Formulating hypotheses and implementing research in allergic disorders in rural Crete, Greece

Christos Lionis and Leda Chatzi,

Clinic of Social and Family Medicine, School of Medicine, University of Crete, Greece

The outline of the presentation

- Implementing primary care research in a country with low capacity
- Bronchial asthma and allergic rhinitis, two common problems in primary care.
- A focus on symptoms
- The Cretan story
- Important European resources for general practitioners/family physicians
- Key messages

Implementing research in a non priviliged country: the case of Greece

- Develop an EPR system
- Explore opportunities to work together with an academic department
- Start with assessment of population health needs
- Identify common ill conditions and health problems
- Ask about the existence of common diagnostic tools-if not discuss possibility of translating and adapting into local and cultural setting other well assessed in the literature
- Identify the burden of common illness and measure diagnostic probabilities
- Discuss opportunities to publish your initial non experimental research

A ten steps stepwise model-C. Lionis 2007

Respiratory disorders, common in primary care

RESEARCH LETTER

Introducing general practice in urban Greece: focus on morbidity profile

Anargiros Mariolis, M Mercouris, Christos Lionis

General practice has been recognised as an independent medical speciality in Greece since the 1990s; it requires four years of vocational training. Although there have been many attempts to establish primary healthcare (PHC) in Greece, primary care centres are only available in semi-urban and rural areas leaving ample scope for the development of PHC in urban areas.

In 2001, a healthcare reform was launched in Greece, which set the development of PHC in urban areas as an urgent priority. In August 2002, the first feasibility study for the development of the first urban health centre in Greece was submitted to Ippokratio General Hospital, Athens, and concerned the Municipality of Vyronas, which is included in the catchment area of this hospital.

The aim of this research letter is to communicate the preliminary results of this first attempt in Greece to introduce structured PHC and general practice within the urban setting, and particularly to report the morbidity profile recorded during the initial period in this first Urban health centre. The Urban Health Centre of Vyronas (UHCV) was inaugurated on 16th February 2004, and its staff comprised one qualified general practitioner and five trainees in general practice. Two community nurses joined the UHCV later on.

Table 1. The most common diagnoses

Disease diagnosed	Code ICPC-2	Cases Male		Female		Total	
		N	(%)	N	(%)	N	(%)
Hypertension, uncomplicated	K86	123	(21.0)	140	(21.7)	263	(25.3)
Ischaemic heart disease without angina	K76	59	(14.9)	105	(16.2)	164	(15.8)
Diabetes, non-insulin dependent	T90	31	(7.8)	54	(8.4)	85	(8.2)
Osteoporosis	L95	1	(0.3)	71	(11.0)	72	(6.9)
Heart failure	K77	28	(7.1)	31	(4.8)	59	(5.7)
Cerebrovascular disease	K91	27	(6.8)	25	(3.9)	52	(5.0)
Depressive disorder	P76	6	(1.5)	39	(6.1)	45	(4.3)
Lipid disorder	T93	14	(3.5)	29	(4.5)	43	(4.1)
Chronic obstructive pulmonary disease	R95	23	(5.8)	11	(1.7)	34	(3.3)
Malignancy	A79	11	(2.8)	12	(1.9)	23	(2.2)
Other diseases		74	(18.6)	127	(19.7)	201	(19.3)
Total		397	(100)	644	(100)	1041	(100)

Anargiros Mariolis MD, general practitioner
Vyronas Health Centre, Greece
M Mercouris MD, general practitioner, president
Greek Association of General Practitioners
Christos Lionis MD, associate professor of rural and family medicine
School of Medicine, University of Crete, Greece

Correspondence to: Anargiros Mariolis
Vyronas Health Centre, 3 Rontiri Str., 16231, Vyronas, Athens, Greece
E-mail: anargiros@yahoo.gr

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Accepted: 7 July 2004.

The data presented cover a period of two and a half months. In total, 1041 consultations were recorded. Of them 413 (39.7%) were made by males and 628 (60.3%) by females. Referral rate to other healthcare services, including hospital physicians or other specialists, amounted to 1.35% (14 cases). The most frequent diagnoses as made by the GPs are presented in table 1. Hypertension was the diagnosis in 263 patients (25.3%), followed by ischaemic heart disease in 164 (15.8%). Although there are some similarities to previous PHC utilization studies conducted in rural settings in Crete, Greece,[2] including the higher utilization rates among females than males and hypertension as the most frequent diagnosis,

Mariolis, et al 2004

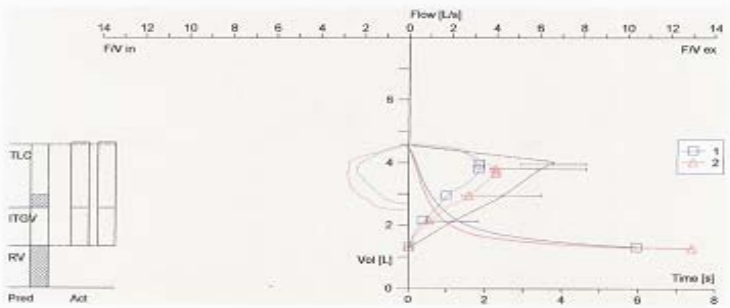
Research questions

- What is the prevalence of allergic rhinitis, asthma and dermatitis among grape farmers in Crete?
- Are grape farmers at increased risk of developing allergic disorders compared to non-exposed controls?
- Which are the risk factors for allergic disorders in this occupational group?

