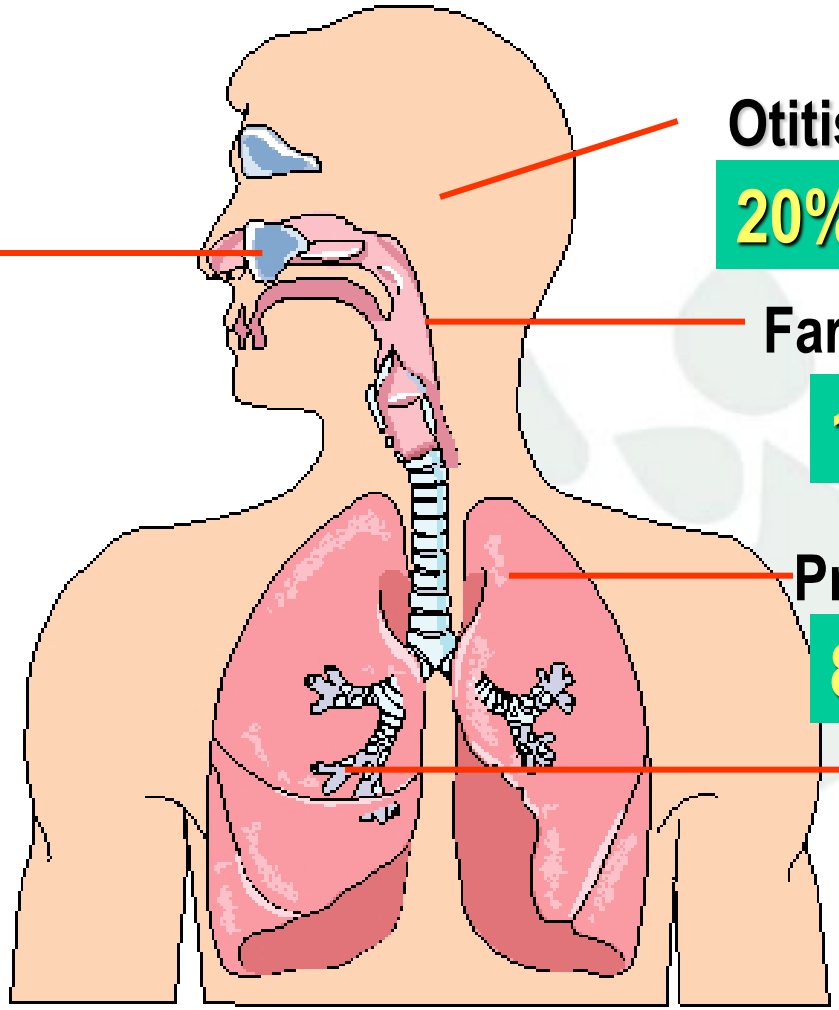
GERMIAP
Grup d'Estudi i Recomanacions de Malalties Infeccioses en Atenció Primària

CAMFiC
societat catalana de medicina familiar i comunitària

UPDATE INFECCIOSES 2014

INFECCIÓN RESPIRATORIA
ETIOLOGIA BACTERIANA – SOBREPRESCRIPCIÓN DE ANTIBIÓTICOS



Otitis
20% → 87%

Sinusitis maxilar
40% → 87%

Faringoamigdalitis
15% → 88%

Pneumònia
80% → 90%

Bronquitis
10% → 57%

Aten Primaria 2014 - Estudi HappyAudit

UPDATE ANTIBIOTICS

1-Consum d' antibiòtics

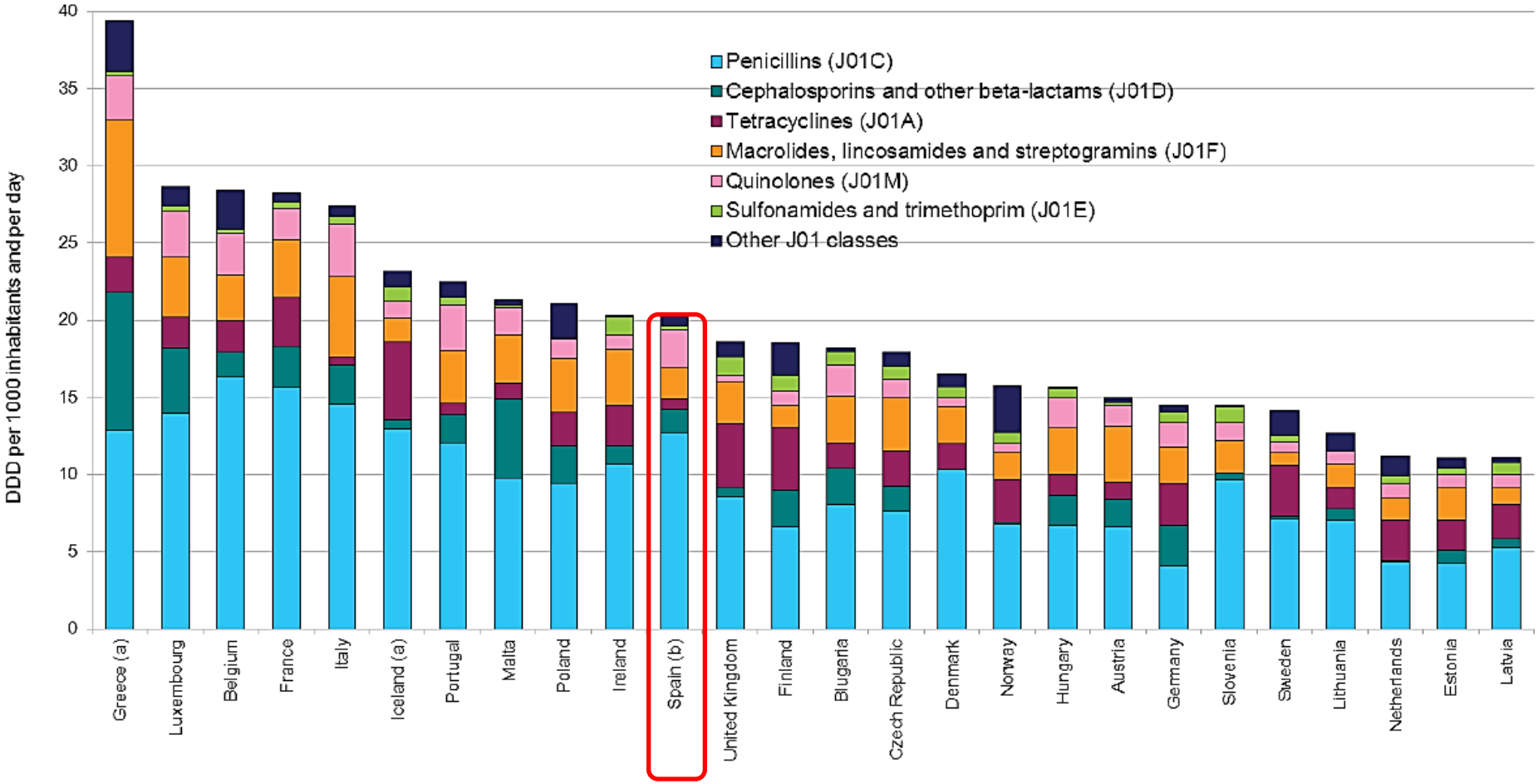
2-Inadecuació d' antibiòtics

3-Métodes de diagnòstic ràpid

4-Resistencia als antibiòtics

CONSUM D'ANTIBIÒTICS A L'ATENCIÓ PRIMÀRIA

Consumption of antibiotics for systemic use in the community by antibiotic class in European countries 2010



