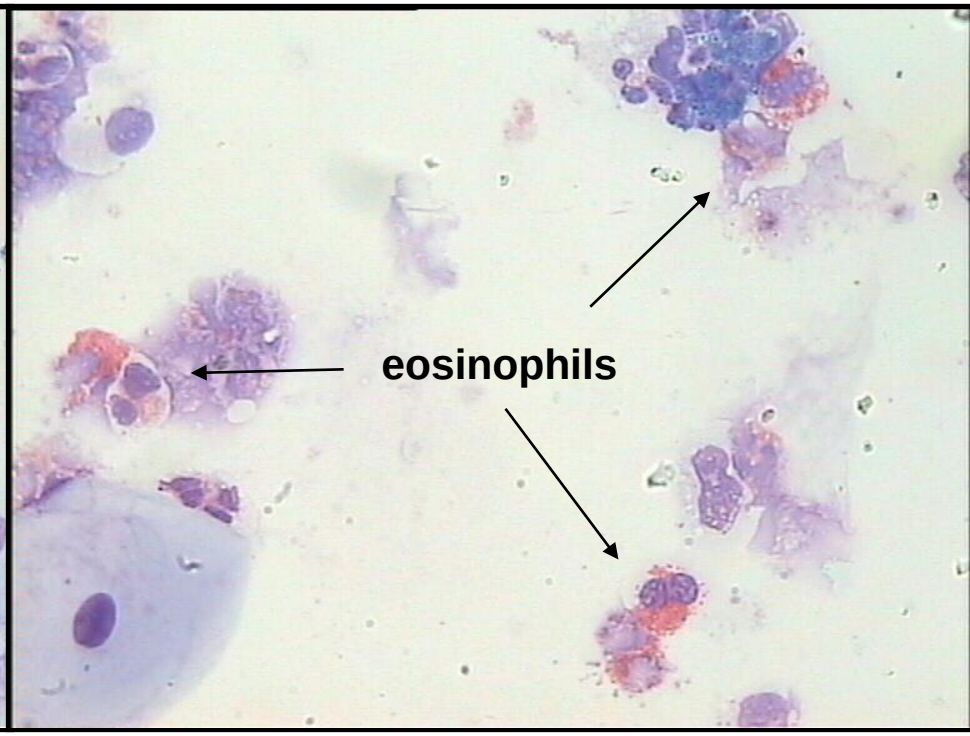
Algoritmo diagnostico dell'asma professionale (OA)
modificato da Vandenplas O et al. Diagnosing occupational asthma Clin Exp Allergy. 2017;47(1):6-18



Cells in induced sputum in asthma induced by isocyanates

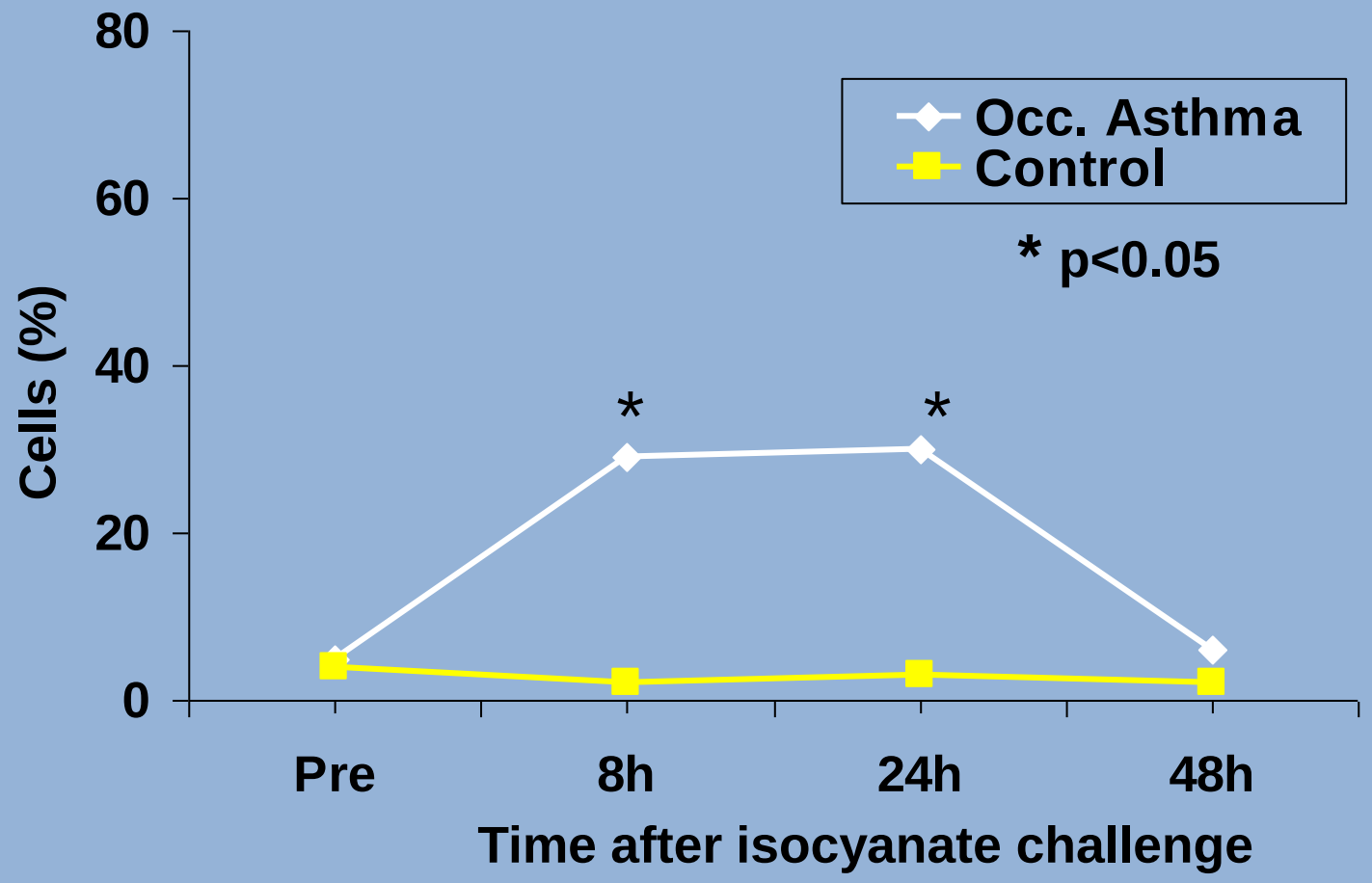


Pre-exposure



24 hours after exposure

Sputum eosinophils



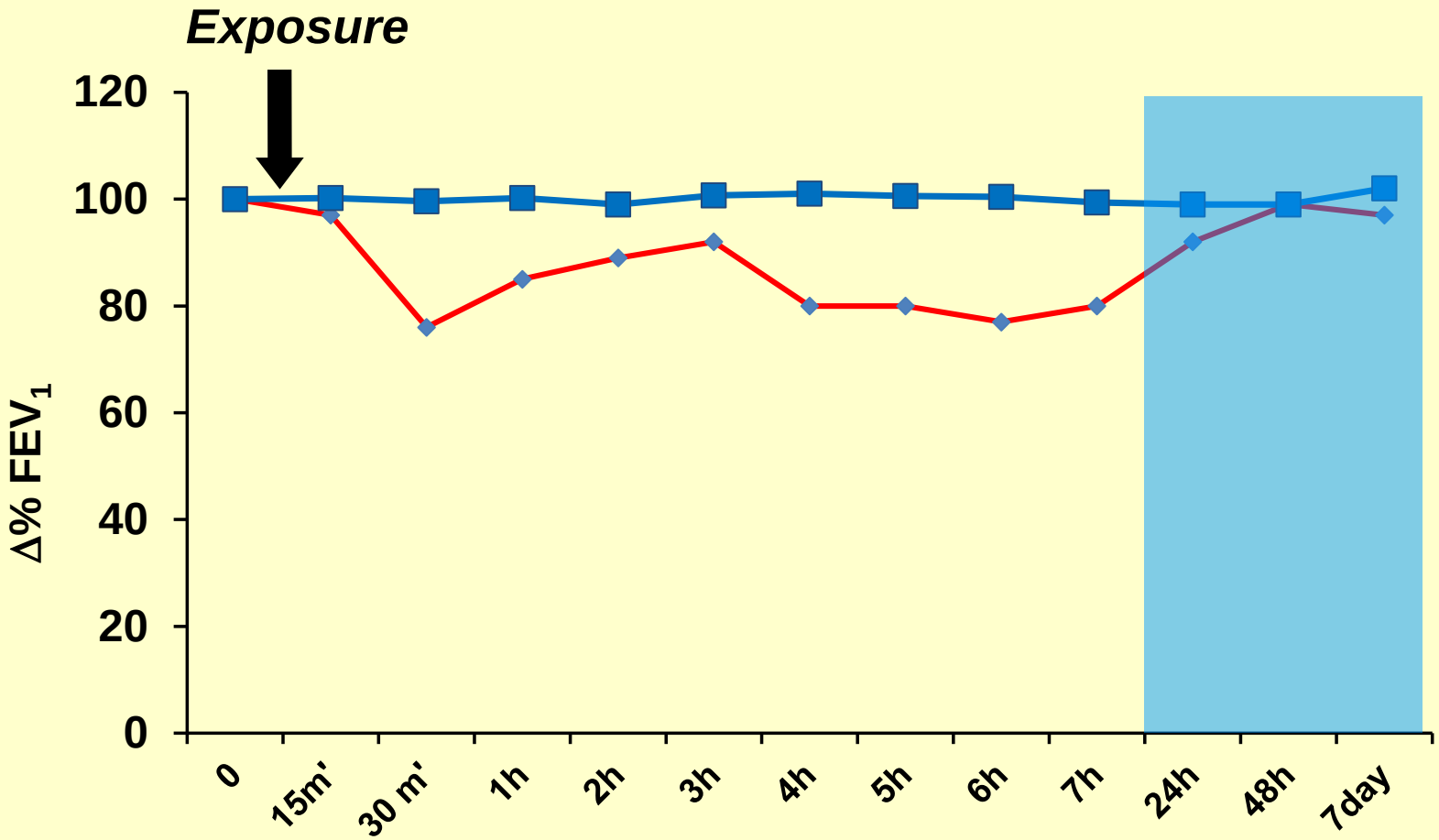
(Maestrelli et al. Clin Exp Allergy 1994)

