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To cite this article: Maciek Godycki-Cwirko, Marek Nocun, Christopher C Butler, Magdalena Muras, Nils Fleten & Hasse Melbye (2011) Sickness certification for patients with acute cough/LRTI in primary care in Poland and Norway, *Scandinavian Journal of Primary Health Care*, 29:1, 13-18, DOI: [10.3109/02813432.2010.544898](https://doi.org/10.3109/02813432.2010.544898)

To link to this article: <https://doi.org/10.3109/02813432.2010.544898>



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Published online: 29 Dec 2010.



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ORIGINAL ARTICLE

Sickness certification for patients with acute cough/LRTI in primary care in Poland and Norway

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Abstract

Objective. To compare the frequency and duration of sickness certificates issued by GPs to Polish and Norwegian working adults with acute cough/lower respiratory tract infection (LRTI). **Design.** Cross-sectional observational study with clinicians from nine primary care centres in Poland and 11 primary care centres in Norway. GPs filled out a case report form for all patients, including information on antibiotic prescribing, sickness certification, and advice to stay off work. **Setting.** Primary care research networks in Poland and Norway. **Subjects.** Working adults with a new or worsening cough or clinical presentation suggestive of LRTI. **Main outcome measures.** Issuing sickness certificates and advising patients to stay off work. **Results.** GPs recorded similar symptoms and signs in patients in the two countries. Antibiotics were prescribed more often in Polish than in Norwegian patients (70.4% vs. 27.1%, $p < 0.0001$). About half of the patients received a formal sickness certificate (50.5% in Norway and 52.0% in Poland). The proportion of patients advised to stay off work was significantly higher in the Polish sample compared with the Norwegian sample (75.2% vs. 56.1%, $p = 0.002$). Norwegian GPs less often issued sick certificates for more than seven days (5.6% vs. 36.9%, $p < 0.0001$). **Conclusion.** The overall proportion of sickness certification for acute cough/LRTI was similar in Norwegian and Polish patients. However, in the Polish sample, GPs more often advised patients to take time off work without issuing a sick note. When sickness certificates were issued, duration of longer than seven days was more common in Polish than in Norwegian patients.

Key Words: Acute cough, adults, GRACE-LRTI, primary care, sickness certification

Increased numbers and duration of sickness certificates implies decreased productivity. The Organization for Economic Cooperation and Development (OECD) in 2006 expressed concern about government spending on sickness and disability in Norway and Poland. Both countries spend a greater proportion of gross domestic product (GDP) on sickness and disability than the average for OECD countries [1]. A systematic review of sickness certification in Europe concluded that there was a general lack of research documenting the rate of sickness certification across Europe [2] and a need for comparable rates of certification.

In Norway, respiratory tract disorders accounted for 18.0% of sickness spells certified by physicians

in 2007 and 17.0% in 2008 [3]. Corresponding figures in Poland were 28.3% in 2007 and 27.0% in 2008 [4]. The average lengths of certificates in 2007 and 2008 were 5.5 and 5.6 workdays in Norway and 6.3 and 7.0 in Poland, respectively. The RTI sickness spells are generally short and the 17.0% of sickness spells accounted for 7.0% of workdays off in Norway in 2008. In a typical GP's practice, respiratory tract disorders accounted for 13.0% of consultations in 2006 [5].

Whereas self-certification of illness has not been implemented in Poland, some 56% of Norwegian employees are entitled to use self-certification for up to eight-day periods of illness but it may not exceed a total of 24 days a year [6]. The remainder

Increased numbers and duration of sickness certificates implies decreased productivity.

- Proportion of patients with cough/LRTI issued with sickness certificate was similar in the Polish and Norwegian sample.
- Duration of sickness certification was generally longer in Poland, but the Norwegian patients waited longer before visiting a GP.
- The Norwegian GPs were less likely to give advice to stay at home without issuing a sickness certificate.

are entitled to up to four periods of up to three days of self-certification. This right enables many short spells off work without consulting GPs and may explain some of the differences in the proportion of all sickness periods. The compensation rate is 100% benefits from day one in Norway compared with 80% in Poland. The employer pays for the first 16 days in Norway and 30 days in Poland.

The aim of this study was to compare the frequency and duration of sickness certificates issued by GPs to Polish and Norwegian working adults with acute cough/lower respiratory tract infection (LRTI) and to add an additional perspective to the problems physicians experience in sickness certification in both countries.