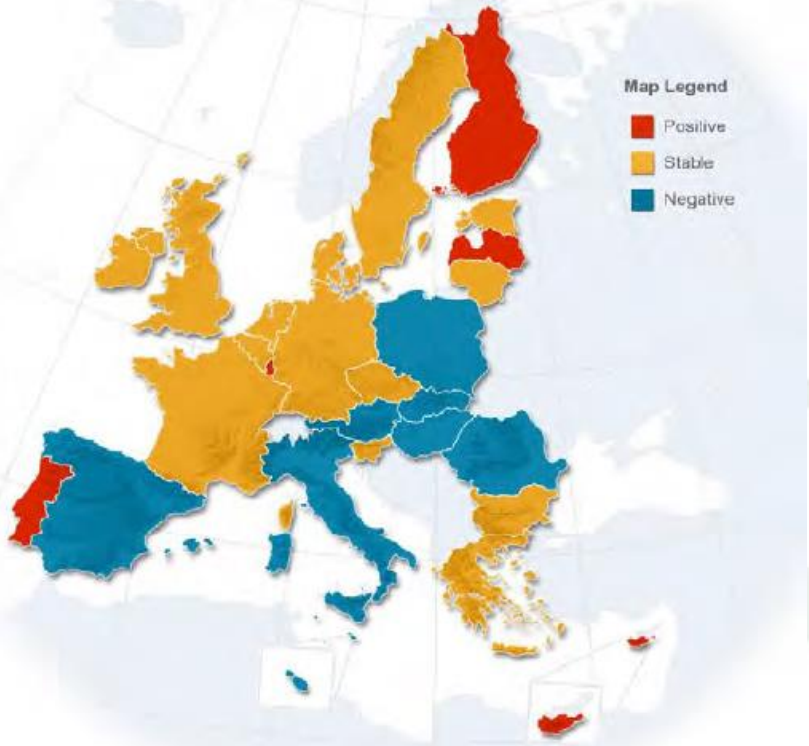
http://www.ecdc.europa.eu/en/activities/surveillance/esac-net

Eurobarometer, 2013. Have you taken antibiotics in the last year?. Comparison with results observed in 2009

LV	39%	+8
PT	38%	+5
FI	36%	+4
CY	47%	+3
LU	43%	+3
FR	44%	+2
LT	39%	+2
BE	38%	+2
BG	37%	+2
EL	36%	+2
SE	24%	+2
EE	35%	+1
DK	31%	+1
SI	28%	+1
CZ	33%	=
UK	41%	-1
DE	27%	-1
IE	43%	-2
NL	28%	-2
SK	41%	-3
RO	47%	-4
AT	33%	-4
EU27	35%	-5
MT	48%	-7
HU	29%	-7
PL	26%	-7
ES	38%	-15
IT	36%	-21

Question: QE1a. Have you taken any antibiotics orally such as tablets, powder or syrup in the last 12 months?

Answers: Yes



Mortality and antibiotic therapy

Characteristic	No Antibiotic	Amoxicillin†	Ciprofloxacin	Levofloxacin	Azithromycin
Prescriptions (no.)	1,391,180	1,348,672	264,626	193,906	347,795
Mean age (yr)	48.6	47.7	50.5	51.5	48.6
Female sex (%)	77.5	73.3	75.5	73.5	77.5
Current or past use of medications (%)					
Angiotensin-converting–enzyme inhibitor	28.1	24.0	28.4	32.8	28.1
Beta-blocker	21.6	17.3	20.9	24.8	21.5
Calcium-channel blocker	20.2	19.9	22.8	24.3	20.2
Digoxin	2.5	3.5	3.8	3.6	2.5
Loop diuretic	17.3	15.1	20.1	23.8	17.2
Other diuretic	25.9	22.4	26.3	28.9	25.9
Statin	28.1	17.9	25.2	34.5	28.0
Insulin	6.5	6.9	10.2	10.2	6.5
Oral hypoglycemic agent	16.5	13.1	18.9	21.9	16.5
Beta-agonist	40.5	28.1	28.6	43.5	40.3
Glucocorticoid	3.3	2.8	3.8	4.8	3.3
Coexisting conditions (%)					
Heart failure	4.3	3.9	5.3	6.8	4.3
Chronic obstructive pulmonary disease	5.5	4.6	5.1	6.8	5.4
Complications of diabetes‡	7.4	6.5	11.3	11.7	7.5
Incontinence of urine or feces	2.9	2.1	4.6	4.3	2.9
Use of wheelchair or walker	2.3	1.6	3.2	3.8	2.3

Ray WA et al. *N Engl J Med* 2012;366:1881–90.

Number of deaths per million of treatments

Antibiotic	Cardiovascular death. Hazard ratio (IC 95%)	Death due to any cause. Hazard ratio (IC 95%)
Azithromycin 5 days	2.88 (1.79 – 4.63)	1.85 (1.25 – 2.75)
Azithromycin 10 days	1.86 (1.27 – 2.73)	1.27 (0.92 – 1.75)
Levofloxacin 10 days	1.27 (0.66 – 2.47)	1.07 (0.61 – 1.85)

Ray WA et al. *N Engl J Med* 2012;366:1881–90.

INADECUACIÓN D' ANTIBIÒTICS

NO HACER

No dar antibióticos en sinusitis de menos de 7 días de duración

Top 5 List in Family Medicine

1. Don't do imaging for low back pain within the first 6 weeks unless red flags* are present
- Imaging of the lumbar spine before 6 weeks does *not* improve outcomes but does increase costs
- Low back pain is the fifth most common reason for all physician visits

* *Red flags include but are not limited to severe or progressive neurological deficits or when serious underlying conditions such as osteomyelitis are suspected*
Sources: AHCPR and Cochrane

2. Don't routinely prescribe antibiotics for acute mild to moderate sinusitis unless symptoms (which must include purulent nasal secretions AND maxillary pain or facial or dental tenderness to percussion) last for 7 or more days OR symptoms worsen after initial clinical improvement
- Most maxillary sinusitis in the ambulatory setting is due to a viral infection that will resolve on its own
- Despite consistent recommendations to the contrary, antibiotics are prescribed in over 80% of outpatient visits for acute sinusitis
- Sinusitis accounts for 16 million office visits and $5.8 billion in annual healthcare costs

Source: Cochrane and Ann IM

3. Don't order annual ECGs or any other cardiac screening for asymptomatic, low-risk patients
- Little evidence that detection of coronary artery stenosis in asymptomatic patients at low risk for coronary heart disease improves health outcomes
- False-positive tests are likely to lead to harm through unnecessary invasive procedures, over-treatment, and misdiagnosis
- Potential harms of this routine annual screening exceed the potential benefit

Source: USPSTF

4. Don't perform Pap tests on patients younger than 21 years or in women status post hysterectomy for benign disease
- Most dysplasia in adolescents regresses spontaneously; therefore, screening Pap tests done in this age group can lead to unnecessary anxiety, morbidity, and cost
- Pap tests have low yield in women after hysterectomy (for benign disease), and there is poor evidence for improved outcomes

Sources: ACOG (for age), USPSTF (for hysterectomy)