CHEST PAPERS IN PRESS

Exhaled Nitric Oxide and Breath Condensate pH in Asthmatic Reactions Induced by Isocyanates

Silvia Ferrazzoni, Maria Cristina Scarpa, Gabriella Guarnieri, Massimo Corradi, Antonio Mutti and Piero Maestrelli

Chest: Prepublished online February 18, 2009;



* p<0.01

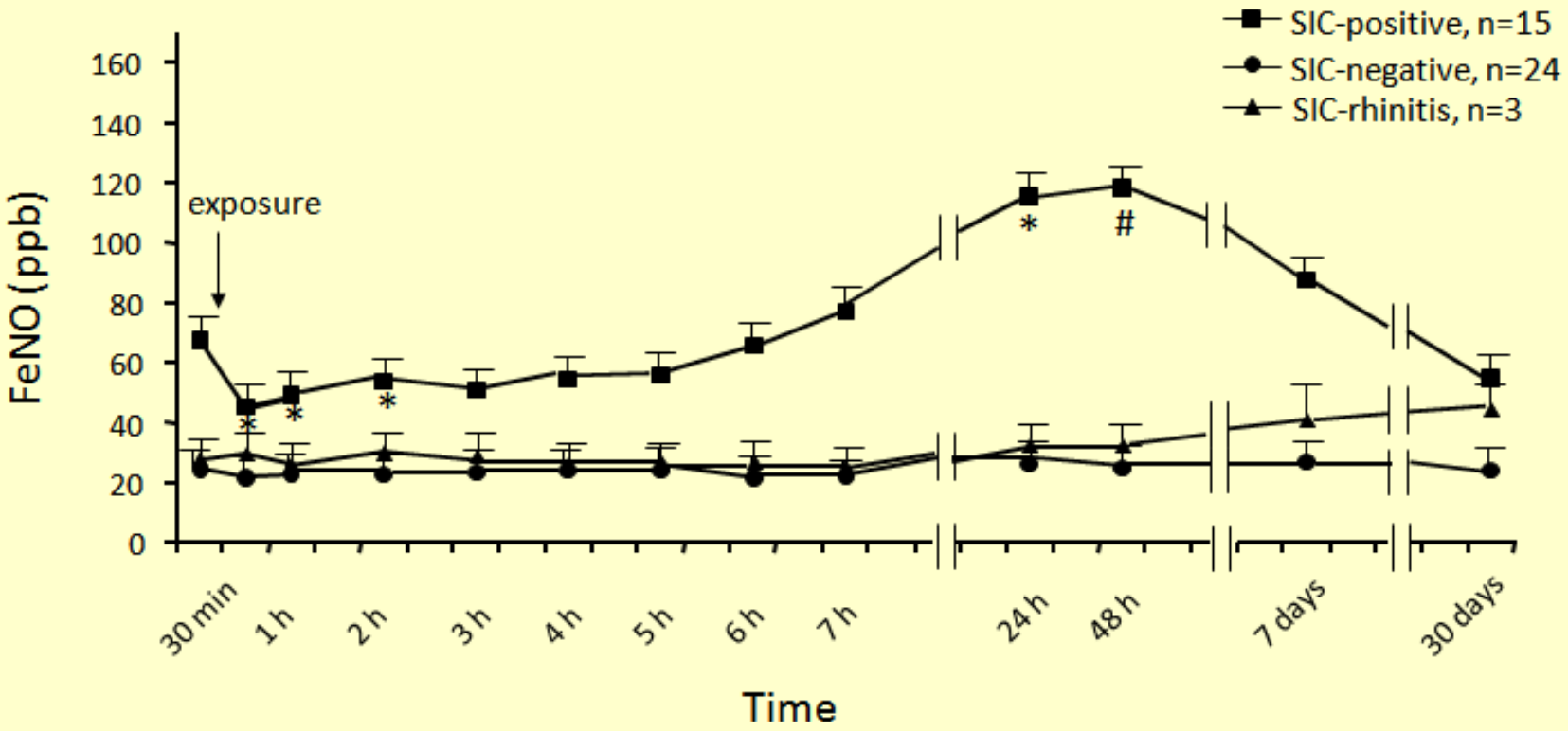
CHEST PAPERS IN PRESS

Exhaled Nitric Oxide and Breath Condensate pH in Asthmatic Reactions Induced by Isocyanates

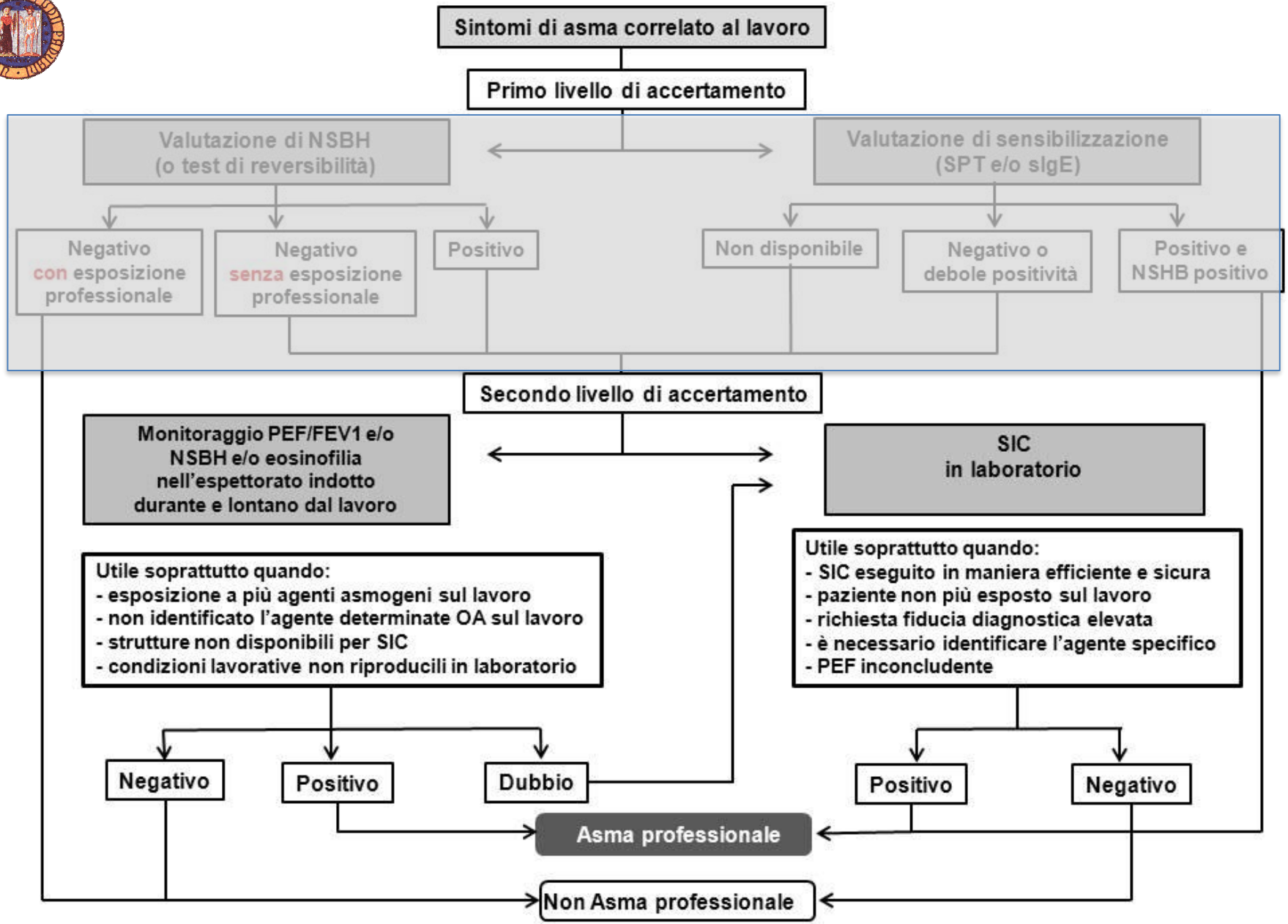
Silvia Ferrazzoni, Maria Cristina Scarpa, Gabriella Guarnieri, Massimo Corradi, Antonio Mutti and Piero Maestrelli