Managing bronchial asthma in rural Crete

Last Name:		Identification:	1049
First Name:			
Date of Birth:	09/09/1977	Age:	30 Years
Sex:	female	Weight:	60,0 kg
		Height:	157,0 cm
Smoker:	No		

		P	A1	%(A1/P)	A2	%(A1/A2)	D%(A1/A2)
VC MAX	[L]	3.26	3.31	101.8	3.32	99.7	-0.3
FVC	[L]	3.29	3.31	100.9	3.32	99.7	-0.3
FEV 1	[L]	2.85	2.20	77.1	2.51	87.5	-12.5
FEV 1 % FVC	[%]		66.32		75.60	87.7	-12.3
IC	[L]	2.09					
T IN	[s]						
T EX	[s]						
T TOT	[s]						
FEF 25	[L/s]	5.91	3.18	53.9	3.96	80.3	-19.7
FEF 50	[L/s]	4.26	1.70	39.9	2.74	62.1	-37.9
FEF 75	[L/s]	2.01	0.63	31.2	0.92	68.4	-31.6
PEF	[L/s]	6.63	3.23	48.8	3.96	81.6	-18.4



Mrs S.K. 30 years old, non-smoker, presented to his GP office with cough, rhinitis and wheezing. After the recession of the respiratory symptoms, the patient underwent a spirometry examination.

The results of the test were:

- FEV1: 2,20 L (77.1%)
- FEV1/FVC : 66,32%

The patient repeated the spirometry 20´ minutes later after the bronchodilation. The results of the new test were:

- FEV1´: 2,51 L (87.5%)
- FEV1/FVC: 75,60%

Methods

Collaboration of the Clinic of Social and Family Medicine in the University Hospital of Heraklion, Crete with:

- the Department of Otolaryngology
- the Department of Dermatology
- the Department of Thoracic Medicine

Methods

- Questionnaire
- Skin prick tests (SPTs)
- Measurement of specific IgE antibodies (EIA tests)
- Spirometry

Population of the study

a. Grape farmers

- 150 randomly selected grape farmers
- Age: 25-70 years
- Participation rate: 120/150 (80%)

b. Controls

- 150 subjects working in the tourist industry
- Age: 25-70 years
- Response rate: 100/150 (67%)

Questionnaire

A. Medical history

- Personal and demographic information
- Respiratory and skin symptoms in the last 12 months
- Personal and family history of allergic diseases
- Smoking habits, alcohol consumption
- House environment information

B. Occupational history

- Number of working hours per day/ duration of grape cultivation
- Work-related respiratory and skin symptoms
- Use of pesticides
- Use of preventive measures

Skin prick tests (SPTs)

Allergens (16)

a.Pollens (*Gramineae mix, Cynodon dactylon, Composite mix, Parietaria officinalis, Parietaria Jiudaica, Parietaria plus, Tree mix, Olive European)*

b. Mites (*Dermat. Farinae, Dermat. Pteronyssinus, Glycyp. Domesticus, Acarus siro*)

c. Molds (*Alternaria tenius, Cladosporium herbarum, Mucor mix*)

d. Animal epithelium (*Cat epithelium*)

- **Positive result:** ≥ 3mm

EIA test

- **The enzyme immunoassay method (EIA test) was used to quantify IgE antibodies**
- **Allergens (8)**
- **A. Pollens:** *Grass mix, Parietaria officinalis, Olive European, Common ragweed*
- **B. Mites:** *Dermatophagoides Farinae, Dermatophagoides pteronyssinus*
- **C. Molds:** *Molds mix*
- **D. Animal epithelium:** *Cat epithelium*

- **Positive result:** ≥ 0,35kU/L

Diagnostic criteria of allergic rhinitis*

1. According to the questionnaire: 2 or more nasal symptoms (*ie*, rhinorrhea,sneezing, nasal obstruction, and nasal itching) on most days in the last 12 months, apart from a cold.

2. According to questionnaire and allergy tests:
Allergic rhinitis according to the questionnaire, followed by a positive SPT test result and/or a positive EIA test result

*International Consensus Report on the diagnosis and management of rhinitis. Allergy, 1994

Diagnostic criteria of asthma

1. According to the questionnaire:

(*ie*, attack of asthma during the last 12 months, having been woken up by an attack of shortness of breath during the last 12 months, or current use of asthma medication)

2. According to questionnaire and spirometry tests:

Current asthma based on questionnaire, followed by a positive bronchodilatation test

*Kogevinas M, et al. Lancet, 1999

Statistical analysis

A. Univariate analysis

Comparison of continuous variables: t test/Mann-Whitney test

Comparison of categorical variables: Pearson's chi-square test

B. Multivariate analysis

Multiple logistic and linear regression models controlling for age, sex and smoking

Demographic characteristics

	Grape farmers (n=120)	Controls (n=100)	p
Age, years			
Mean (SD)	45.6 (12.1)	34.9 (7.4)	<0.001
Men, n (%)	43 (36)	29 (29)	NS
Women, n (%)	77 (64)	71 (71)	NS
Current smokers, n (%)	32 (27)	59 (59)	<0.001
Ex smokers, n (%)	16 (13)	9 (9)	
Non smokers, n (%)	72 (60)	32 (32)	

Working conditions in grape farmers

Years of farming,
Mean (SD) 25.0 (11.7)

Age at grape farming onset,
Mean (SD) 20.6 (7.7)

Working hours/24h,
Mean (SD) 6.9 (2.3)

Use of preventive measures,
n (%) 59 (49)

Use of pesticides,
n (%) 78 (65)

Prevalence of allergic rhinitis among grape farmers and controls

	Grape farmers n (%)	C
Allergic Rhinitis[<]	55 (46)	2
Allergic Rhinitis [#]	49 (41)	2(

[<]According to the questionnaire;

[#]According to the questionnaire, fo

and/or a positive EIA test result

Adjusted OR= Odds ratio for gra nt for age, sex, and smoking

occupational and environmental lung disease

Allergic Rhinitis, Asthma, and Atopy Among Grape Farmers in a Rural Population in Crete, Greece*

Leda Chatzi, MD; Emmanuel Prokopakis, MD; Nikolaos Tzanakis, MD, PhD; Athanasios Alegakis, PhD; Ioannis Bizakis, MD, PhD; Nikolaos Siafakas, MD, FCCP; and Christos Lionis, MD, PhD