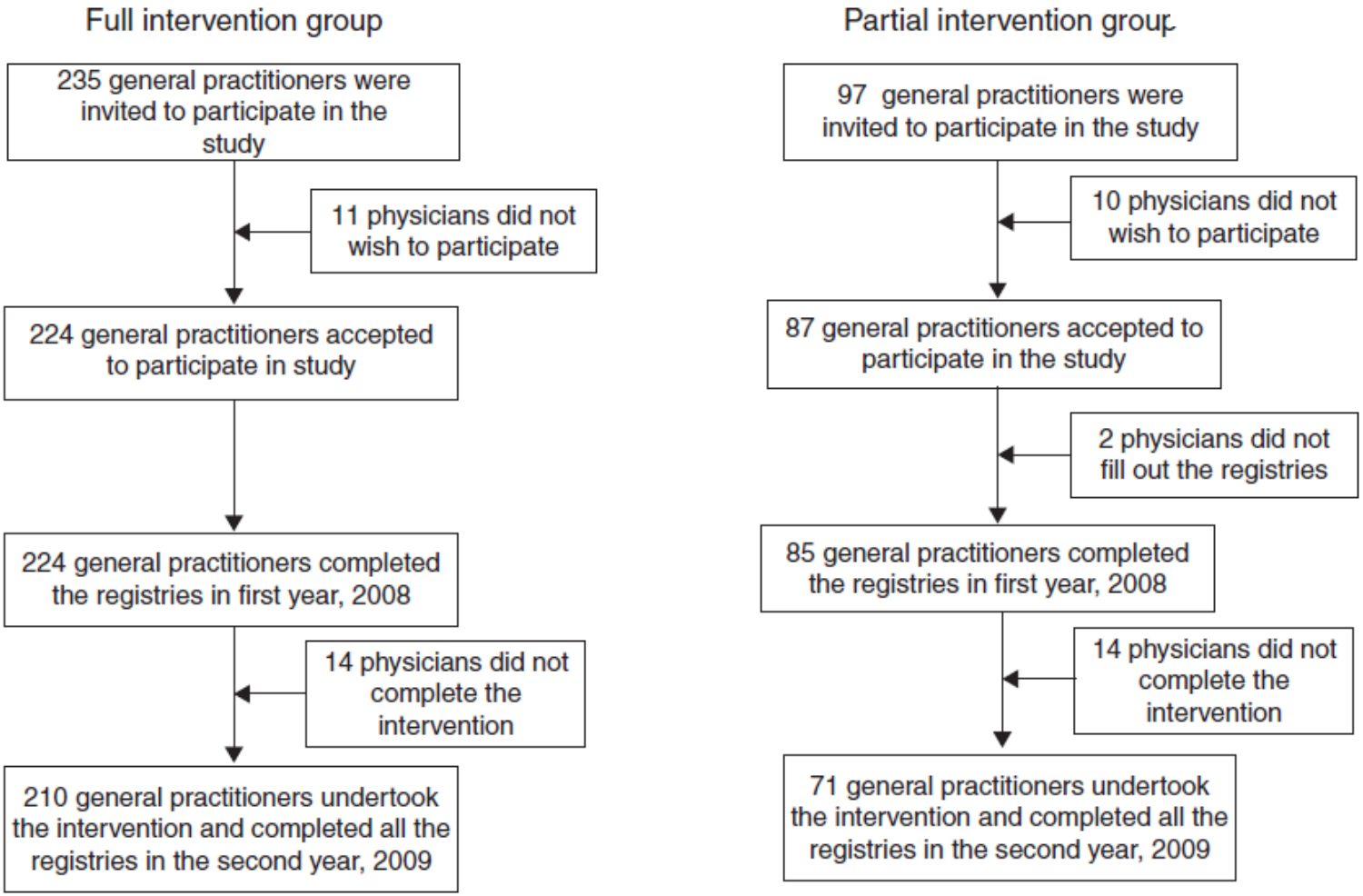
5. Don't use DEXA screening for osteoporosis in women under age 65 years or men under 70 years with no risk factors*
- Not cost-effective in younger, low-risk patients, but cost-effective in older patients

* *Risk factors include but are not limited to fractures after age 50 years, prolonged exposure to corticosteroids, diet deficient in calcium or vitamin D, cigarette smoking, alcoholism, thin and small build*

Sources: NOF, USPSTF, AACE, ACPM

The Good Stewardship Working Group. *Arch Intern Med* 2011;171:1385–90.

Happy Study in Spain. Flowchart



Cots JM et al. *Aten Primaria* 2014;doi: 10.1016/j.aprim.2014.02.006.

Happy Study in Spain. Odds ratio of antibiotic prescribing after the intervention depending on the group assigned

Table 3 Antibiotics prescribed before the intervention and odds ratio of antibiotic prescribing after the intervention depending on the group assigned.

Diagnosis	Antibiotic prescribing after the intervention			
	Partial intervention group (71 GPs)		Full intervention group (210 GPs)	
	OR	95% CI	OR	95% CI
Common cold	4.56	2.35–8.88	0.03	0.01–0.06
Acute otitis media	1.29	0.39–4.27	0.48	0.12–1.95
Acute sinusitis	0.43	0.14–1.29	0.57	0.18–1.78
Acute pharyngitis	1.03	0.68–1.56	0.15	0.09–0.25
Acute tonsillitis	1.03	0.58–1.85	0.18	0.09–0.37
Acute bronchitis	0.61	0.42–0.88	0.31	0.20–0.47
Exacerbations of CB/COPD	1.15	0.61–2.17	0.42	0.19–0.90
Pneumonia	1.19	0.25–5.70	0.31	0.04–2.63
Influenza	1.97	0.60–6.49	0.01	0.00–0.07
Other respiratory infections	0.76	0.37–1.55	0.39	0.17–0.93
Total[a]	0.99	0.89–1.10	0.50	0.44–0.57

OR, odds ratio; CI, confidence interval; GP, general practitioner; CB, chronic bronchitis; COPD, chronic obstructive pulmonary disease.
[a] A total of 249 infections were not catalogued.

Cots JM et al. *Aten Primaria* 2014;doi: 10.1016/j.aprim.2014.02.006.

Effects of internet-based training on antibiotic prescribing rates for acute respiratory-tract infections: a multinational, cluster, randomised, factorial, controlled trial

Paul Little, Beth Stuart, Nick Francis, Elaine Douglas, Sarah Tonkin-Crine, Sibyl Anthierens, Jochen W L Cals, Hasse Melbye, Miriam Santer, Michael Moore, Samuel Coenen, Chris Butler, Kerenza Hood, Mark Kelly, Maciek Godycki-Cwirko, Artur Mierzecki, Antoni Torres, Carl Llor, Melanie Davies, Mark Mullee, Gilly O'Reilly, Alike van der Velden, Adam W A Geraghty, Herman Goossens, Theo Verheij, Lucy Yardley, on behalf of the GRACE consortium

Summary

Background High-volume prescribing of antibiotics in primary care is a major driver of antibiotic resistance. Education of physicians and patients can lower prescribing levels, but it frequently relies on highly trained staff. We assessed whether internet-based training methods could alter prescribing practices in multiple health-care systems.

Methods After a baseline audit in October to December, 2010, primary-care practices in six European countries were cluster randomised to usual care, training in the use of a C-reactive protein (CRP) test at point of care, in enhanced communication skills, or in both CRP and enhanced communication. Patients were recruited from February to May, 2011. This trial is registered, number ISRCTN99871214.

Results The baseline audit, done in 259 practices, provided data for 6771 patients with lower-respiratory-tract infections (3742 [55·3%]) and upper-respiratory-tract infections (1416 [20·9%]), of whom 5355 (79·1%) were prescribed antibiotics. After randomisation, 246 practices were included and 4264 patients were recruited. The antibiotic prescribing rate was lower with CRP training than without (33% *vs* 48%, adjusted risk ratio 0·54, 95% CI 0·42–0·69) and with enhanced-communication training than without (36% *vs* 45%, 0·69, 0·54–0·87). The combined intervention was associated with the greatest reduction in prescribing rate (CRP risk ratio 0·53, 95% CI 0·36–0·74, p<0·0001; enhanced communication 0·68, 0·50–0·89, p=0·003; combined 0·38, 0·25–0·55, p<0·0001).