Material and methods

The results presented in this paper originate from the GRACE (Genomics to combat Resistance against Antibiotics in Community-acquired LRTI in Europe) study on the presentation, management and outcome of acute cough/LRTI in general practice in 13 countries [7]. Adults with acute cough or symptoms suggesting an LRTI consulting a general practitioner in two periods (between 1 October and 30 November 2006, and between 1 February and 31 March 2007) were recruited by 21 general practitioners from nine primary care centres in Poland and 41 GPs in 11 primary care centres in Norway. The patients were eligible when they consulted for the first time with this cough episode within normal consulting hours, were able to fill out study materials, gave written informed consent and were considered immunocompetent. GPs were asked to recruit consecutive adults with cough/LRTI for the GRACE 01 study, and recorded their presentation and management on a case report form (CRF). For this sub-analysis only working patients were included.

Data recorded on the CRF included symptoms, and management decisions including antibiotic treatment, advice to stay off work (to refrain from occupational activity), and the issuing of sickness

certificates for less or more than seven days. Patients completed a symptom diary each day for up to 28 days, which also included questions on occupation smoking, and onset of symptoms.

Frequencies of giving advice to stay off work and issuing sickness certificates were analysed by patient characteristics, symptoms, and findings. Statistical comparison between groups was performed by the Mann–Whitney U-test or chi-squared tests (for continuous and categorical variables, respectively) using SPSS version 14.0 (Chicago, IL). Predictors of issuing a sickness certificate were evaluated by using two-level hierarchical models [8] with patients nested within clinicians including such variables as: gender, age > 50 years, symptoms reported by GPs at presenting day (see Table I), total number of symptoms, temperature > 37.2°C, comorbidity, auscultation abnormalities, antibiotic prescription, advice to stay off work, working status (manual/office; full/part time). All modelling was performed in the R programming language and environment [9] using the lme4 [10] and nlme [11] packages.

Results

Profile of patients

Of 321 patients in Poland and 201 in Norway, study diary data were obtained from 221 (73.4%) and 148 (70.0%) patients, respectively. Inclusion of only working patients (categorized as manual or office) reduced the CRF and diary data sets to 125 (56.6%) cases from Poland and 107 (72.3%) cases from Norway. The average age of the Polish patients included was 37.7 ± 10.6 years and this was 46.2 ± 11.7 years for the Norwegian patients. More women than men were included in both countries: 64% in Poland and 66.4% in Norway. The median duration of time feeling unwell before the consultation was four days in Poland and six days in Norway ($p < 0.0001$). Clinicians recorded a median of eight symptoms in both Poland and Norway. Apart from cough, the most commonly reported symptom by patients was limitation of normal activities and feeling generally unwell. In addition, Polish patients more often reported coryza and Norwegian patients more often reported disturbed sleep. Antibiotics were prescribed more than twice as frequently in Poland as in Norway. Other patient characteristics such as comorbidity, smoking and working status are presented in Table I.

Advice to stay off work given and sickness certificates issued

Some 94 of 125 (75.2%) and 60 of 107 (56.1%) working patients in Poland and Norway, respectively,

Table I. Demographic and clinical characteristic of patients.

Characteristic	Poland n (%)	Norway n (%)	p
Total	125 (100)	107 (100)	NS
Male	45 (36.0)	36 (33.6)	NS
Age > 50 years	22 (17.6)	48 (44.8)	<0.0001
Smokers	56 (44.8)	30 (28.0)	<0.01
Previous illness			
Respiratory comorbidity	10 (8.0)	13 (12.1)	NS
Heart comorbidity	6 (4.8)	3 (2.8)	NS
Diabetes comorbidity	1 (0.8)	8 (7.5)	0.01
Symptom presence reported by GPs in CRF ¹			
Cough	115 (92.0)	101 (94.4)	NS
Phlegm	52 (41.6)	48 (44.9)	NS
Abnormal phlegm (presence/absence)	27 (21.6)	39 (36.4)	0.0125
Shortness of breath	30 (24.0)	44 (41.1)	<0.01
Wheeze	19 (15.2)	21 (19.6)	NS
Coryza	64 (51.2)	41 (38.3)	<0.05
Fever	46 (36.8)	26 (24.3)	<0.05
Chest pain	25 (20.0)	26 (24.3)	NS
Muscle ache	40 (32.0)	18 (16.8)	<0.01
Headache	47 (37.6)	35 (32.7)	NS
Disturbed sleep	37 (29.6)	63 (58.9)	<0.0001
Feeling unwell	92 (73.6)	58 (54.2)	<0.01
Interference with normal activities	73 (58.4)	76 (71.0)	<0.05
Confusion	0 (0)	2 (1.9)	NS
Diarrhoea	2 (1.6)	2 (1.9)	NS
Findings			
Diminished vesicular breathing	32 (25.6)	10 (9.3)	<0.002
Wheeze	29 (23.2)	31 (29.0)	NS
Crackles	13 (10.4)	18 (16.8)	NS
Rhonchi	16 (12.8)	26 (24.3)	<0.05
Temperature > 37.2°C	27 (21.6)	15 (14.0)	NS
Antibiotics prescribed	88 (70.4)	29 (27.1)	<0.0001
Working status			
Full time	107 (85.6)	82 (76.6)	NS
Part time	18 (14.4)	25 (23.4)	NS
Office work	75 (60.0)	43 (40.2)	<0.01
Manual work	50 (40.0)	64 (59.8)	<0.01