Study objective: To measure the prevalence of allergic rhinitis, atopy, and asthma among grape farmers, and to compare the respiratory and atopic status in grape farmers with those of nonexposed control subjects.
Design: Cross-sectional study.
Setting: Malevisi region in northern Crete, Greece.
Subjects and methods: One hundred twenty grape farmers and 100 control subjects living in the Malevisi region were examined. The protocol comprised a questionnaire, skin prick tests for 16 common allergens, measurement of specific IgE antibodies against 8 allergens, and spirometry before and after bronchodilation.
Results: Grape farmers were found to have an excess of respiratory symptoms. The comparison with the control group, after adjusting for age, sex, and smoking status, showed that the differences were statistically significant for rhinorrhea (odds ratio [OR], 2.7; 95% confidence interval [CI], 1.5 to 5.1; $p < 0.001$), sneezing (OR, 2.2; 95% CI, 1.2 to 4.0; $p < 0.01$), and nasal itching (OR, 1.9; 95% CI, 1.0 to 3.6; $p < 0.05$), but were nonsignificant for asthma-related symptoms. In the multiple logistic regression model, grape farmers were found to have increased work-related symptoms, such as sneezing (OR, 2.9; 95% CI, 1.3 to 6.6; $p < 01$), rhinorrhea (OR, 2.9; 95% CI, 1.3 to 6.6; $p < 0.01$), cough (OR, 3.7; 95% CI, 1.2 to 11.4; $p < 0.05$), and dyspnea (OR, 3.8; 95% CI, 1.1 to 1.3; $p < 0.05$). The prevalence of allergic rhinitis was 40.8% in grape farmers and 26% in control subjects (OR, 2.0; 95% CI, 1.1 to 3.5; $p < 0.02$). Increased but statistically nonsignificant values of asthma prevalence were found in grape farmers (6.7%) compared with the control group (2.0%). The prevalence of atopy was 64.2% in grape farmers and 38.0% in the control group (OR, 2.2; 95% CI, 1.2 to 3.5; $p < 0.01$). Mean FEV_1 was significantly lower in grape farmers than in control subjects ($p < 0.05$), after adjusting for age, sex, and smoking status. Bronchial obstruction was reversible in 23 grape farmers (19.2%) and in 6 control subjects (6%; $p < 0.01$).
Conclusions: The study mainly demonstrated the high prevalence of allergic rhinitis and work-related respiratory symptoms in grape farmers compared to control subjects. It also suggested that grape farming is possibly associated with increased allergic sensitization to specific pollens, low baseline FEV_1, and increased bronchial hyper-responsiveness. Further studies are needed to determine the potential risk factors for these disorders among the farming population.
(CHEST 2005; 127:372–378)

Chatzi et al, Chest, 2005

Prevalence of asthma among grape farmers and controls

	Grape farmers n (%)	Controls n (%)	Adjusted OR (95% CI)	p
Current asthma[<]	11 (9)	4 (4)	2.7 (0.6-9.7)	NS
Current asthma[#]	8 (7)	2 (2)	3.5 (0.7-17.0)	NS
Asthma diagnosis	8 (7)	6 (6)	1.0 (0.1-35.2)	NS
Medication for asthma	8 (7)	2 (2)	3.5 (0.7-17.0)	NS

[<]According to the questionnaire;

[#]According to the questionnaire, followed by a positive bronchodilator response

Adjusted OR= Odds ratio for grape farmers / controls after adjustment for age, sex, and smoking

Chatzi et al, Chest; 2005

Prevalence of work-related respiratory symptoms among grape farmers and controls

	Grape farmers n (%)	Controls n (%)	Adjusted OR (95% CI)	p
Rhinorrea	27 (23)	9 (9)	2.9 (1.3-6.6)	<0.01
Sneezing	27 (23)	9 (9)	2.9 (1.3-6.6)	<0.01
Dyspea	13 (11)	4 (4)	3.8 (1.1-1.3)	<0.05
Wheezing	6 (5)	1 (1)	1.0 (0.7-3.3)	NS
Cough	16 (13)	4 (4)	3.7 (1.2-11.4)	<0.05

Adjusted OR= Odds ratio for grape farmers / controls after adjustment for age, sex, and smoking

Chatzi et al, Chest; 2005

Prevalence of positive allergy tests in grape farmers and controls (I)

	Grape farmers n (%)	Controls n (%)	Adjusted OR (95% CI)	p
≥1 + SPT	61 (51)	32 (32)	2.2 (1.3-3.8)	<0.005
+ SPT pollens	54 (45)	26 (26)	2.3 (1.3-4.1)	<0.01
+ SPT mites	19 (16)	16 (16)	1.6 (0.3-1.5)	NS
+ SPT molds	7 (6)	3 (3)	2.2 (0.5-8.7)	NS
+ SPT cat epithel	3 (2)	1 (1)	2.8 (0.3-27.9)	NS

Adjusted OR= Odds ratio for grape farmers /controls after adjustment for age, sex, and smoking status

Chatzi et al, Chest; 2005

Prevalence of positive allergic tests in grape farmers and controls (II)

	Grape farmers n (%)	Controls n (%)	Adjusted OR (95% CI)	p
Atopy	77 (64)	38 (38)	2.2 (1.2-3.5)	<0.01
+ EIA pollens	33 (28)	24 (24)	1.6 (0.8-3.2)	NS
+ EIA mites	25 (21)	14 (14)	1.4 (0.6-3.1)	NS
+ EIA molds	8 (7)	4 (4)	1.4 (0.3-5.6)	NS
+ EIA cat epithel	7 (6)	2 (2)	3.0 (0.6-15.0)	NS

Atopy= ≥ 1 +SPT and/or 1 + EIA test
Adjusted OR= Odds ratio for grape farmers /controls after adjustment for age, sex, and smoking status

Lung function measurements in grape farmers and controls*

	Grape farmers Mean (SD)	Controls Mean (SD)	p
FVC (% of pred)	106.3 (21.9)	113.6 (14.5)	0.17
FEV_1 (% of pred)	100.9 (24.2)	112.6 (14.4)	0.03
FEV_1/FVC (% of pred)	99.5 (10.7)	104.1 (7.8)	0.08
FEV_1' (% of pred)	107.3 (24.9)	115.6 (14.6)	0.10