Interpretation Internet training achieved important reductions in antibiotic prescribing for respiratory-tract infections across language and cultural boundaries.

Funding European Commission Framework Programme 6, National Institute for Health Research, Research Foundation Flanders.

Lancet 2013; 382: 1175–82

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See **Comment** page 1156

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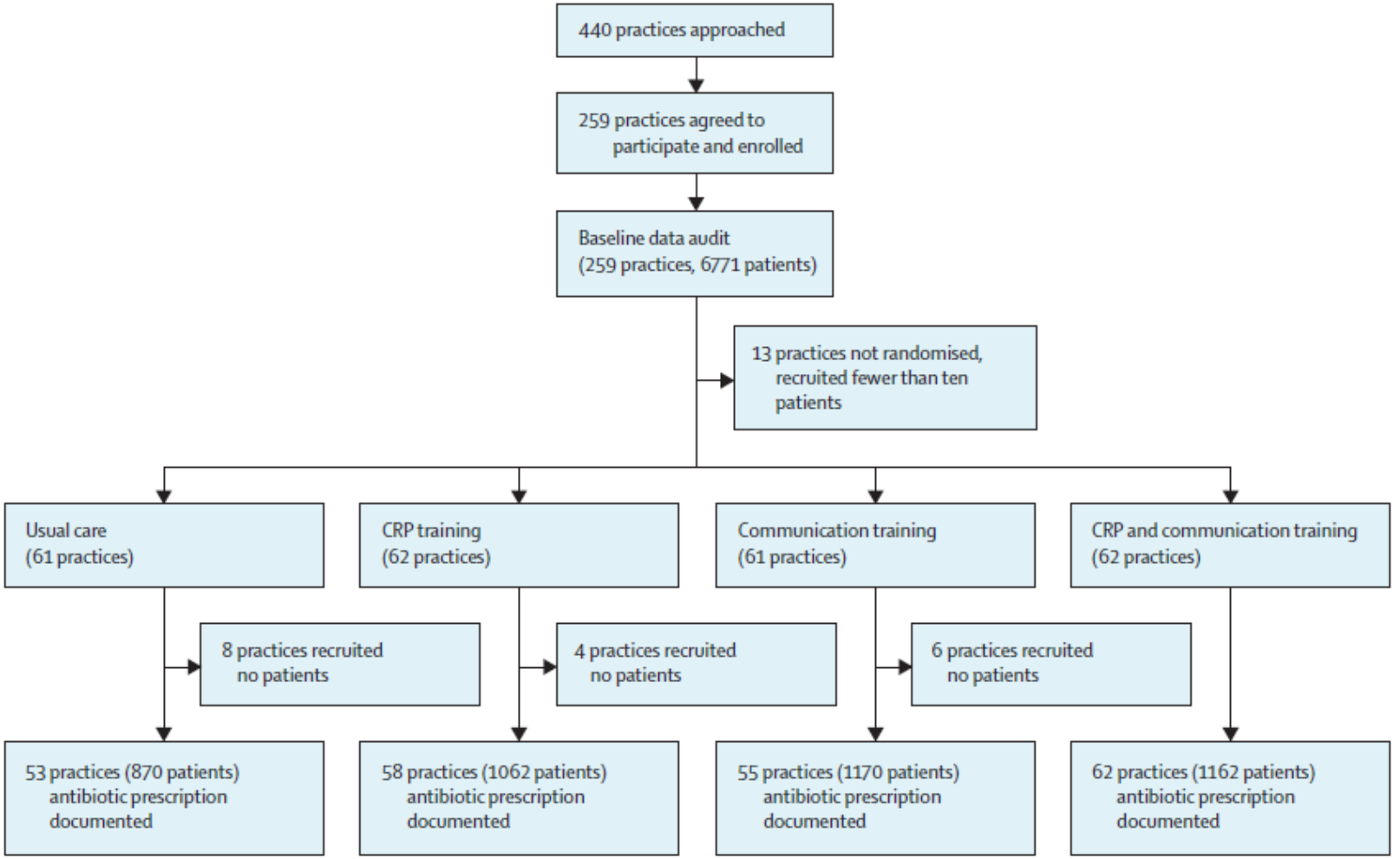
Effect of internet-based training on antibiotic prescribing rates for acute respiratory tract infections: a multinational cluster, randomised, factorial clinical trial



Little P et al. *Lancet* 2013;382:1175–82.

Effect of internet-based training on antibiotic prescribing rates for acute respiratory tract infections: a multinational cluster, randomised, factorial clinical trial

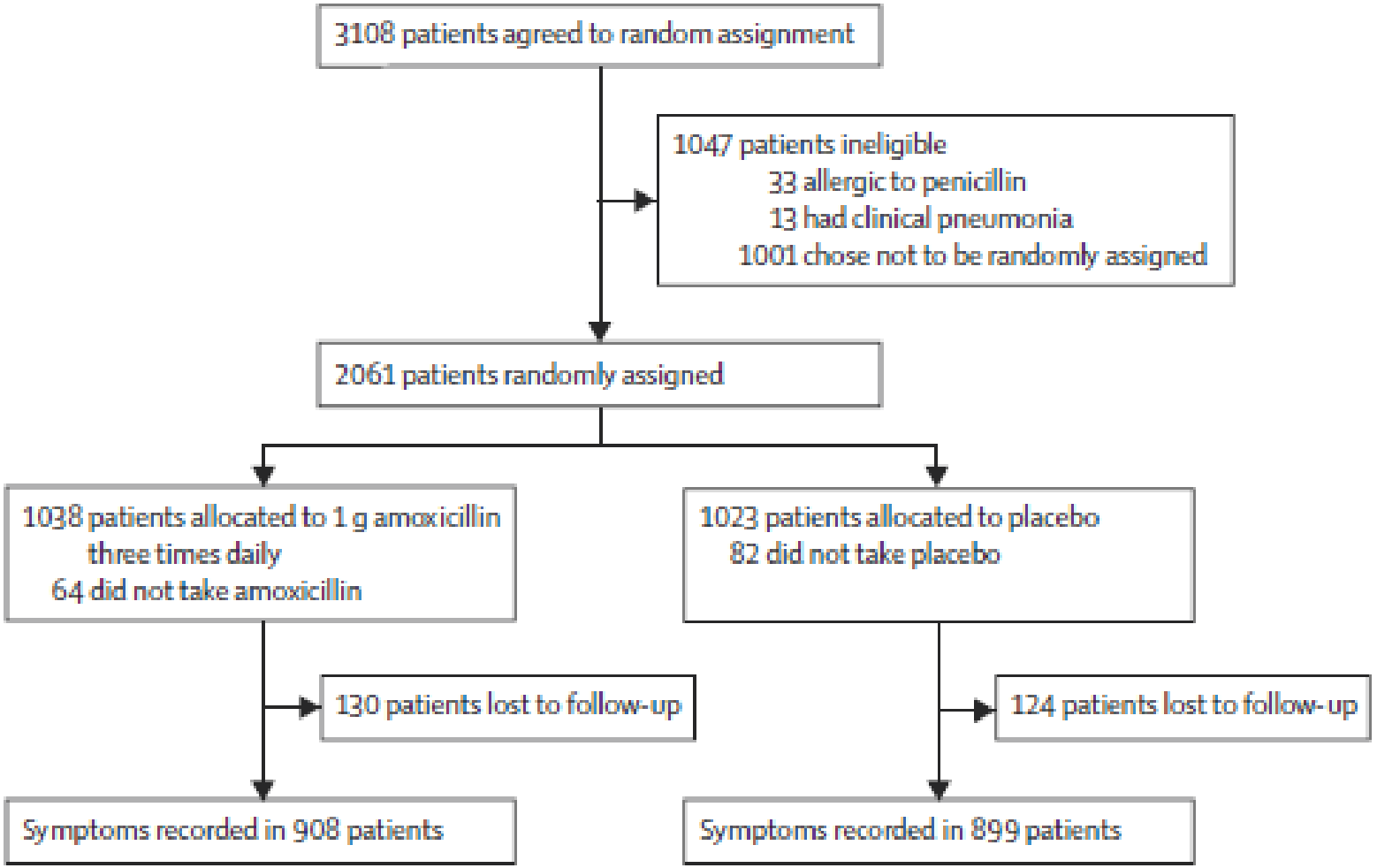
Effectiveness of CRP and enhanced-communication training in reducing antibiotic prescribing rates