Chest: Prepublished online February 18, 2009;

Time course of FeNO after SIC with isocyanates



* $p_C<0.05$ # $p_C<0.005$ vs baseline



Algoritmo diagnostico dell'asma professionale (OA)
modificato da Vandenplas O et al. Diagnosing occupational asthma Clin Exp Allergy. 2017;47(1):6-18

Specific inhalation challenge in the diagnosis of occupational asthma: consensus statement

Olivier Vandenplas[1], Hille Suojalehto[2,17], Tor B. Aasen[3], Xaver Baur[4], P. Sherwood Burge[5], Frederic de Blay[6], David Fishwick[7,8], Jennifer Hoyle[8], Piero Maestrelli[9], Xavier Muñoz[10,11], Gianna Moscato[12], Joaquin Sastre[11,13], Torben Sigsgaard[14], Katri Suuronen[2], Jolanta Walusiak-Skorupa[15], Paul Cullinan[16,17] and the ERS Task Force on Specific Inhalation Challenges with Occupational Agents

Indications

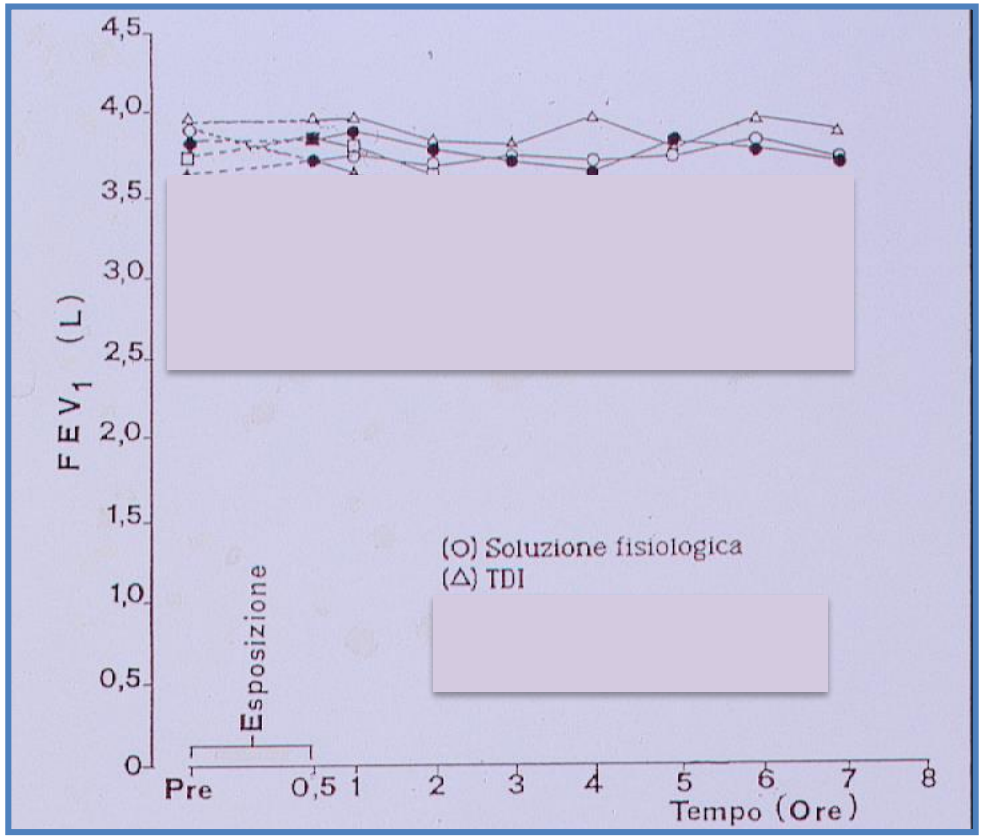
1. **Confirmation of the diagnosis of OA when other objective methods are not feasible, are less efficient, or have failed to provide definitive results.**

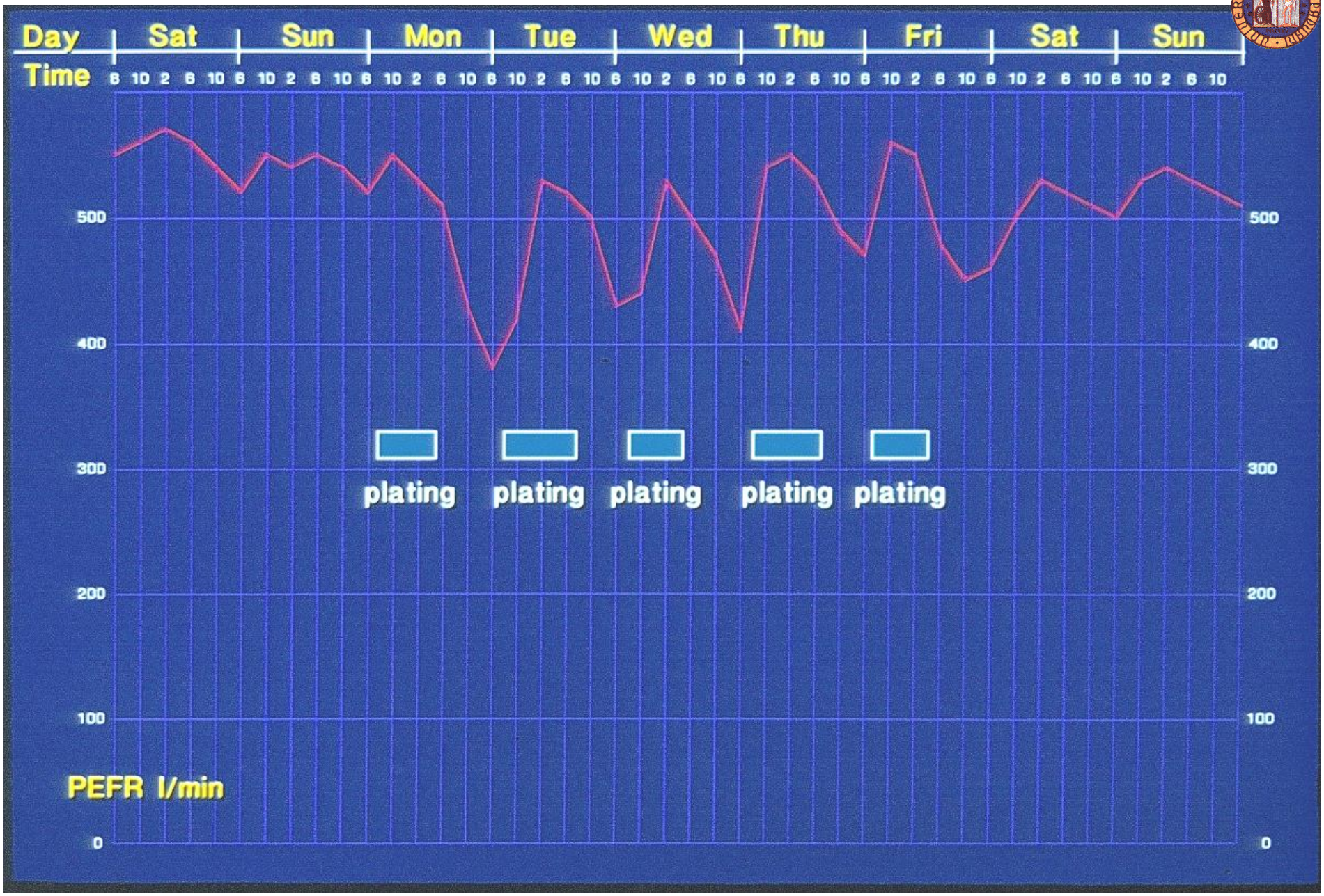
2. **Identification of the cause of OA when other objective methods are not feasible, are less efficient, or have failed to provide definitive results.**