Notes: Significance of differences estimated by means of chi-squared tests. ¹Reported by patients as moderate or severe problem. CRF = case report form; NS = not significant.

were advised to stay off work ($p = 0.002$). In Poland, 27.2% of working patients were advised to stay off work for more than seven days, compared with 3.7% in Norway ($p < 0.001$). The proportion of sickness certificates issued was similar in both countries: 52.0% in Poland and 50.5% in Norway. However, in Poland 69.1% of patients advised to stay off work were given a formal sickness certificate while in Norway this was 86.7%, which was significantly higher ($p = 0.02$). Although the overall proportion of issuing sickness certificates was similar, 94.4% of all sickness certificates given for RTI in Norway were for a duration of less than or equal to seven days compared with 63.1% of all sickness certificates given in Poland (Figure 1). In both countries more patients consulted the GP on Mondays than on any other weekday, and there was a significant decreasing trend in number of consultations from 62 on Mondays to

35 on Fridays. There was a non-significant trend for sick certification from 56.6% of work attendees on Mondays to 36.9% on Fridays ($p = 0.07$) (Figure 2). Only two (3.1%) patients in Poland indicated that their main reason for consulting was to get a sickness certificate compared with 17 (31.5%) patients in Norway ($p < 0.001$).

Issuing of sickness certification according to patient characteristics is presented in Table II.

Predictors of issuing a sickness certificate

In multivariate logistic regression, the significant predictors of sickness certification in the Norwegian patients were the presence of rhonchi and part-time working status. Interference with activity almost reached statistical significance among the Polish patients (Table III).

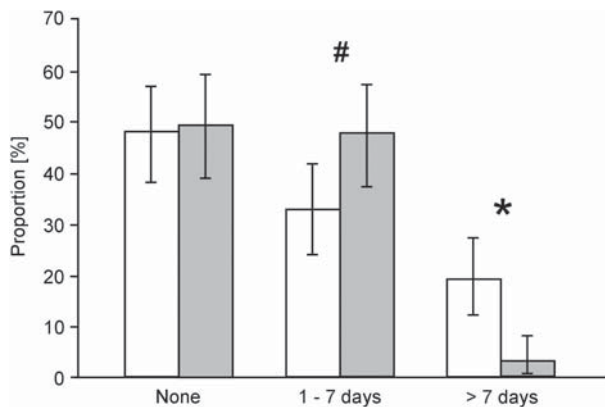


Figure 1. Proportions of patients issued with a sickness certificate.

Notes: Data were presented as percentage of cases related to the whole group of working adults with acute cough/LRTI from Poland (white bars, $n = 125$) and Norway (grey bars, $n = 107$). Error bars represent the 95% confidence interval (CI). # $p < 0.02$; * $p < 0.03$.

Discussion

Sickness absence may depend on clinical presentation of a disease, social and economic situation of a worker, his or her psychological features, cultural and system-related factors. GPs' decisions related to issuing a sickness certificate may be influenced by their past experience, education and training, individual clinical reasoning, knowledge of the evidence base, personal beliefs, and time constraints [12]. Qualitative studies have shown that the problems physicians experience in sickness certification of patients have negative consequences both for themselves and for their patients [13]. Comparison between countries brings an additional perspective to these problems.

In our case the overall sickness certification proportion for acute cough/LRTI was similar in the Polish and Norwegian samples. However, in Poland, patients were more likely to be advised to take time off work without a sickness certificate being issued, and when sickness certificates were issued, duration of longer than seven days was more common in the Polish than in the Norwegian sample.