	No CRP training	CRP training	No communication training	Communication training
Crude percentage	48% (984/2040)	33% (734/2224)	45% (876/1932)	36% (842/2332)
Basic risk ratio (95% CI)*	1·00	0·58 (0·48–0·70, p<0·0001)	1·00	0·76 (0·63–0·89, p<0·0001)
Adjusted risk ratio†	1·00	0·54 (0·42–0·69, p<0·0001)	1·00	0·69 (0·54–0·87, p<0·0001)

CRP=C-reactive protein. *The basic model adjusted for baseline prescribing and clustering by physician and practice. †The adjusted model additionally controlled for age, smoking, sex, major cardiovascular or respiratory comorbidity, baseline symptoms, crepitations, wheeze, pulse higher than 100 beats per min, temperature higher than 37·8°C, respiratory rate, blood pressure, physician's rating of severity, and duration of cough.

Little P et al. *Lancet* 2013;**382**:1175–82.

Benefit of antibiotics for acute lower respiratory tract infections



Little P et al. *Lancet Infect Dis* 2013;13:123–9.

Benefit of antibiotics for acute lower respiratory tract infections

Resolution of symptoms referred as 'moderately bad' or 'worse'

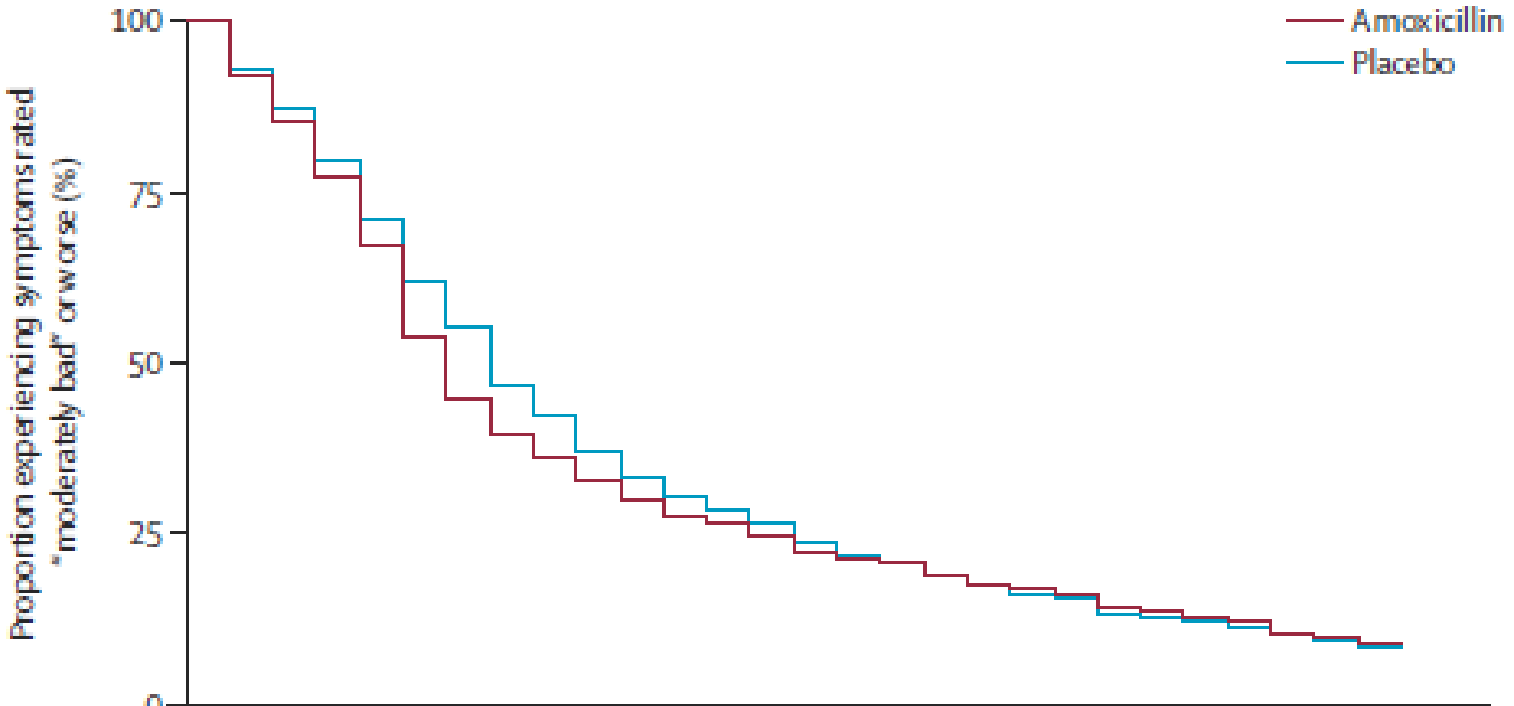
Group	Days (IQR)	Hazard ratio (95% CI)	P
Amoxicillin	6 (3 - 11)	1.06 (0.96 – 1.18)	0.229
Placebo	7 (4 - 14)		

Age groups	n	Hazard ratio (95% CI)	P
≥ 60 years	550	0.95 (0.79 – 1.14)	0.555
< 60 years	1,249	1.12 (0.98 – 1.24)	0.071
Total	1,799	1.06 (0.96 – 1.18)	0.229

Little P et al. *Lancet Infect Dis* 2013;13:123 –9.

Benefit of antibiotics for acute lower respiratory tract infections

Kaplan-Meier survival of days with symptoms considered as 'moderately bad' or 'worse'



Number at risk										
Placebo	899	672	463	304	229	166	132	99	83	62
Amoxicillin	908	655	377	268	217	167	136	106	90	66

Little P et al. *Lancet Infect Dis* 2013;13:123 –9.

Benefit of antibiotics for acute lower respiratory tract infections

Resolution of symptoms rated 'moderately bad' or 'worse' in different subgroups of at-risk patients treated with amoxicillin and placebo