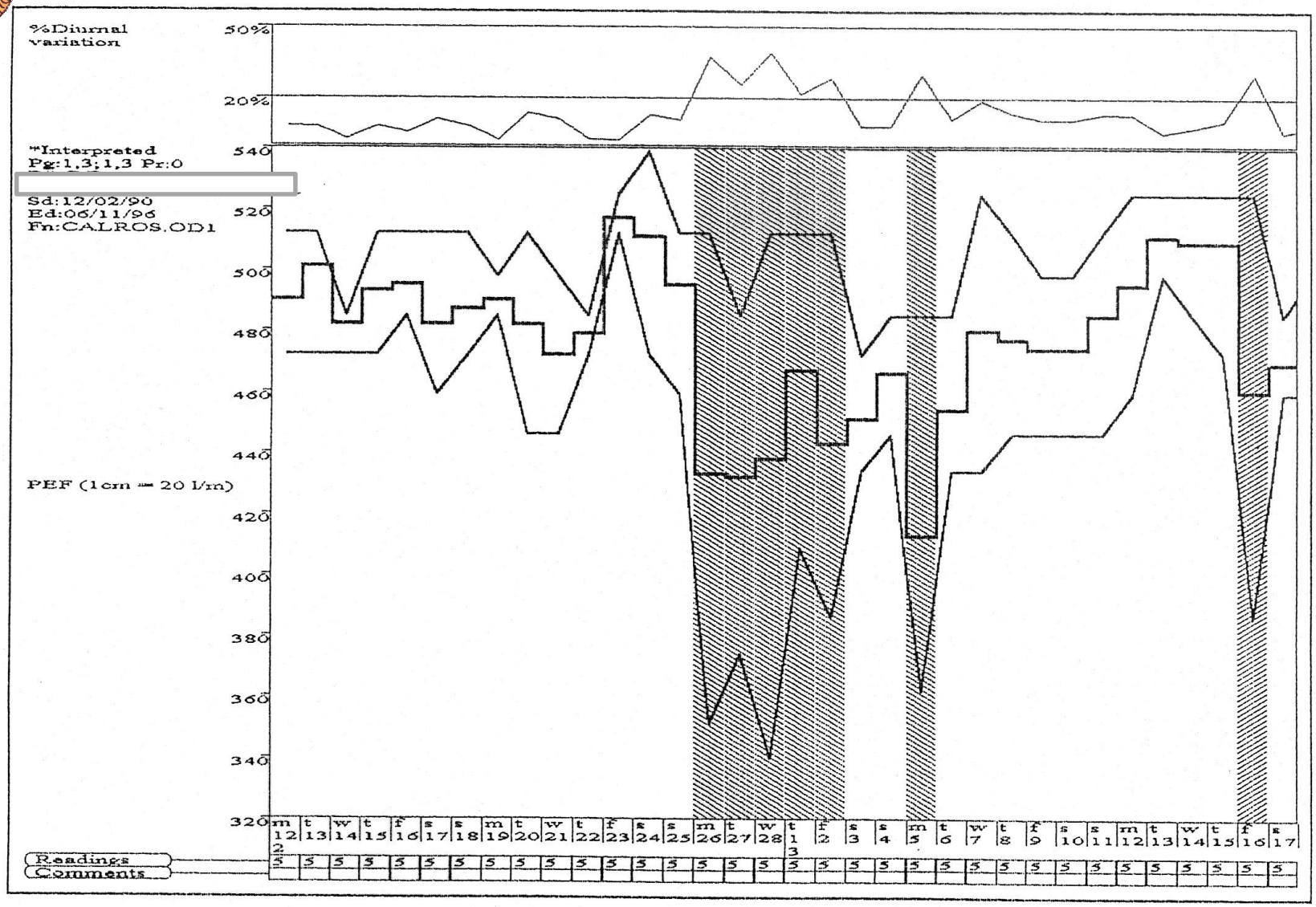
3. **The identification of a new (not formerly described) specific cause of OA.**

4. **Research into the mechanisms of work-related asthma.**

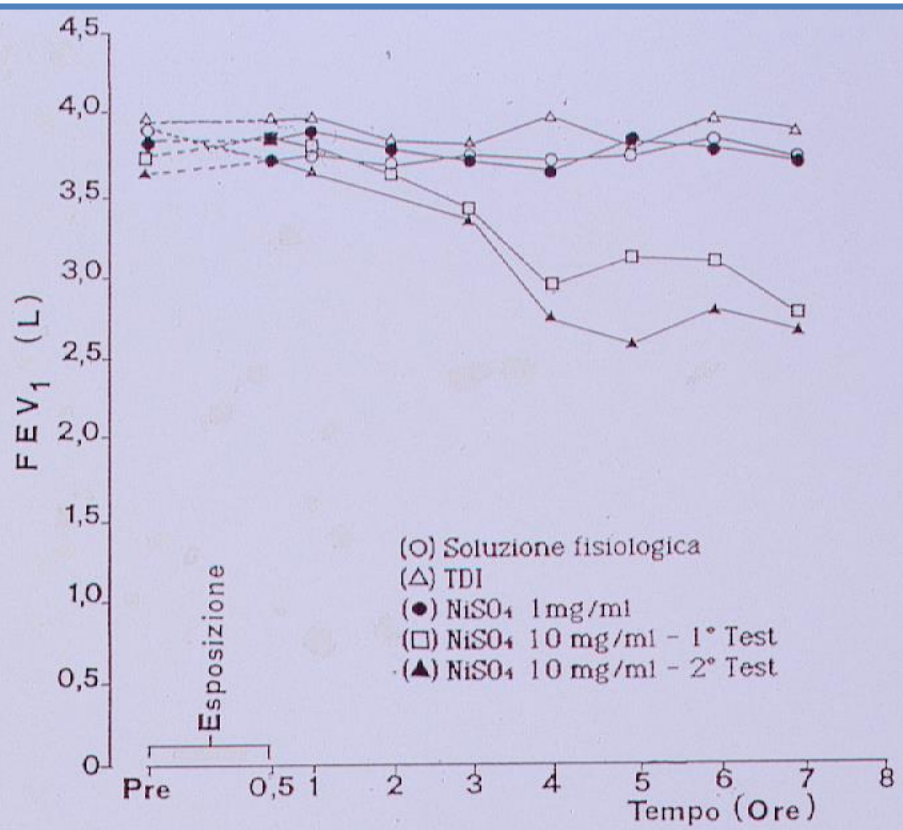
Eur Respir J 2014


4,5
4,0
3,5
3,0
2,5
2,0
1,5
1,0
0,5
0
FEV1 (L)
Esposizione
(O) Soluzione fisiologica
(Δ) TDI
Pre
0,5
1
2
3
4
5
6
7
8
Tempo (Ore)

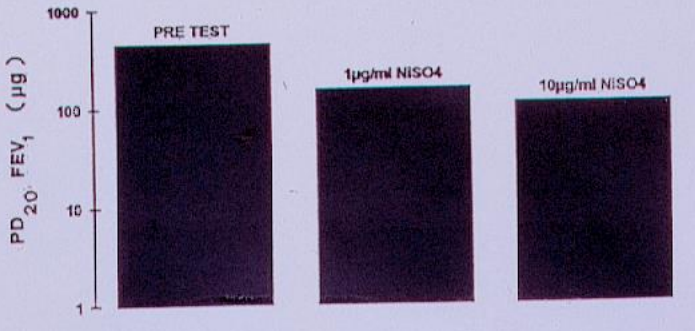

Day
Sat
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Sun
Time
8 10 2 6 10 6 10 2 6 10 6 10 2 6 10 6 10 2 6 10 6 10 2 6 10 6 10 2 6 10 6 10 2 6 10 6 10 2 6 10 6 10 2 6 10
500
400
300
200
100
0
plating
plating
plating
plating
plating
PEFR l/min



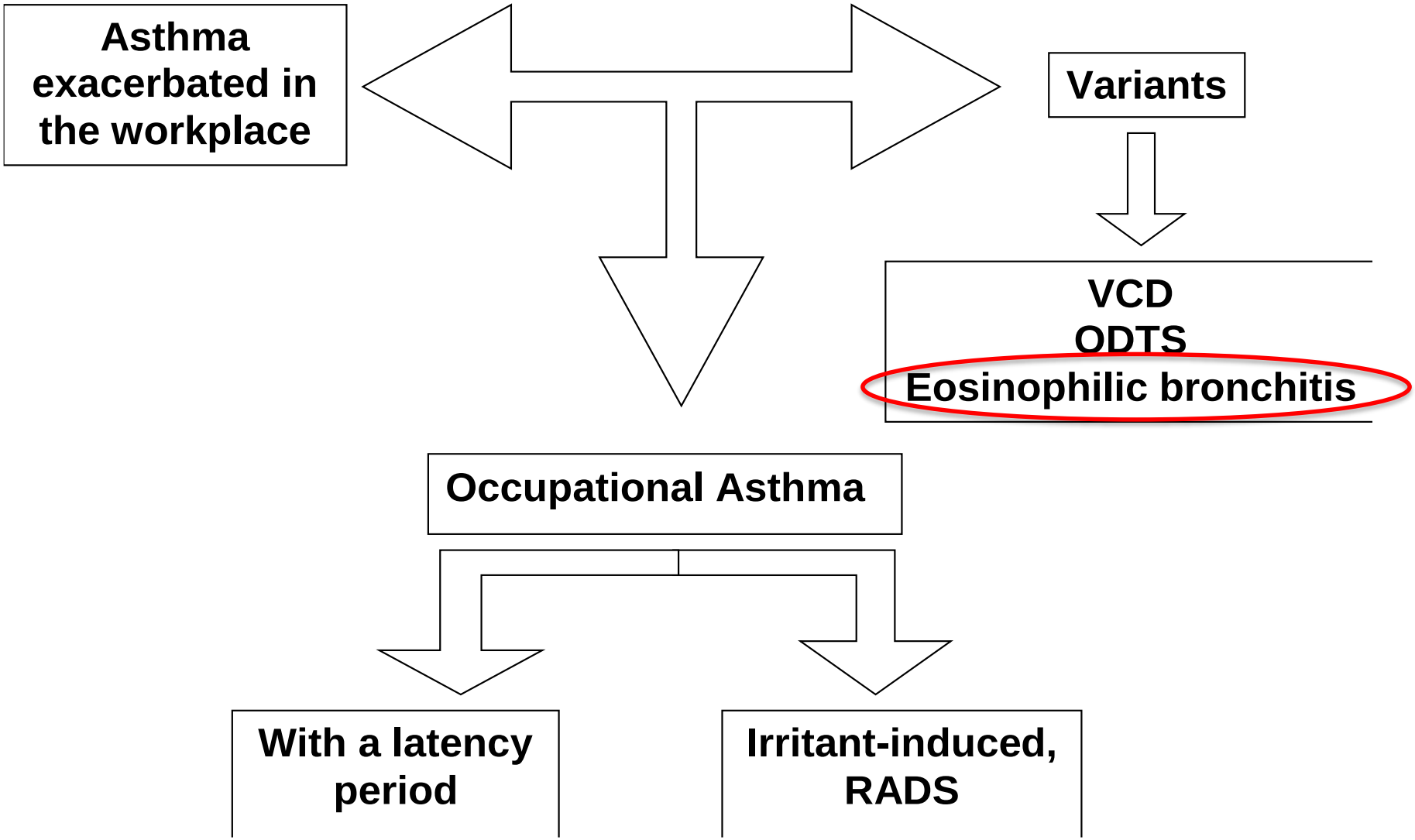
OASYS-2 (Oasys Research Group, Midland Thoracic Society, UK)**:**
work effect index (corrected) = 4