FEV_1'= FEV_1 after bronchodilatation
*p values adjusted for age, sex, and smoking

Chatzi et al, Chest; 2005

Association of all use of pesticides

Association of allergic rhinitis with pesticide use among grape farmers in Crete, Greece

Leda Chatzi, Athanasios Alegakis, Nikolaos Tzanakis, Nikolaos Siafakas, Manolis Kogevinas, Christos Lionis

Occup Environ Med 2007;**64**:417–421. doi: 10.1136/oem.2006.029835

Objective: To explore the association of allergic rhinitis with the use of pesticides among grape farmers in Crete.
Methods: A cross-sectional study of 120 grape farmers and 100 controls at the Malevisi region in Northern Crete was conducted. The protocol consisted of a questionnaire, skin prick tests for 16 common allergens, measurement of specific IgE antibodies against 8 allergens, and spirometry before and after bronchodilatation.
Results: Grape farmers who used pesticides had higher prevalence rates of allergic rhinitis symptoms (OR, 3.0; 95% CI, 1.4 to 6.2) compared with grape farmers who reported no current use of pesticides, and control subjects. Logistic regression models controlling for age, sex and smoking status showed that 6 of the 12 predefined groups of major pesticides were significantly related to allergic rhinitis symptoms. The highest risks were observed for paraquat and other bipyridyl herbicides (OR, 2.2; 95% CI, 1.0 to 4.8), dithiocarbamate fungicides (OR, 2.5; 95% CI, 1.1 to 5.3) and carbamate insecticides (OR, 3.0; 95% CI, 1.4 to 6.5). A factor analysis of pesticides used identified 3 distinct factors. The most common factor was that of multiple pesticide use that included 9 pesticides and was significantly associated with allergic rhinitis (OR, 1.5; 95% CI, 1.0 to 2.3). ORs were higher when allergic rhinitis was defined using both questionnaire data on symptoms and atopy.
Conclusions: Occupational exposure to multiple agricultural chemicals could be related to allergic rhinitis in grape farmers.

Pesticides	Allergi based quest OR (95	
Herbicides n = 72	2.7 (1.	
Bipyridyl n = 50	2.2 (1.	
Glyphosate n = 67	2.3 (1.	
Triazine n = 7	3.8 (0.	
Fungicides n = 72	2.8 (1.	
Dithiocarbamate n = 63	2.5 (1.	
Thiophthalimide n = 46	2.2 (1.0 to 4.8)	3.3 (1.2 to 8.7)
Pyrimidine n = 57	1.2 (0.6 to 2.6)	1.3 (0.5 to 3.4)
Triazole n = 70	2.2 (1.1 to 4.6)	2.7 (1.0 to 7.0)
Inorganic n = 74	1.5 (0.7 to 3.4)	2.2 (0.9 to 5.9)
Insecticides n = 78	1.8 (0.8 to 4.2)	2.6 (1.0 to 7.0)
Carbamate n = 75	3.0 (1.4 to 6.5)	2.4 (1.0 to 6.0)
Organophosphate n = 37	1.4 (0.6 to 3.2)	2.6 (0.9 to 7.9)
Organochlorine n = 5	1.2 (0.2 to 7.8)	–
Bioinsecticides (*Bacillus thuringiensis*) n = 12	1.9 (0.5 to 7.0)	1.5 (0.3 to 7.6)

acetylcholinesterase activity and can induce bronchoconstriction by increasing the cholinergic activity, whereas the herbicide paraquat is a cause of pulmonary fibrosis in humans after exposure to a high dose.[5–9] The Agricultural Health Study has shown that paraquat, organophosphates and thiocarbamate pesticides were associated with increased wheezing among pesticide applicators.[10 11] Additionally, Senthilselvan *et al*[7] reported that the use of carbamate insecticides was associated with self-reported asthma among Saskatchewan farmers.

We recently observed that grape farmers in Crete had a high prevalence of allergic rhinitis (AR) and work-related respiratory symptoms compared with controls, and an increased allergic sensitisation to specific pollens.[12] The present study was conducted in order to investigate the association between AR and the use of pesticides among the above grape farmers group.

METHODS

Study population

This study was conducted from April to November 2002 and the study methods have been described in detail previously.[12] The exposed group consisted of 150 grape farmers with no other occupation besides grape farming. They were randomly selected from 459 grape farmers in the age group of 25–70 years who were listed in the agricultural co-operative in the Malevisi region of Northern Crete. The non-exposed group consisted of a random sample of 150 employees in the tourist industry, aged 25–70 years, from the total population of employees in the tourist industry who live in the Malevisi region (n = 408). This occupational group was chosen as the control group because

Chatzi et al, Occup Environ Med; 2007

Prevalence of skin symp skin symptoms among g controls.

	Grape farmers n (%)			
Itchy rash	45 (38)			
Itchy rash with vesicles	16 (13)			
W-R itchy rash	19 (16)			
W-R itchy rash with vesicles	7 (6)	1 (1)	2.8 (0.3-3.3)	NS

Adjusted OR= Odds ratio for grape farmers / controls after adjustment for age and sex

AMERICAN JOURNAL OF INDUSTRIAL MEDICINE 49:77–84 (2006)

Skin Symptoms and Work-Related Skin Symptoms Among Grape Farmers in Crete, Greece

Leda Chatzi, MD, PhD,[1]* Athanasios Alegakis, PhD,[2] Sabine Krüger-Krasagakis, MD, PhD,[3] and Christos Lionis, MD, PhD[1]

Background *Grape farmers are exposed to a variety of agents capable of inducing occupational skin disease. We conducted a study to measure the prevalence of skin symptoms and work-related skin symptoms among grape farmers in the Malevisi region of Crete and to provide data on associated risk factors.*

Methods *One hundred twenty grape farmers and 100 controls participated in the study. The protocol consisted of a questionnaire, skin prick tests for 16 common allergens, and measurement of specific IgE antibodies against 8 allergens.*