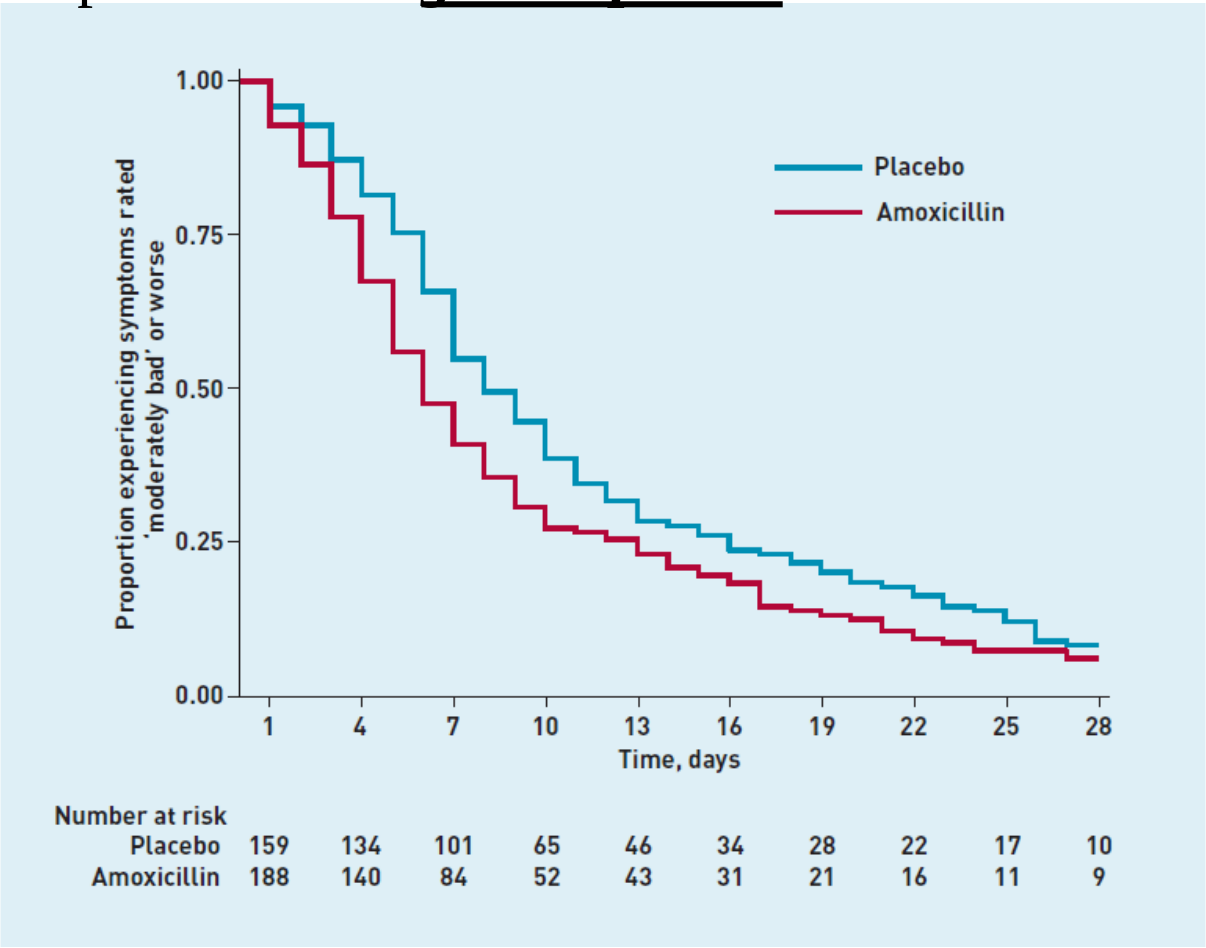
	Median time to resolution of symptoms rated moderately bad (IQR)		Interaction term[a]		Hazard ratio for subgroup[a]	
	Amoxicillin	Placebo	(95% CI)	*P*-value	(95% CI)	*P*-value
Whole cohort (*n* = 1799)	6 (3–11)	7 (4–14)			1.06 (0.98 to 1.18)	0.229
Green sputum (*n* = 346)	6 (3–10)	8 (5–14)	1.28 (0.99 to 1.65)	0.059	1.31 (1.05 to 1.65)	0.019
Current smoker (*n* = 487)	6 (4–10)	7 (4–14)	1.20 (0.95 to 1.51)	0.121	1.23 (1.01 to 1.50)	0.044
Significant past history[b] (*n* = 440)	6 (4–16)	8 (5–15)	0.98 (0.78 to 1.25)	0.914	1.06 (0.86 to 1.31)	0.581
Prior duration of illness >7 days (*n* = 715)	6 (4–15)	7 (3–14)	0.81[c] (0.66 to 0.99)	0.040	0.93 (0.79 to 1.09)	0.375
Fever at baseline (*n* = 608)	7 (4–14)	7 (4–11)	0.97 (0.78 to 1.20)	0.783	1.04 (0.88 to 1.25)	0.599
Minor chest signs (*n* = 692)	6 (4–14)	6 (4–15)	0.98 (0.79 to 1.21)	0.832	1.05 (0.88 to 1.24)	0.598

IQR = interquartile range. [a]Estimates controlled for baseline symptom severity. [b]Lung disease, heart disease, diabetes, or hospital admission. [c]The apparent anomaly here is that the proportional hazards assumption of hazards being constant over time was violated: the interaction term suggests a slower resolution in those with longer prior duration, whereas the median time to resolution suggests the opposite. The Kaplan–Meier survival curves cross, so although the median suggests a shorter duration, those receiving antibiotics have a group taking longer to resolve (90% of the placebo group recover by 24 days but it takes 28 days for 90% of the antibiotic group to recover).

Moore M et al. *Br J Gen Pract* 2014;64:e75–80.

Benefit of antibiotics for acute lower respiratory tract infections

Kaplan-Meier survival of days with symptoms considered as 'moderately bad' or 'worse' in patients with ***green sputum***



Moore M et al. *Br J Gen Pract* 2014;64**:**e75–80.

METODES DE DIAGNÒSTIC RÀPID EN MALALTIES INFECCIOSES A L'AP

QUINS METODES TENIM?

- **Strep A Infecció Amigdalar –**
  - Detecció antígen estreptococic
  - En infecció amigdalar
    - Amigdalitis bacteriana

- **PCR capilar**
  - Detecció nivells quantitatius reactant fase aguda
  - En infecció parenquimatosa
    - Sinusitis, Bronquitis, MPOC, Pneumònia

- **Tira reactica orina**
  - Detecció qualitativa de nivells de leucos/nitrits
  - En infecció urinaria
    - Cistitis, pielonefritis

Estudio de validez del StrepA

StrepA	Cultivo		Total
	Positivo	Negativo	
Strep A positivo	52	14	66
StrepA negativo	3	153	156
Total	55	151	222