TEST CON METACOLINA



Asthma in the workplace



Bronchite eosinofila

Features	Eosinophilic Bronchitis	Classic Asthma	Cough-Variant Asthma
Symptoms	Cough, often associated with upper airway symptoms	Dyspnea, cough, wheeze	Isolated cough
Atopy	Same as general population	Common	Common
Airway hyperresponsiveness	Absent	Present	Present
Cough reflex hypersensitivity	Increased	Normal or increased	Normal or increased
Response to bronchodilator	Absent	Good	Good
Response to corticosteroids	Good	Good*	Good*
Sputum eosinophilia	Always	Usually	Usually
Bronchial biopsy eosinophilia	Very common	Common	Common
Mast cells within airway smooth muscle bundles	No	Yes	Yes

*When sputum eosinophilia are present.

Brightling C.E., CHEST 2006

Occupational eosinophilic bronchitis without asthma: An unknown occupational airway disease

C. Lemière, MD, A. Efthimiadis, MLT, and F. E. Hargreave, MD
Hamilton, Ontario, Canada

CASE REPORT

A 50-year-old woman was employed for 2 years at a company that produced weather strips for vehicles. The job required her to use glue containing cyanoacrylate and methacrylate, which

JACI 1997

Case History (1)

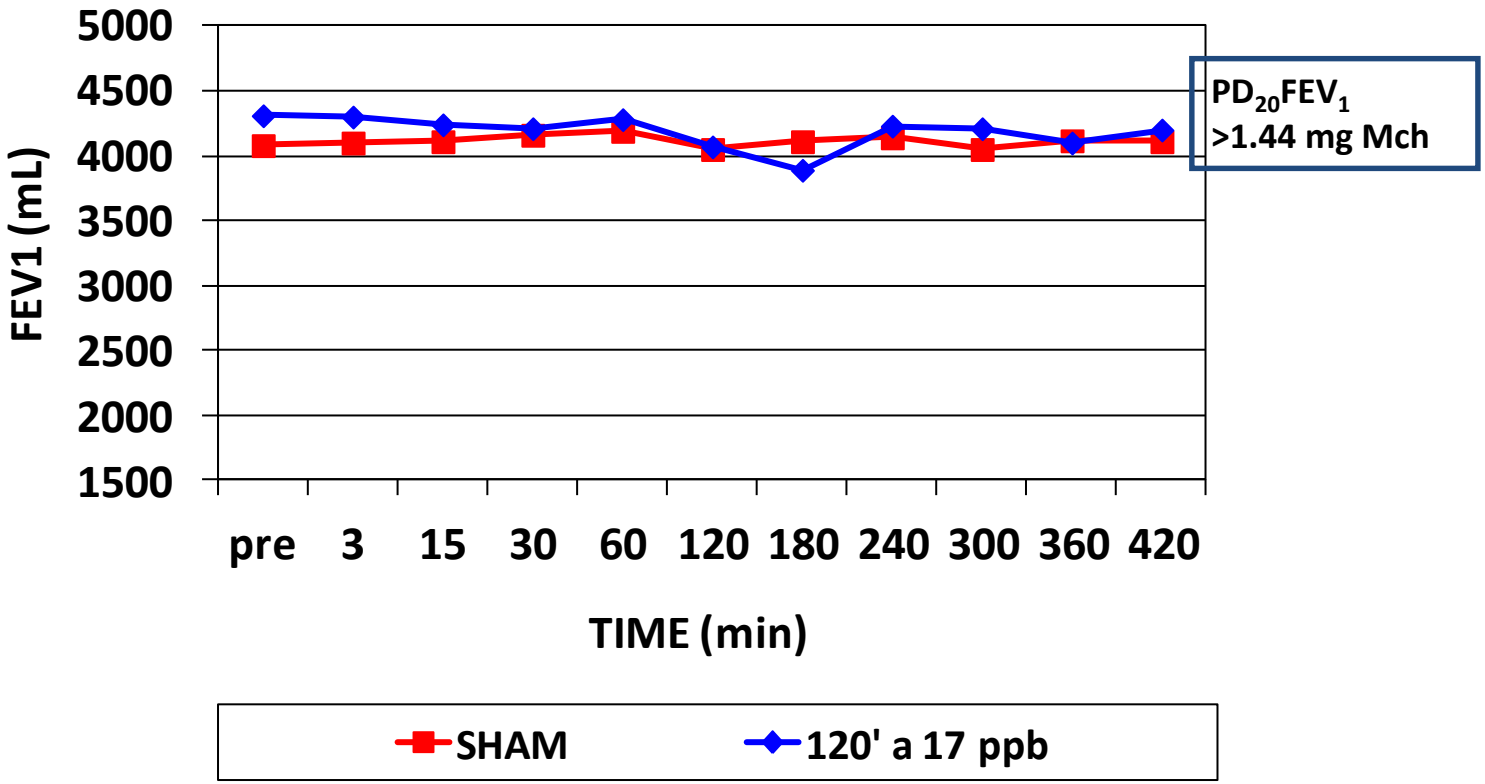
- 48 yrs
- Non smoker
- Since 1982: boat painter using polyuretane paint containing toluene diisocyanate (TDI)
- Since 2005: cough, sometime + breathlessness and chest tightness, after few hours from occupational exposure, usually when back home
- Improvement of symptoms away from work and worsening upon returning to work

Case History (2)

- **Thoracic examination:** normal
- **Chest X ray:** normal
- **Skin Prick test:** negative
- **Eosinophil blood count:** normal

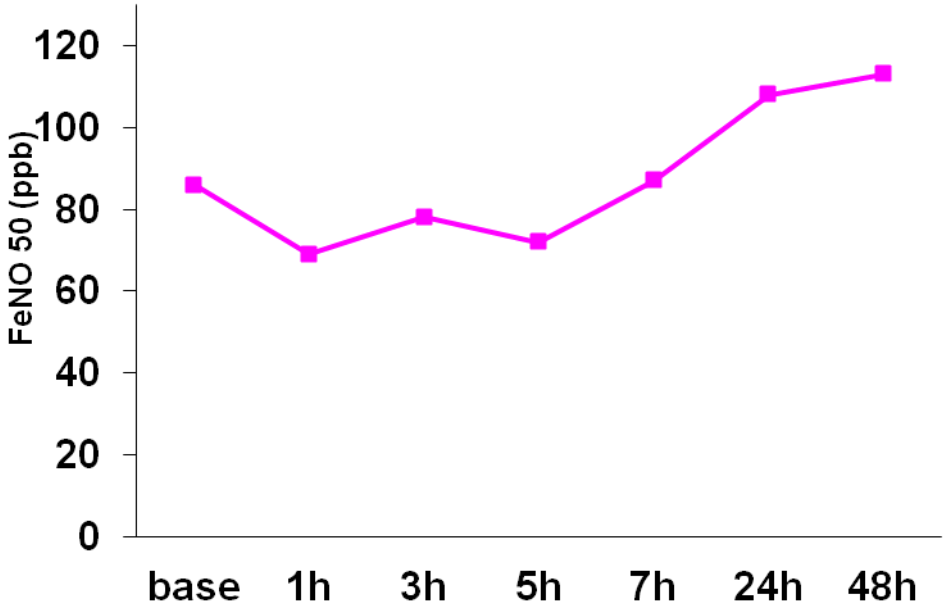
- **Spirometry:** normal
- **Methacholine challenge (2006-11):** $PD_{20}FEV_1$>1.44 mg
- **PEF monitoring:** no work effect (OASYS index= 2.00)