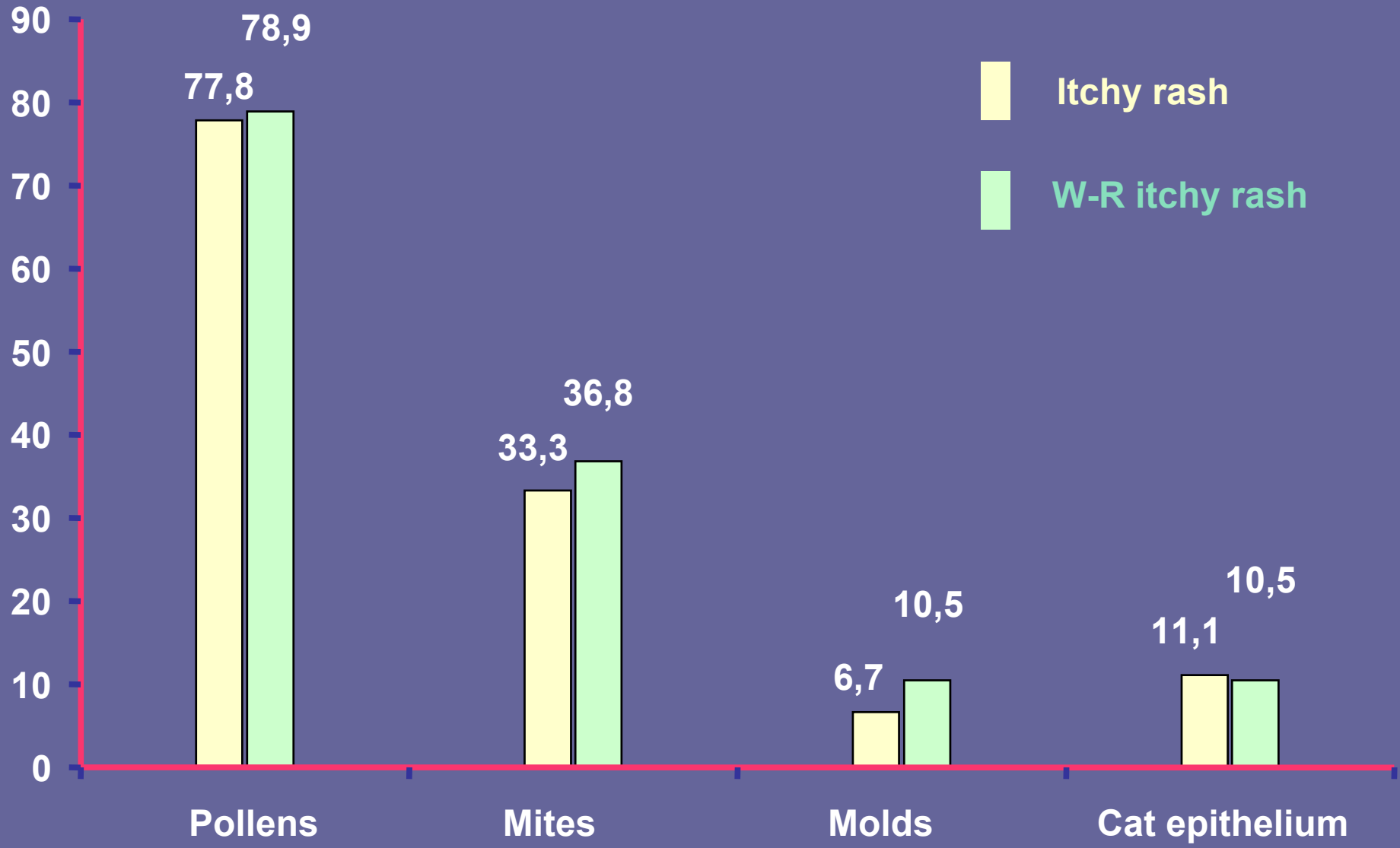
Results *Self-reported itchy rash (OR, 2.31; 95%CI, 1.10–4.84, P < 0.05) within the last 12 months, and work-related itchy rash (OR, 4.08; 95%CI, 1.01–20.33, P < 0.05) were significantly higher in grape farmers than in controls, after adjusting for age and sex. Sensitization to pollens (OR, 4.20; 95% CI, 1.41–12.82, P < 0.01) and allergic rhinitis (OR, 3.06; 95% CI, 1.21–8.28, P < 0.05) were found to be significantly associated with self-reported itchy rash in the grape farmers group.*

Conclusions *Grape farmers reported skin symptoms more frequently than non-exposed controls, and IgE-mediated sensitization to pollens was found to be significantly associated with the reported symptoms. Further studies are needed to evaluate the impact of specific occupational agents on skin diseases among grape farmers.* Am. J. Ind. Med. 49:77–84, 2006. © 2005 Wiley-Liss, Inc.