Valor predictivo pos.: 52 / 66: 78,8%

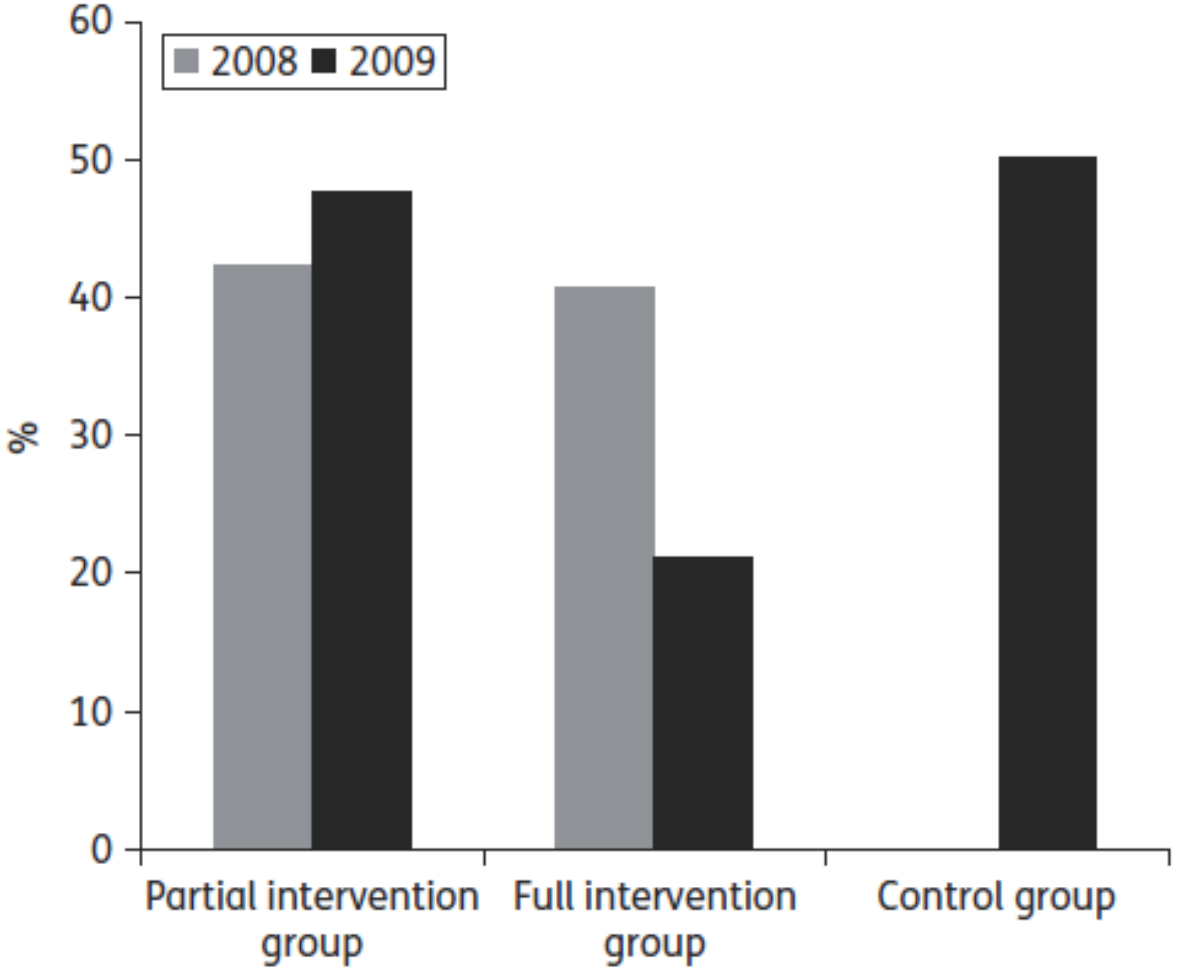
Valor predictivo neg.: 153 / 156: 98,1%

Sensibilidad: 52 / 55: 94.5%

Especificidad: 153 / 167: 91,6%

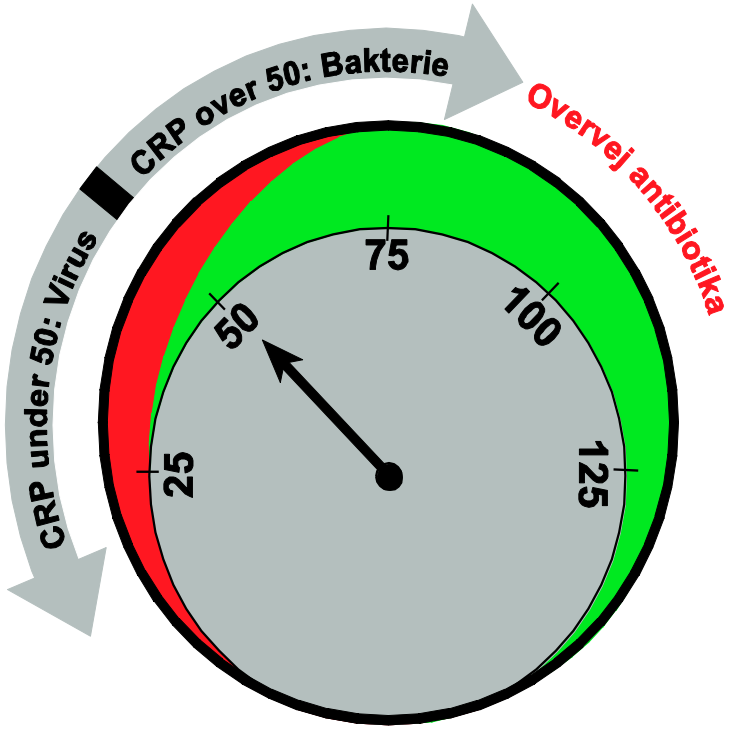
Llor C et al. *Aten Primaria 2008; 40: 489-96*

Porcentaje de prescripción antibiótica en la faringoamigdalitis aguda



Cots JM et al. *Aten Primaria* 2014;doi: 10.1016/j.aprim.2014.02.006

WHAT IS THE BEST CUT-POINT FOR CRP?



Sinusitis

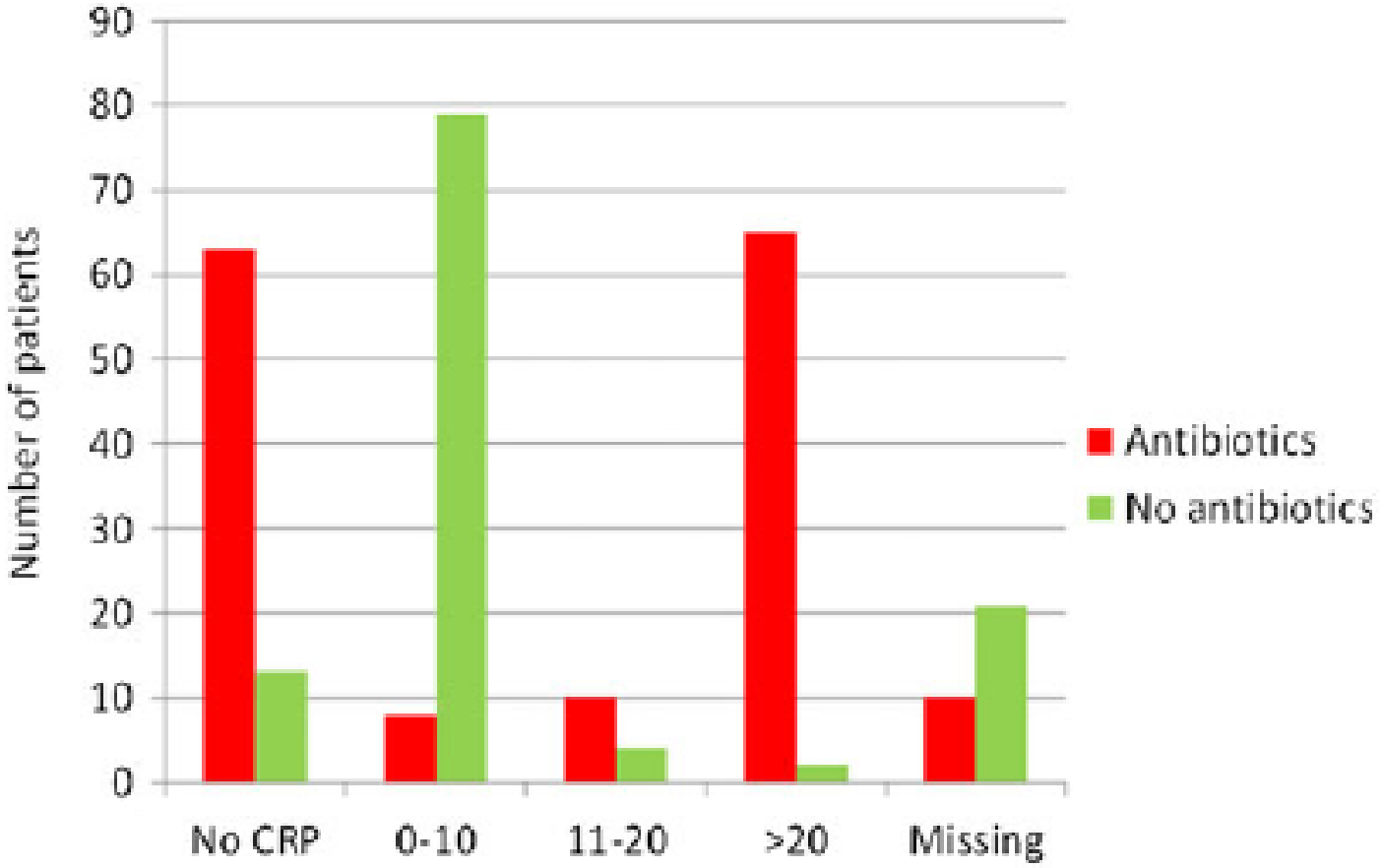
- < 10 mg/l viral
- 10 – 40 mg/l dubte
- > 40 mg/l bacterià