FEV_1 time course during SIC

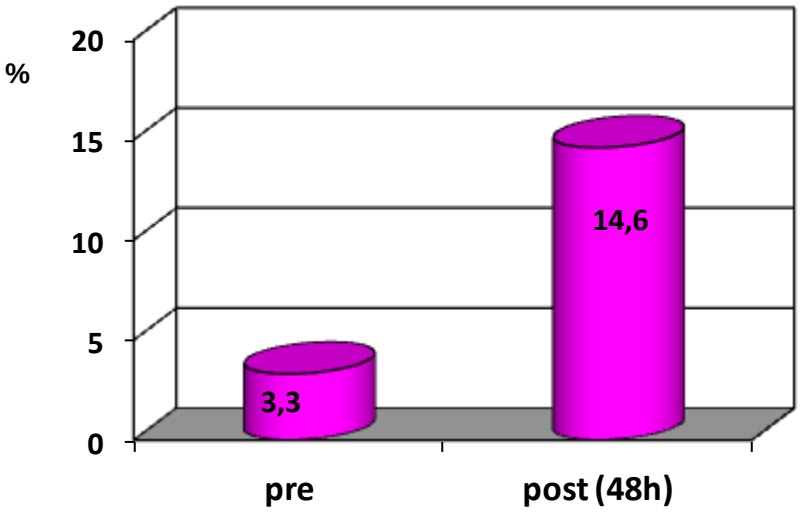


Markers of eosinophilic inflammation: during SIC

Exhaled NO

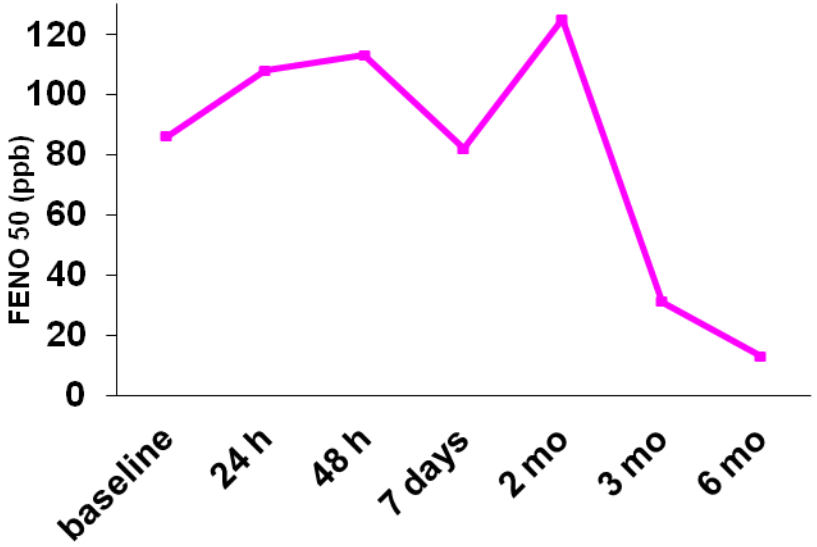


Sputum eosinophils

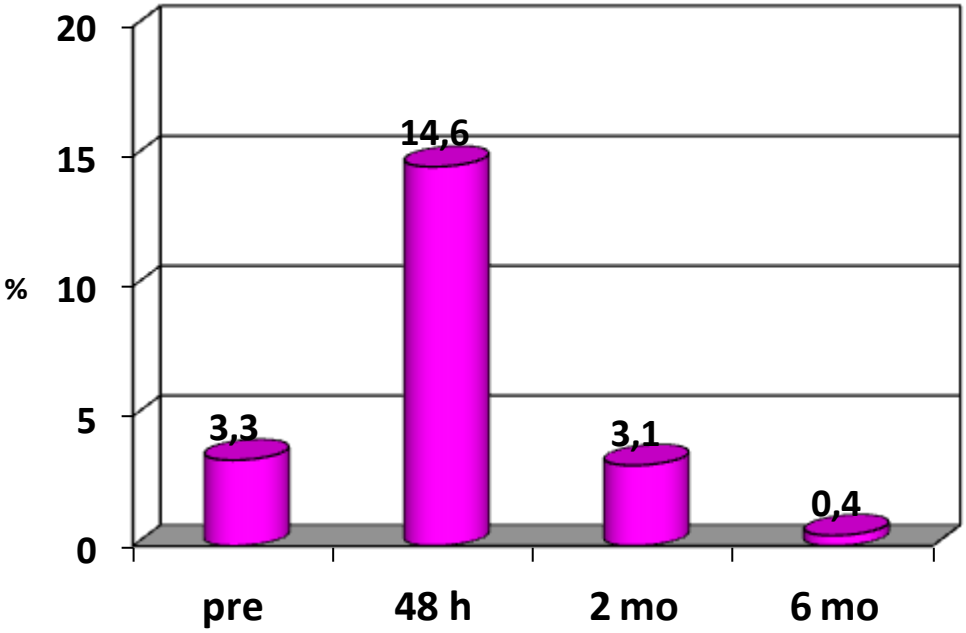


Markers of eosinophilic inflammation: follow-up

Exhaled NO



Sputum eosinophils



Cause di bronchite eosinofila professionale

Agenti ad alto peso molecolare
Latice
Spore fungine (Hypsizigus marmoreus)
Acari minori
Farine
Amilasi
Bucillamina
Lisozima
Agenti a basso peso molecolare
Di-isocianati
Anidridi acide organiche
Cloramina
Resine epossidiche/stirene
Persolfato di ammonio
Fumi di saldatura dell’acciaio
Formaldeide
Acrilati

Prognosi dell’asma professionale

- *predire la prognosi?*
- *modificare la prognosi?*

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

TABLE 1 Key questions of the guidelines for the management of work-related asthma

Key question 1: How are work-related asthma cases diagnosed and how should they be diagnosed?
Key question 2: What are the risk factors (host and exposure) for a bad outcome?
Key question 3: What is the outcome of different management options in subjects who are already affected?
Key question 4: What are the benefits of medical screening and surveillance?
Key question 5: What is the impact of controlling work-related exposure to prevent asthma?

Eur Resp J 2012;39:529-45

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Risk factors for a bad outcome of work-related asthma

Occupational exposure		*Evidence [1]*
Duration	**a longer symptomatic exposure relates to a worse outcome**	**Moderate ****
Type of agent	**HMW agents seem to cause longer duration of NSBHR**	**Moderate ****

(1) Royal College of General Practitioners (RCGP) three star system

(Eur Resp J 2012;39:529-45)

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Recommendation *(ATS GRADE System)*	***Strength***	***Evidence***
1. Health practitioners should consider that an early recognition and diagnosis of occupational asthma is recommended since shorter symptomatic period after diagnosis are associated with a better outcome.	**Strong**	**High**
2. Smoking habit and atopy should not be taken into account in assessing prognosis for medical legal purposes.	**Strong**	**Moderate**
3. More research is needed in order to assess the effects of gender and type of asthmatic response to specific bronchial challenge test on the outcome of occupational asthma.	**Strong**	**Moderate**

Eur Resp J 2012;39:529-45

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Risk factors for a bad outcome of work-related asthma

Host factor		*Evidence* [(1)]
age	older age is associated with poorer prognosis	Moderate **
gender	?	Contraddictory *
atopy	no relationship	Moderate **
smoking	no relationship	Moderate **
lung function	lower lung volumes, higher NSBHR or specific response associated with poorer prognosis	Moderate **

(1) Royal College of General Practitioners (RCGP) three star system

(Eur Resp J 2012;39:529-45)

Prognosis of occupational asthma

Age at diagnosis

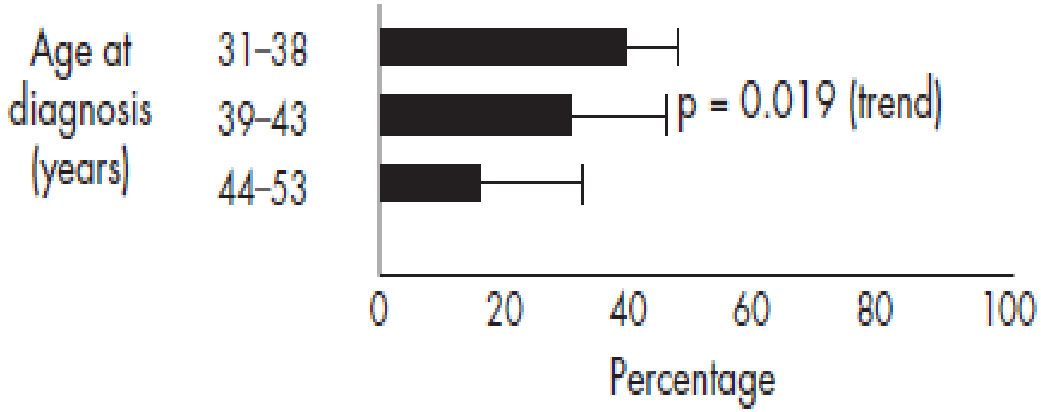


Figure 2 Determinants of complete symptomatic recovery from asthma.