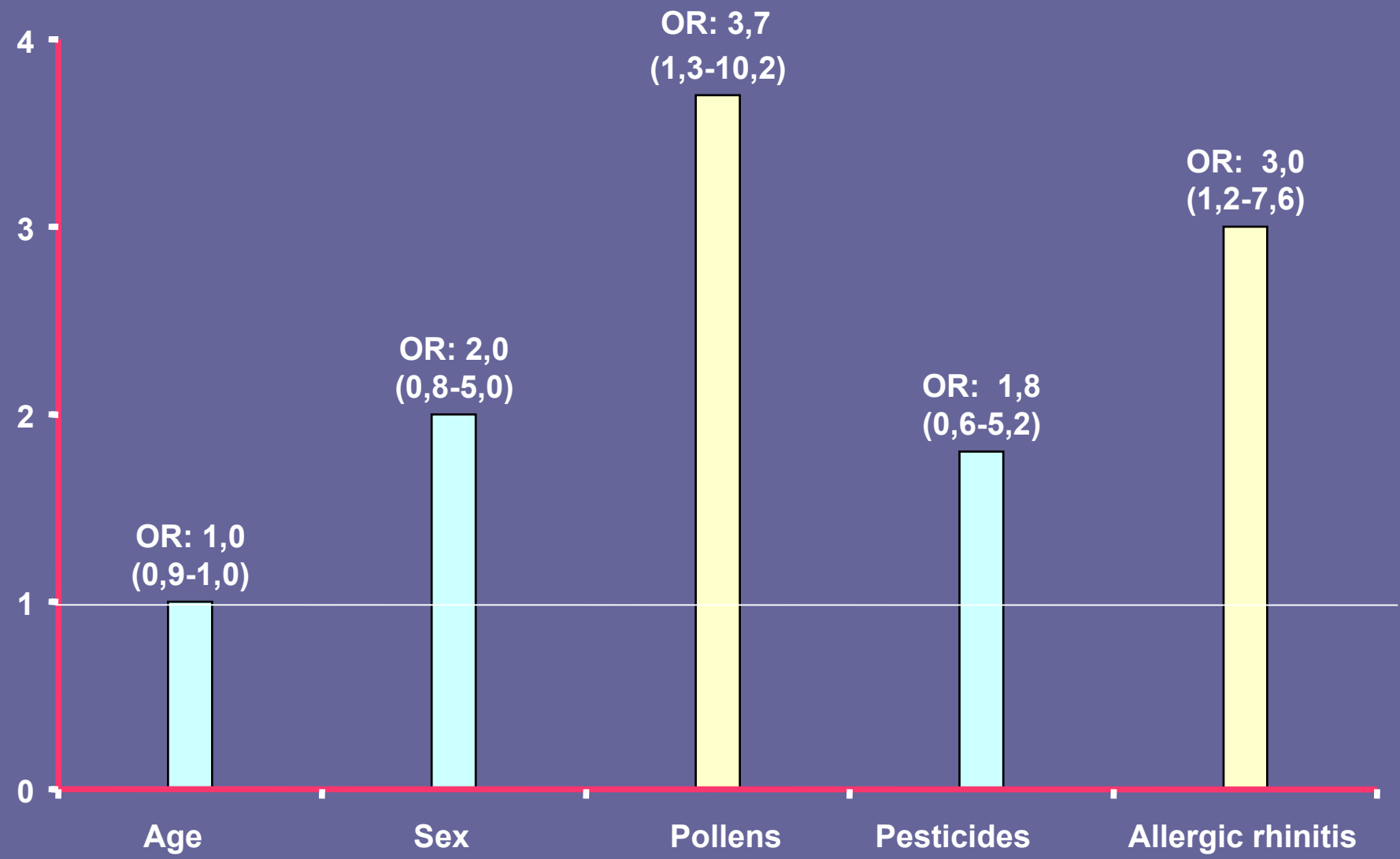
KEY WORDS: grape farmers; skin symptoms; work-related skin symptoms; pollen; sensitization

Chatzi et al, Am J Indust Med; 2006

Proportion of positive SPT/EIA tests among grape farmers with itchy rash and w-r itchy rash



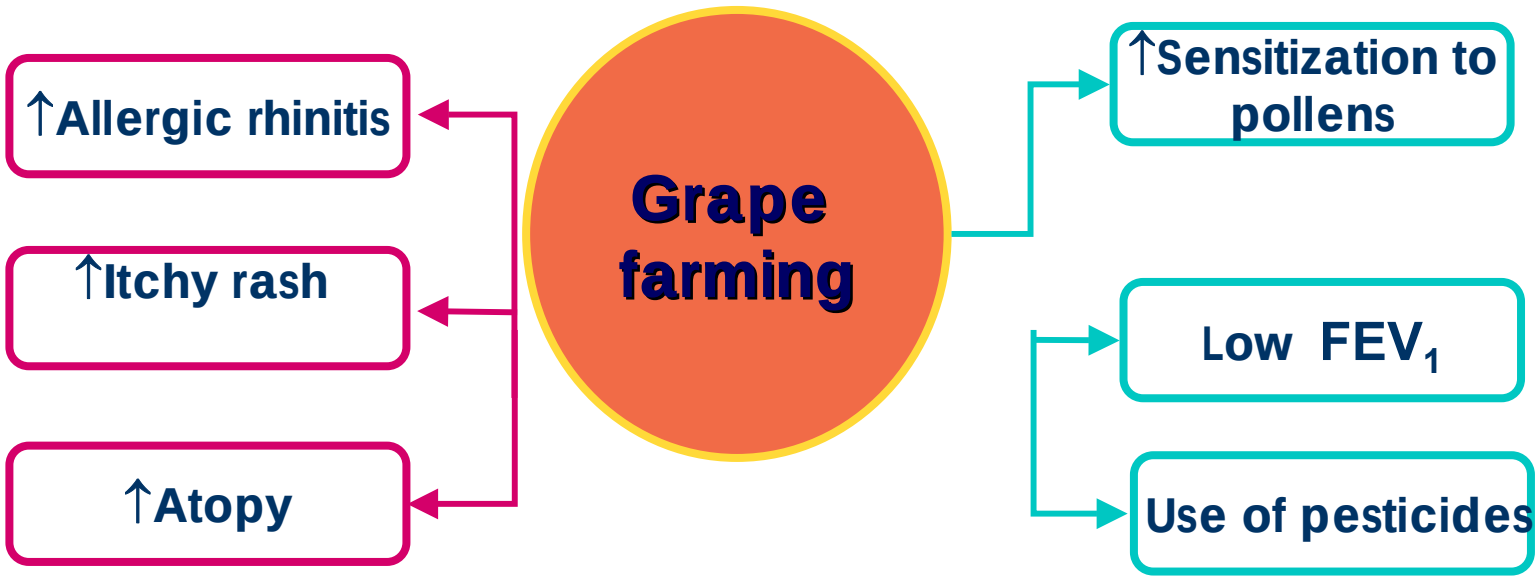
Risk factors for itchy rash among grape farmers



Limitations of the study

- ✓Cross-sectional study
- ✓Small study population
- ✓Selection bias-Healthy worker effect?
- ✓Lack of skin examination