Strengths and weaknesses of the study

The strength of this study is that it is observational, based on real-life decisions from GPs. Weaknesses included possible practice selection bias in that only teaching practices recruited patients in Poland. We did not monitor the consulting behaviour of the practice population of participating GPs during the study period; therefore, we cannot rule out underrepresentation of subgroups of patients with acute cough/LRTI. Time constraints during consultation may have influenced registration of consultations and sick certificates.

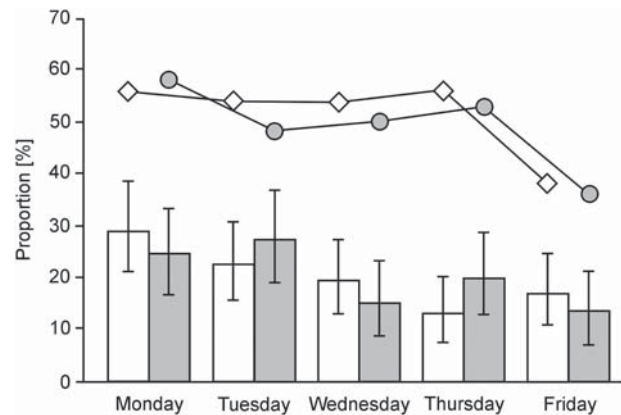


Figure 2. Patients' attendance related to weekdays.

Notes: The percentage of work attendees visiting on different weekdays in Poland ($n = 125$) and Norway ($n = 107$) are shown as bars (in white and grey respectively) with 95% confidence interval (CI). The proportions that were sick-listed ($n = 65$ in Poland and $n = 54$ in Norway) on the different days are shown as lines.

The self-certification period may have introduced selection bias as the threshold for seeking the GP's assistance for cough/LRTI may have been influenced by the need for a sickness certificate.

Interpretation and perspectives

Differences in sick certification were not explainable on strictly clinical grounds. Registered signs and symptoms did not clearly indicate more severe illness in either of the two countries.

Two important differences in sickness benefits schemes might contribute to the result. In Norway the employee might use self-certification for the first three or eight days on sick leave [6], whilst to be paid the Polish employee needs a sickness certificate from the GP from day one. Although employers are obliged to pay sickness benefit from day one in both countries, this amounts to 80% of the salary in Poland compared with 100% in Norway. The compensation level might explain the fact that suggested sickness certificates are more frequently refused by patients in Poland. The proportion refused by patients in Norway is in line with other studies [14–16].

The entitlement to self-certification may contribute to postponed consultations in the illness episode and may probably explain why the Norwegian patients in our study waited longer than the Polish patients before consulting a GP. For many employees in need of a shorter absence from work due to cough/LRTI the self-certification period in Norway might be sufficient and explain a smaller overall proportion of sickness spells due to respiratory tract disorders in Norway [3]. If the sick-leave period is partly self-certified and partly certified by GPs, this might

Table II. Issuing of sickness certification according to patients' characteristics.

Characteristic	Poland n (%)	Norway n (%)	p
All	65 (52.0)	54 (50.5)	NS
Male	23 (51.1)	19 (52.8)	NS
Female	42 (52.5)	35 (49.3)	NS
Age > 50 years	10 (45.5)	17 (35.4)	NS
Smokers	26 (46.4)	18 (60.0)	NS
Previous illness			
Respiratory comorbidity	5 (50.0)	7 (53.8)	NS
Heart comorbidity	2 (33.3)	2 (66.7)	NS
Diabetes comorbidity	1 (100.0)	3 (37.5)	NS
Symptom presence reported by GPs in CRF ¹			
Cough	59 (51.3)	54 (53.5)	NS
Phlegm	29 (55.8)	22 (45.8)	NS
Abnormal phlegm (presence/absence)	16 (59.3)	18 (46.2)	NS
Shortness of breath	20 (66.7)	23 (52.3)	NS
Wheeze	13 (68.4)	12 (57.1)	NS
Coryza	36 (56.3)	21 (51.2)	NS
Fever	28 (60.9)	15 (57.7)	NS
Chest pain	13 (52.0)	15 (57.7)	NS
Muscle ache	18 (45.0)	12 (66.7)	NS
Headache	27 (57.4)	21 (60.0)	NS
Disturbed sleep	18 (48.6)	35 (55.6)	NS
Feeling unwell	53 (57.6)	39 (67.2)	NS
Interference with normal activities	46 (63.0)	43 (56.6)	NS
Confusion	0	0	NS
Diarrhoea	1 (50.0)	1 (50.0)	NS
Findings			
Diminished vesicular breathing	13 (40.6)	2 (20.0)	NS
Wheeze	18 (62.1)	20 (64.5)	NS
Crackles	6 (46.2)	8 (44.4)	NS
Rhonchi	9 (56.3)	20 (76.9)	NS
Temperature > 37.2°C	16 (59.3)	11 (73.3)	NS
Antibiotic treatment	53 (60.2)	18 (62.1)	NS
Working status			
Full time	58 (54.2)	45 (54.9)	NS
Part time	7 (38.9)	9 (36.0)	NS
Office work	42 (56.0)	22 (51.2)	NS
Manual work	23 (46.0)	32 (50.0)	NS