Rachiotis et al, Thorax 2006

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Recommendation *(ATS GRADE System)*	***Strength***	***Evidence***
1. Health practitioners should consider that an early recognition and diagnosis of occupational asthma is recommended since shorter symptomatic period after diagnosis are associated with a better outcome.	Strong	High
2. Smoking habit and atopy should not be taken into account in assessing prognosis for medical legal purposes.	**Strong**	**Moderate**
3. More research is needed in order to assess the effects of gender and type of asthmatic response to specific bronchial challenge test on the outcome of occupational asthma.	**Strong**	**Moderate**

Eur Resp J 2012;39:529-45

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Outcome of different management options

Options	*Outcome*	*Evidence [1]*
Persistent esposure	Persistence of asthma and BHR, accelerated FEV1 decline	Moderate **
Complete avoidance	Recovery in <1/3 of affected workers	Strong***
Reduction exposure	Less beneficial than cessation	Moderate **
Drug treatment	Insufficient evidence for prevention of long-term deterioration of asthma if exposure persists	Limited*
Personal respiratory protection	Partial improvement in the short-term	Moderate **

[1] Royal College of General Practitioners (RCGP) three star system *Eur Resp J 2012;39:529-45*

Chest. 2003;124:2372-2376

Outcome of Occupational Asthma in Patients With Continuous Exposure*

A 3-Year Longitudinal Study During Pharmacologic Treatment

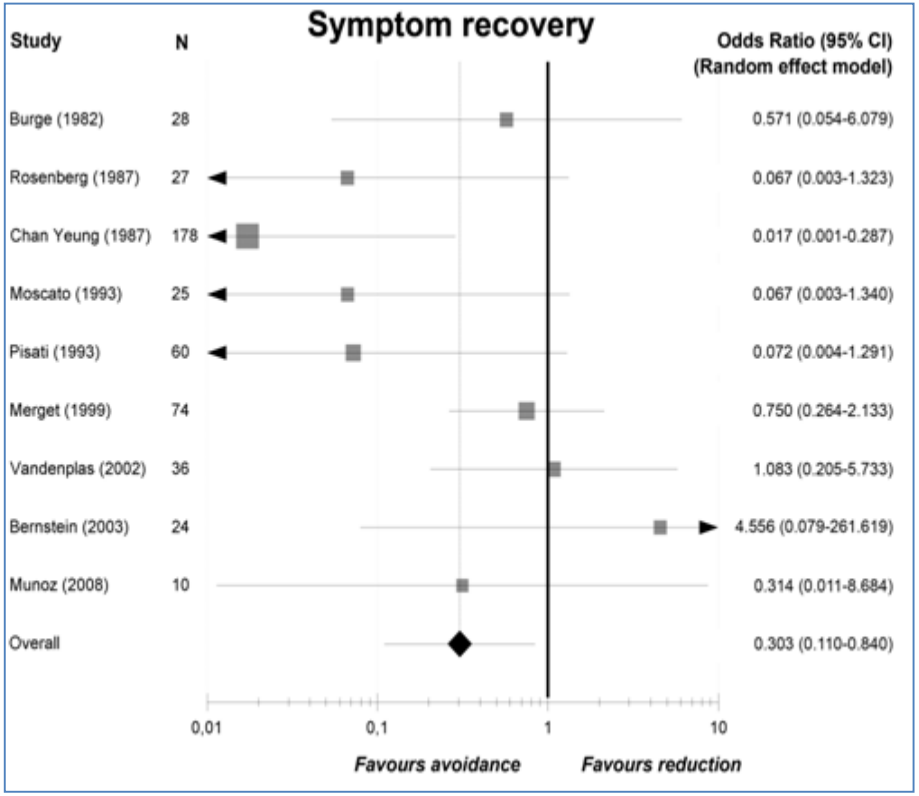
A. Marabini; A. Siracusa; R. Stopponi; C. Tacconi and G.Abbritti

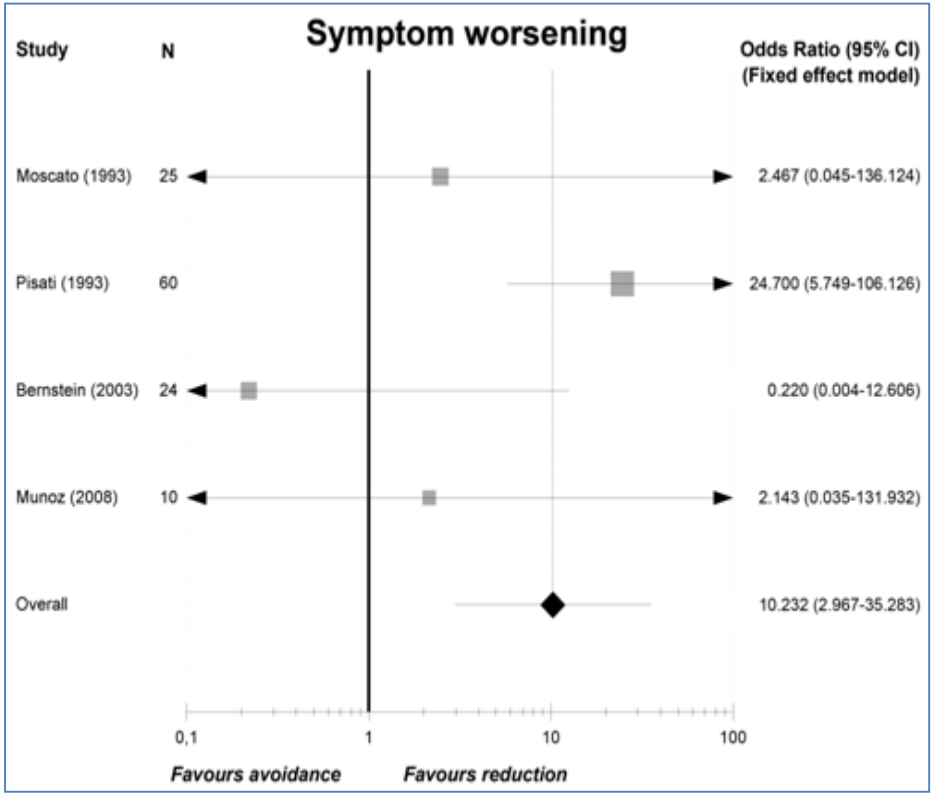
Sensitized to:
- Flour = 3,
- TDI = 9,
- Wood = 7
- Cereals = 1

Regular treatment with inhaled corticosteroids and long-acting bronchodilators seems to prevent respiratory deterioration over a 3-year period in workers with mild-to-moderate persistent OA who were still exposed at work to the environmental cause of their disease.

MANAGEMENT OF OCCUPATIONAL ASTHMA: CESSATION OR REDUCTION OF EXPOSURE? A SYSTEMATIC REVIEW OF AVAILABLE EVIDENCE

*O.Vandenplas, H. Dressel, D. Wilken, J. Jamart, D. Heederik, P. Maestrelli, T. Sigsgaard, P. Henneberger, and X. Baur, on behalf of the ERS Task Force on the Management of Work-related Asthma**