The Cretan Project-conclusions



Important web sides: IPCRG and Primary Care Respiratory Journal

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International Primary Care Respiratory Group (IPCRG) Guidelines: Management of allergic rhinitis
Page 58-70
David Price, Christine Bond, Jacques Bouchard, Rui Costa, Joseph Keenan, Mark L. Levy, Mari Orru, Dermot Ryan, Samantha Walker and Margaret Watson

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1: **The IPCRG Guidelines: Developing guidelines for managing chronic respiratory diseases in primary care**
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GUIDELINE PAPER

International Primary Care Respiratory Group (IPCRG) Guidelines: Management of Asthma

Thys van der Molen[a,b,*], Anders Østrem[b], Bjorn Stallberg[c], Marianne Stubbe Østergaard[d], Raj B. Singh[e]

[a] Department of General Practice, Antonius Deusinglaan 1, University Medical Center Groningen, University of Groningen, 9713 AV Groningen, Netherlands
[b] Department of Primary Care Respiratory Medicine, University of Aberdeen, Scotland, UK
[c] Dept of Public Health and Caring Sciences, Section of Family Medicine and Clinical Epidemiology, Uppsala University, Sweden
[d] Department of General Practice, University of Copenhagen, Denmark
[e] Consultant Respiratory Physician and Managing Trustee, Asthma Foundation of India, Annanagar, Chennai 600 040, India

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Step 1: Intermittent asthma; symptoms ≤ once per week

When patients present with infrequent symptoms, prescribe rapid-acting beta-2 agonists. In patients over 60 years of age, anticholinergics can be considered as an alternative. Prescribe a rapid-acting beta-2 agonist for patients with exercise-induced asthma. Occasionally, patients with intermittent asthma develop severe exacerbations; these patients should be treated as if they had persistent asthma.

Step 2: Mild persistent asthma; symptoms > once per week

When patients present with more frequent symptoms, start with inhaled corticosteroids in a low dose: 200–400 mcg of beclomethasone or equivalent [23]***. If inhaled corticosteroids fail to improve asthma after a period of three months, ascertain the reason why. In patients believed to have good compliance, a satisfactory inhalation technique, and no identified trigger factors for their asthma, treatment should be extended to Step 3.

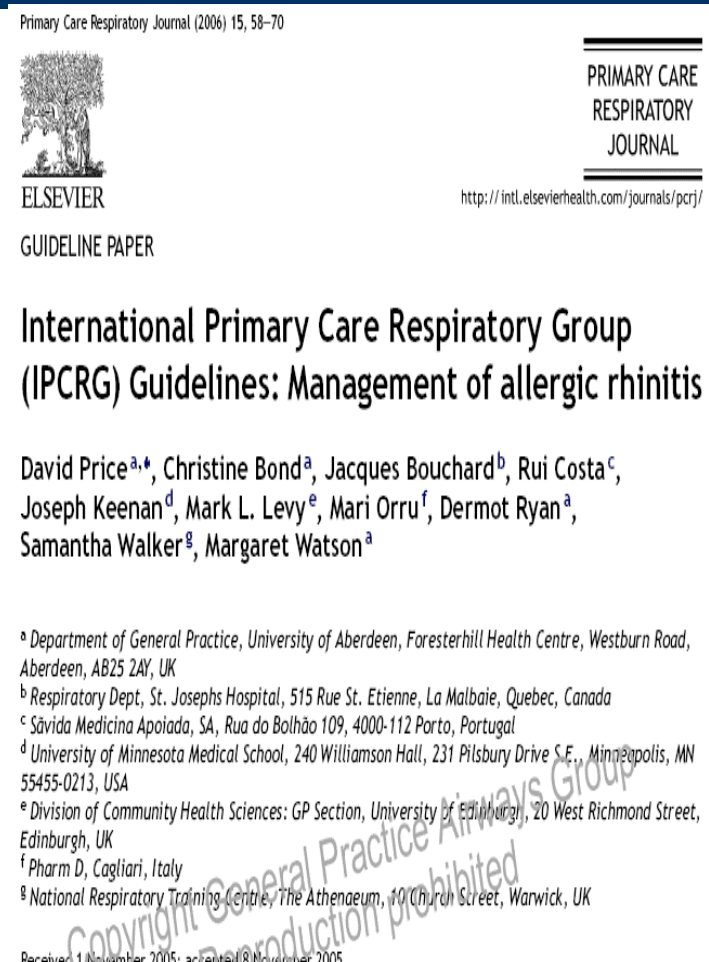
Step 3: Moderate persistent asthma

The Step 2 treatment goal has not been reached despite low dose of inhaled corticosteroids and appropriate compliance. The preferred treatment is regular treatment with a combination of inhaled glucocorticsteroid and a long-acting beta-2 agonist [24,25]***. Alternatives are combinations of inhaled corticosteroids with sustained release theopyllines or with leukotriene receptor antagonists [20]**.

Management of allergic rhinitis

Pharmacologic therapy

Depends on both the classification of severity and the individual patients' symptoms



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GUIDELINE PAPER

International Primary Care Respiratory Group (IPCRG) Guidelines: Management of allergic rhinitis

David Price[a,*], Christine Bond[a], Jacques Bouchard[b], Rui Costa[c], Joseph Keenan[d], Mark L. Levy[e], Mari Orru[f], Dermot Ryan[a], Samantha Walker[g], Margaret Watson[a]

[a] Department of General Practice, University of Aberdeen, Foresterhill Health Centre, Westburn Road, Aberdeen, AB25 2AY, UK
[b] Respiratory Dept, St. Josephs Hospital, 515 Rue St. Etienne, La Malbaie, Quebec, Canada
[c] Sãvida Medicina Apoiada, SA, Rua do Bolhão 109, 4000-112 Porto, Portugal
[d] University of Minnesota Medical School, 240 Williamson Hall, 231 Pilsbury Drive S.E., Minneapolis, MN 55455-0213, USA
[e] Division of Community Health Sciences: GP Section, University of Edinburgh, 20 West Richmond Street, Edinburgh, UK
[f] Pharm D, Cagliari, Italy
[g] National Respiratory Training Centre, The Athenaeum, 10 Church Street, Warwick, UK

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- Oral and local H1 antihistmanines
- Intranasal glucocorticosteroids
- Systemic and intranasal glucocorticosteroids
- Chromones
- Decongestants
- Anticholinergics
- Antileukotrienes
- Allergen-specific immunotherapy

American Family Physician Practice Guidelines

Allergic Rhinitis

Antihistamines vs. Nasal Corticosteroids. [illegible] intranasal corticosteroids over sedating or nonsedating antihistamines for relief of symptoms of nasal allergy. These results are true for seasonal and perennial allergic rhinitis.