Notes: Data were presented as percentage related to the total number of cases in particular groups (see Table I for details). Significance of differences estimated by means of chi-squared tests. ¹Reported by patients as moderate or severe problem. CRF = case report form; NS = not significant.

explain the tendency for shorter sickness certificates in Norway than in Poland present in our data, and supported by the national statistics based on physician certified sick leaves [3].

In Norway 60% of included subjects were manual workers compared with 40% in Poland. Working with RTI symptoms is more challenging in physically demanding jobs than in office work, and may imply a need for longer sick leaves. The self-certification entitlement probably contributes to this difference, implying that the self-certification periods are more often sufficient in office workers. This may explain an over-representation of manual workers among the Norwegian patients. Whilst the self-certification rights in Norway may have contributed to a smaller proportion of sickness certificates beyond seven days, the over-representation of manual workers may have

had the opposite impact. A greater proportion advised to stay off work in Poland despite higher proportion of office workers may indicate a more liberal sickness certification practice in Poland.

The differences in advice to take time off work without actually issuing a sick certificate cannot be explained by more severe illnesses in Poland. This may reflect a wish to avoid the reduced payment while absent from work. An alternative explanation may be a discrepancy between the GP's and patient's perception of disease-related risks. Polish GPs more often saw the patients at days 1–3, when the condition is more unclear, enabling a more cautious attitude when treating patients with RTI than expected in their Norwegian colleagues. The higher prescription rate of antibiotics supports this hypothesis.

Table III. Predictors of issuing a sickness certificate by GPs.

	Poland			Norway		
	OR	95% CI	p	OR	95% CI	p
Male	0.52	0.17–1.62	NS	1.01	0.34–2.96	NS
Age > 50 years	0.74	0.18–3.04	NS	0.42	0.15–1.23	NS
Heart comorbidity	0.23	0.02–2.80	NS	6.95	0.24–22.92	NS
Coryza	1.56	0.49–4.98	NS	0.53	0.17–1.61	NS
Fever	1.69	0.33–8.58	NS	1.94	0.52–7.27	NS
Feeling unwell	1.38	0.39–4.91	NS	1.58	0.52–4.81	NS
Interference with activity	3.71	0.96–14.37	0.06	1.96	0.56–6.94	NS
Rhonchi	0.64	0.06–6.98	NS	10.27	2.02–52.31	0.01
Body temperature > 37.2°C	3.09	0.30–31.44	NS	4.18	0.82–21.41	NS
Antibiotic treatment	2.73	0.86–8.62	NS	1.14	0.32–4.05	NS
Part time work	0.35	0.08–1.58	NS	0.23	0.06–0.88	0.03
Manual work	1.46	0.45–4.74	NS	0.95	0.33–2.68	NS

Notes: Predictors were evaluated by using a two-level hierarchical logistic model with patients nested within clinicians, including the following variables: gender, age, auscultation abnormalities, symptoms reported by GPs at presenting day, total number of symptoms, temperature value, comorbidity (respiratory illness; heart-related diseases; diabetes), working status (manual/office; full/part time). NS = not significant.

In our study most of the sickness certificates were issued during the first days of the week. This may reflect that patients tend to wait over the weekend to see their own doctor rather than use out-of-hours services to obtain sick certificates.

Implications for practice and future research

In the GRACE study [7] the clinical course of illness was similar among Norwegian and Polish patients. This may reflect that the shorter sick leaves in Norway did not interfere with recovery. Further medical economics studies could ease the practitioners' choice between liberal or restrictive sickness certification practices in either of the two countries.

Funding and ethical approval

The study data are from the GRACE project funded by the 6th Framework Programme of the European Commission under the reference LSHM-CT-2005-518226. Clinical trial no. NCT00353951. The study was approved by the ethical committee of the Medical University of Lodz and the Regional Committee for Medical and Health Research Ethics in Tromsø.

Competing interests

The authors declare no competing interests.

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