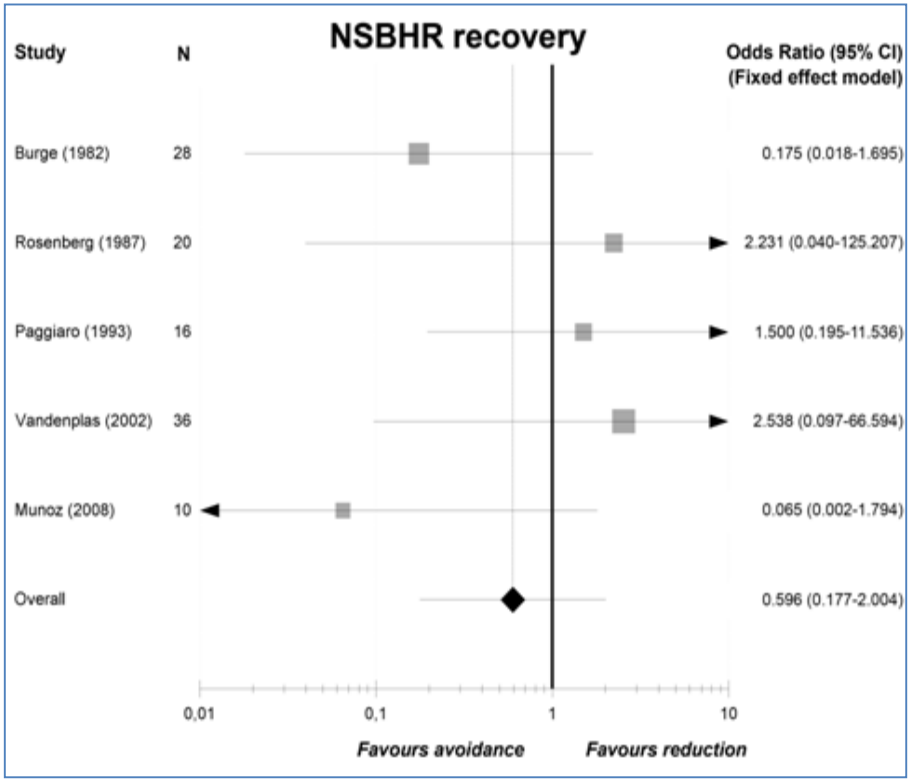


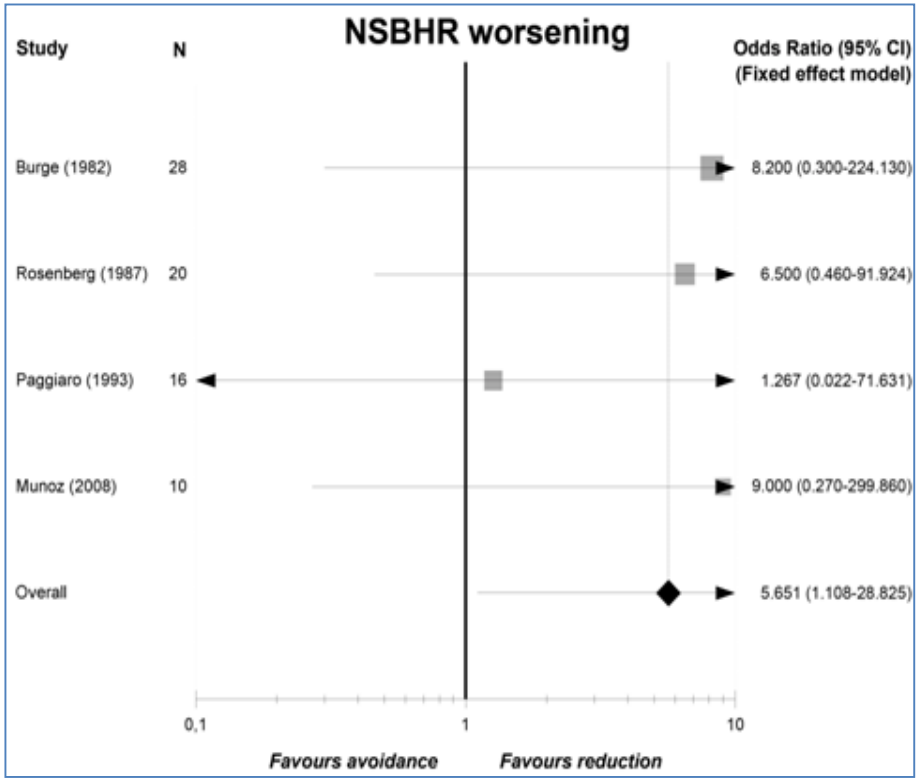


Eur Respir J 2011; 38:804-11

MANAGEMENT OF OCCUPATIONAL ASTHMA: CESSATION OR REDUCTION OF EXPOSURE? A SYSTEMATIC REVIEW OF AVAILABLE EVIDENCE

*O.Vandenplas, H. Dressel, D. Wilken, J. Jamart, D. Heederik, P. Maestrelli, T. Sigsgaard, P. Henneberger, and X. Baur, on behalf of the ERS Task Force on the Management of Work-related Asthma**





Eur Respir J 2011; 38:804-11

Guidelines for the management of work-related asthma

X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Outcome of different management options

Options	*Outcome*	*Evidence [1]*
Persistent esposure	Persistence of asthma and BHR, accelerated FEV1 decline	Moderate **
Complete avoidance	Recovery in <1/3 of affected workers	Strong***
Reduction exposure	Less beneficial than cessation	Moderate **
Drug treatment	**Insufficient evidence for prevention of long-term deterioration of asthma, if exposure persists**	**Limited***
Personal respiratory protection	**Partial improvement in the short-term**	**Moderate ** **

[1] Royal College of General Practitioners (RCGP) three star system ***Eur Resp J 2012;39:529-45***

Guidelines for the management of work-related asthma

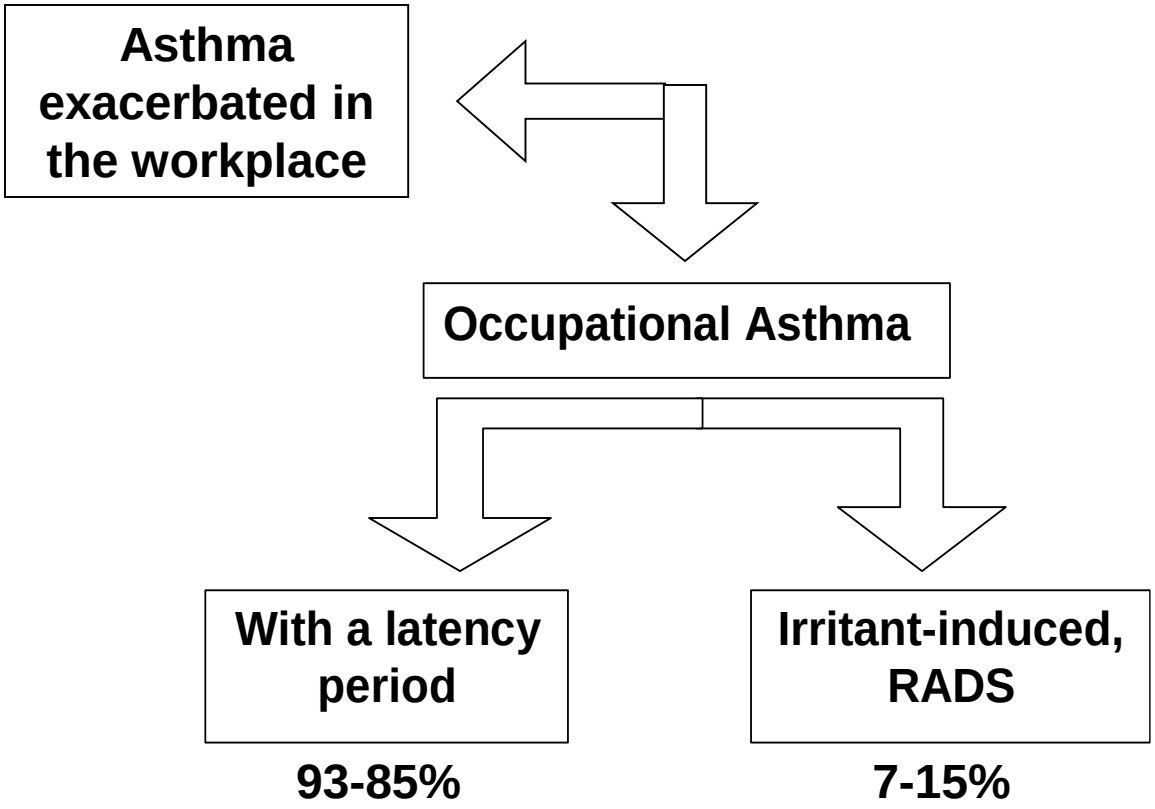
X. Baur, T. Sigsgaard, T.B. Aasen, P.S. Burge, D. Heederik, P. Henneberger, P. Maestrelli, J. Rooyackers, V. Schlünssen, O. Vandenplas and D. Wilken on behalf of the ERS Task Force on the Management of Work-related Asthma

Interventi:

- **Diagnosi precoce**
- **Esposizione**
- **Trattamento**

Eur Resp J 2012;39:529-45

Asthma in the workplace



Strategia per il reinserimento lavorativo dell'asmatico

Eziologia asma	Trattamento farmacologico	Interventi ambientali	Idoneità a precedente mansione
Professionale da sensibilizzanti	Sì	Prevenire esposizione ad agenti asmogeni	No
Professionale da irritanti	Sì	Prevenire elevate esposizioni ad irritanti	Sì + sorveglianza sanitaria
Non professionale	Sì	Prevenire esposizione a irritanti, allergeni, altri 'triggers'	Sì + sorveglianza sanitaria

(dopo Smith & Bernstein, JACI 2009)

Acute exposure to sawdust does not alter airway calibre and responsiveness to histamine in asthmatic subjects

S. De Luca*, N. Caire **, Y. Cloutier ***, A. Cartier **, H. Ghezzo **, J-L. Malo **

- **Asthmatic subjects (n=12),**
- **$PD_{20}FEV_1$ 1.47 mg/ml histamine**
- **Mean dust concentration 11.5 mg/m^3**

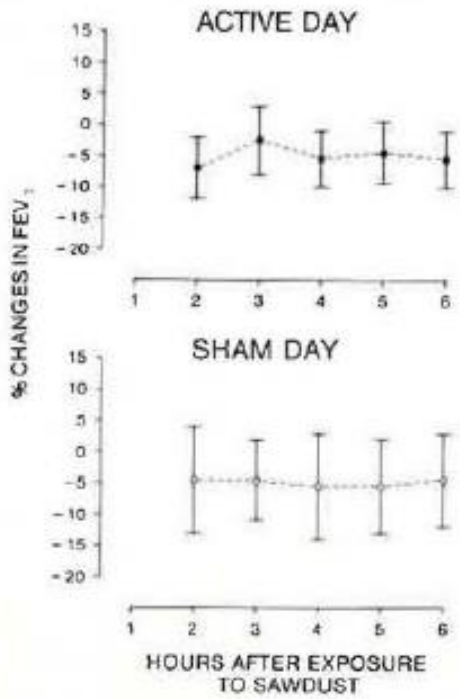


Fig. 3. – Mean (±1 SD) changes in FEV_1 after the end of exposure to sawdust or on sham day.

Eur Resp J 1988

Sorveglianza sanitaria del lavoratore asmatico

- **Anamnesi**
  - **controllo della malattia: ACT**
  - **aderenza al trattamento**
  - **sintomi correlati al lavoro**
- **Spirometria**
- **Monitoraggio PEF (non validato)**

MALATTIE PROFESSIONALI 2

26 OTTOBRE 2019 ore 08.00-14.00

Scuola di Perfezionamento per le Forze di Polizia

Piazza di Priscilla, 6, 00199 Roma RM

L'asma correlata al lavoro

Sommario

- **Classificazione: OA + WEA, IIA, Br. eosin.**
- **Eziologia:**
  - **LMW**
  - **HMW**
- **Sotto-stima/notifica**
- **Diagnosi**
- **Prognosi**
- **Reinserimento**
- **Sorveglianza sanitaria**

Medical surveillance for the prevention of occupational asthma

Strumenti

- **Questionari/anamnesi:**
  - **validazione**
  - **accuratezza risposte**

- **Spirometria:**
  - **sensibile per:**
    - **malattie ≠ asma**
    - **cattiva qualità sul campo**

- **Test immunologici:**
  - **quando disponibili**

Szram J, Cullinan P, Curr Op Allegy Clin Immunol, 2013