Antihistamines vs. Immunotherapy. Direct comparisons between these two therapies with respect to efficacy are not likely to be done. Immunotherapy is generally considered to be a long-term disease-modifying treatment requiring months to years of treatment, and antihistamines are most often used for immediate symptom relief.

Nasal Corticosteroids vs. Immunotherapy. No randomized controlled trials were identified that directly compared immunotherapy with intranasal corticosteroids in treating seasonal or perennial allergic rhinitis.

Sedating vs. Nonsedating Antihistamines. Study results indicate no consistent benefit of sedating antihistamines over nonsedating antihistamines with respect to symptom alleviation in seasonal and perennial allergic rhinitis, but the side-effect profile is more favorable with nonsedating antihistamines.

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Practice Guidelines

AHRQ Releases Revie and Nonallergic Rhini

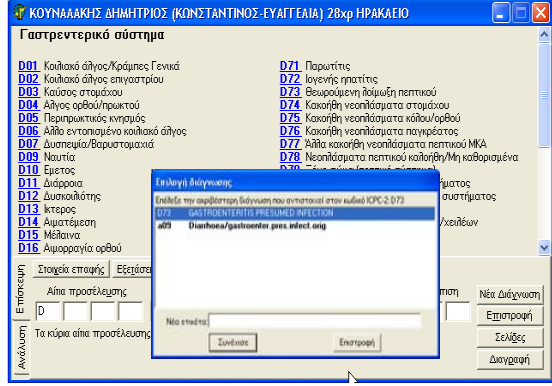
Genevieve W. Ressel

An evidence report from the Agency for Healthcare Research and Quality (AHRQ) provides a review of the available literature on the various treatments for allergic and nonallergic rhinitis. The complete report, "Evidence Report/Technology Assessment No. 54--Management of Allergic and Nonallergic Rhinitis," is available at www.ahrq.gov. Printed copies may be obtained free of charge from the AHRQ Publications Clearinghouse (800-358-9295). For this report, the American Academy of Family Physicians served as the science partner, and the American College of Allergy, Asthma and Immunology and the American Academy of Allergy, Asthma and Immunology provided technical experts.

Key messages

- GPs are the front door physicians in the diagnosis and management of patients with bronchial asthma and allergic rhinitis
- GPs are in the unique position to make research hypotheses relevant to disease's occurrence and natural course.
- GPs seems to capable in publishing their research results in well know journals
- Research in clinical entities, including bronchial asthma and allergic rhinitis, requires effective collaboration with hospital physicians.

Do not forget-Research in primary care needs a paper, a pencil (*John Fry*) and medical records



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Developing an Appropriate EPR System for the Greek Primary Care Setting

Dimitris K. Kounalakis,[1,4] Christos Lionis,[1,2] Inge Okkes,[3] and Henk Lamberts[3]

The creation of an electronic patient record (EPR) system with a user-friendly interface based on the concept of the episode of care was considered an urgent priority in the present Greek context, where a Health Care Reform program is in progress. This paper reports the procedures of developing an EPR system, and outlines some of its essentials and key issues. We performed a systematic review and analyzed the perceptions and patterns of use of existing EPR systems among Greek general practitioners. On the basis of this analysis, Transhis was selected using defined criteria for appropriateness, efficiency, and feasibility for general practice as a prototype, for creating a Windows-based EPR system using the International Classification of Primary Care (ICPC-2) and International Classification of Diseases (ICD-10) as classifications. The new EPR system seems appropriate for use within the current Greek primary care setting. Further studies are required for its evaluation.

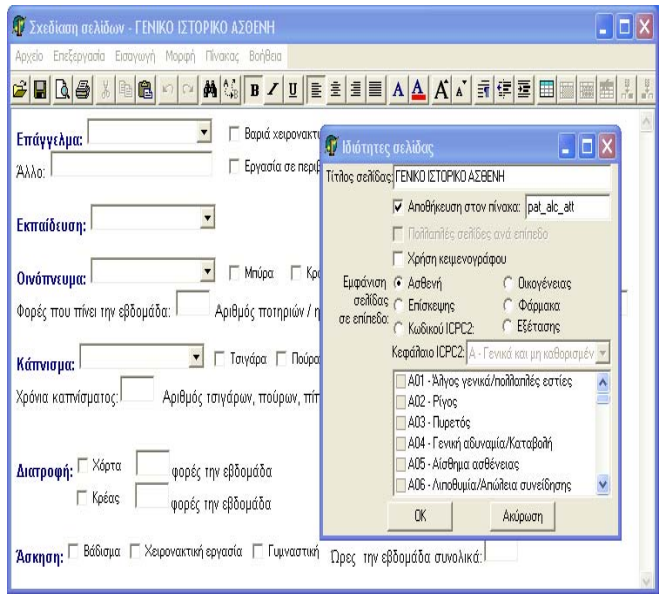
KEY WORDS: electronic patient records system; EPR; ICPC; primary care.

BACKGROUND

Effectiveness and quality performance in primary care hold a central position in the recent discussion on the quality improvement of several European national health systems. In Greece, a Health Care Reform program seeking quality improvement and coordination of outpatient and hospital services at the regional level (including Crete), through the enhancement of primary care, has recently been approved.

In Crete, there is increasing interest in the implementation of research findings into daily practice and in measuring the performance of primary care physicians serving the rural population, where a network between the medical faculty and university hospital and rural health centers has been developed over the past few years.[1] The

[1]Clinic of Social and Family Medicine, School of Medicine, University of Crete, P.O. Box 1393, 71409



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