Bronquitis vs pneumònia

- < 20 mg/l bronquitis
- 20 – 100 mg/l dubte
- > 100 mg/l pneumònia

HAPPY AUDIT

Asociación entre los niveles de PCR y prescripción antibiótica en la rinosinusitis aguda



Cots JM et al. *Aten Primaria* 2014;doi: 10.1016/j.aprim.2014.02.006

Prescripción antibiótica en las infecciones del tracto respiratorio inferior según el nivel de PCR obtenido entre los médicos asignados al grupo de intervención completa

Utilización de PCR	Prescripción antibiótica, n (%)
No uso de PCR	2.992/4.840 (61,8)
Uso de PCR:	
0-10 mg/L	35/253 (13,8)
11-20 mg/L	16/28 (57,1)
>20 mg/L	168/213 (78,9)
Valor no escrito	20/51 (51,0)
Total	239/545 (43,9)

Cots JM et al. *Aten Primaria* 2014;doi: 10.1016/j.aprim.2014.02.006

Validez de los métodos en el diagnóstico de ITU

(>1000 ufc/ml)

	VPN
Proteínas positivo	59,6
Sangre positivo	66,0
Nitritos positivo	61,4
Leucocitos positivo	75,3
Sangre, nitritos o leucocitos	75,0
Sangre, nitritos, leucos o proteínas	75,0
Nitritos o sangre y leucocitos	75,0

Llor C, Alfaro P, pendent publicació

¿QUE IMPLIQUEN LES RESISTÈNCIES ALS ANTIBIÒTICOS A L'ATENCIÓ PRIMÀRIA?

PNEUMOCOC RESISTENCIAS

	Penicilina Alta	Amoxicilina	Amoxicilina Clavulanico	Cefuroxima	Eritromicina Claritomicina Azitromicina	Levofloxacino
S.pneumoniae hospitalario	3%	6%	6%	6%	22%	3%
S. pneumoniae comunidad	2.6%	1.2%	1.2%	13%	34%	4%

Estudio Sauce. 2010

NEUMOCOCO
SOSPECHA RESISTENCIA A PENICILINA

- **TRATAMIENTO B-LACTÁMICOS ÚLTIMOS 3 MESES**
- **HOSPITALITZACIÓN EN LOS ÚLTIMOS 3 MESES**
- **NEUMONÍA ADQUISICIÓN HOSPITAL**
- **NEUMONÍA EN EL ÚLTIMO AÑO**
- **ENFERMEDAD DE BASE**

NEUMOCOCO SENSIBILIDAD A PENICLINA

Resistente a Penicilina

es

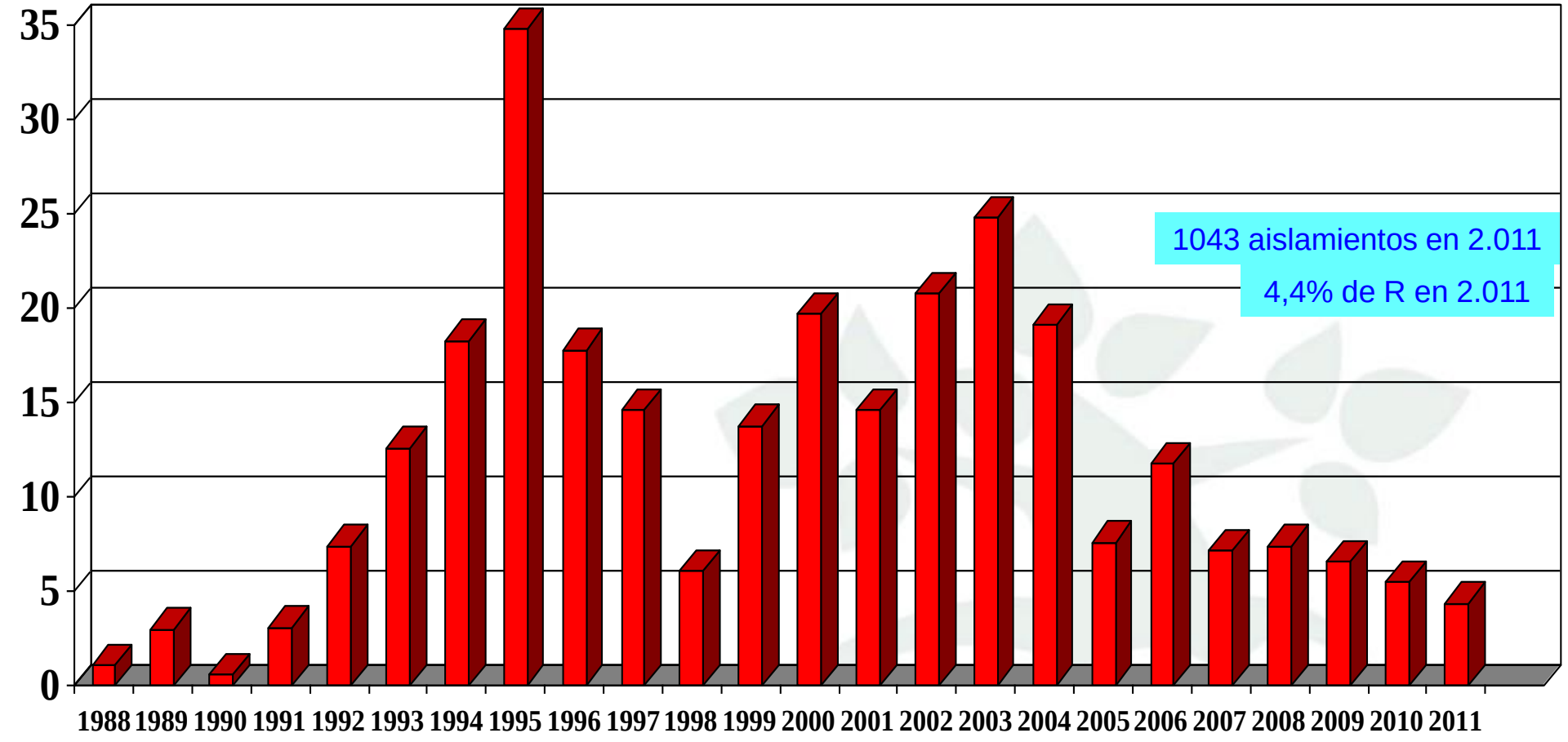
Resistente a Cefalosporinas

es

Resistente a Macrolidos

Streptococcus pyogenes

Resistencia a Eritromicina (%)



Hospital Donostia. Microbiología

E COLI SENSIBILITAT

	2000	2004	2008	2012
Amoxicilina-Clavulàmic	91	95	73	76
Cefalosporina 1ª	47	93	47	44
Cefalosporina 3ª	99	98	95	94
Ciprofloxacino	77	77	72	71
Fosfomicina	99	99	97	97
Nitrofurantoina	91	92	91	91

CONCLUSIONS

1. **Consum. Tenim que prescriure menys antibiòtics.**
2. **Indicació. No tant indicar quin Si quant donar-lo**
3. **Tècniques. Utilitzar les validades**
4. **Resistencies. A l'AP menys prevalents pero importants**

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