

# Optimising the use of polar symptoms in Homoeopathy: Introduction to a pilot study of prognostic factor research in chronic cough

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## Abstract

**Background:** Polar symptoms represent the most challenging rubrics in the homoeopathic repertories, despite their frequent use. **Objective:** The study objective was to assess the relationship between 27 polar cough symptoms, 3 non-polar cough symptoms and 30 general polar symptoms and successful response to specific homoeopathic medicines. **Materials and Methods:** A multi-centre, explorative, prospective, observational study was conducted at ten centres under the Central Council for Research in Homoeopathy. Two hundred and sixteen patients were enrolled with chronic cough, lasting >8 weeks. The patients were enrolled as per four underlying diagnoses of chronic upper airway cough syndrome (CUACS), gastro-oesophageal reflux disease (GERD), asthma and related syndromes, and non-asthmatic eosinophilic bronchitis (NAEB). 30 general polar symptoms, 27 polar cough symptoms and 3 non-polar cough symptoms were assessed at the baseline. During enrollment and follow-up consultations, two validated questionnaires (Leicester Cough Questionnaire chronic and EuroQuol (EQ)-5D-5L) were filled for assessing the effect of treatment. If the Physician Assessment Score was >2, the causal relationship between improvement and prescribed medicine was further assessed using Modified Naranjo Algorithm. **Results:** At the fourth follow-up, three medicines with >10 cases having good result were identified: *Phosphorus* ( $n = 20$ ), *Pulsatilla* ( $n = 19$ ) and *Sulphur* ( $n = 13$ ). For this introductory article, we compare some results with the existing data, reflect on discrepancies between the existing data and research outcome and reflect on future use, especially in respiratory tract infections (RTIs). **Conclusion:** In improving the homoeopathic method and its practical use, priority should be given to polar symptoms, especially related to RTIs.

**Keywords:** Cough, Homoeopathy, Polar symptoms, Prognostic factor research, Respiratory tract infections

## INTRODUCTION

Every homoeopathic practitioner wants to know his/her patients' personal characteristics because the success of the prescription depends on these individual characteristics. Among the symptoms, every homoeopathic practitioner enquires modalities, and desire or aversion; these have opposite extremes and are called polar symptoms (PS).<sup>[1]</sup> PS are frequently used for prescription but are the most problematic symptoms in the repertory in several respects:<sup>[2]</sup>

1. Entries in the repertory are based on provings and on clinical confirmation: If a patient responding well to a

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specific medicine has a specific symptom, this symptom will be entered in the respective repertory-rubric upon clinical confirmation. Due to statistical variation, the symptom will appear in various degrees in different patients, but also in different practice settings (cultures, etc.)

2. The quality of most repertory entries is unknown. Many entries are based on just a few observations. Most entries in the same rubric originate from different observers and practice settings
3. Confirmation bias. In clinical practice, symptoms are possibly retrospectively assessed. For example: If a patient responds well to *Pulsatilla*, the symptom 'Amelioration in open air' is expected, also as a modality for specific symptoms such as cough
4. Entries are based on absolute occurrence of symptoms. Frequently used medicines are, therefore, more likely to have more and stronger repertory entries
5. In PS, some of the patients responding to a specific medicine will have an aggravation, whereas others have amelioration by the same influence, by statistical variation. Both poles of the same symptom can occur in different patients responding to the same medicine.<sup>[3]</sup> However, using the repertory in daily practice, the practitioner will use only the repertory symptom as presented by the patient. He/she uses, say, the symptom 'Aggravation in open air'. The specific medicine could be present in plain type in this rubric, but in bold type in the opposite rubric 'Amelioration in open air'.

Items 1–4 are relevant for most repertory rubrics, but item 5 is characteristic for PS. This will lead to misleading entries; the practitioner regards a plain type entry as confirmation of the medicine, while the bold type entry in the opposite of the symptom (which he doesn't see), in fact contraindicates the same medicine. Still, PS-like modalities and food preferences are checked in every patient. It is self-evident that misleading entries of the repertory will harm the effectiveness of Homoeopathy. Some homoeopathic computer programs offer polarity analysis (PA),<sup>[4]</sup> that detects the presence of an opposite for selected symptoms and subtracts the opposite symptom from the selected. This kind of analysis can guide right in some cases, as it can result in a relative contraindication of a drug if the opposite value of that symptom has the medicine in a higher degree. The Swiss paediatrician, Heiner Frei, showed that PA increased positive results after the first consultation from 28% to 48%.<sup>[5]</sup>

PA corrects for the one specific problem of polar symptoms (the fifth mentioned above), but not for the other problems. Even with PA, PS are the most problematic symptoms of the homoeopathic repertory because they are so frequently used. On the other hand, this frequent use - and therefore adequate sample size - is an advantage in prognostic factor research (PFR). Many of these symptoms have been recorded in millions of cases. With computerised registration of cases, it is possible to collect them systematically. Symptoms should preferably be collected

prospectively. However, this requires additional skills because prospective assessment of symptoms is quite different from usual symptom gathering in daily practice.

The chapter 'Cough' in the homoeopathic repertory deserves our special attention because cough is one of the most frequent symptoms seen in respiratory tract infections (RTIs).<sup>[6]</sup> RTI is one of the most frequently treated indications in homoeopathic practice.<sup>[7,8]</sup> Cough has many modalities, represented as PS. The data of these modalities can be improved in the Kent's Repertory.<sup>[9]</sup> The first rubric of this chapter ('Cough') comprises nearly 200 medicines and is therefore not informative. It is impossible to see what medicines are most successful in cough cases. New insights in medicine learnt that we must make a distinction between acute and chronic cough: Acute cough is mostly caused by infection, whereas chronic cough is caused by other causes such as chronic upper airway cough syndrome (CUACS),<sup>[10]</sup> gastroesophageal reflux disease (GERD),<sup>[11,12]</sup> asthma and related syndromes<sup>[13]</sup> and non-asthmatic eosinophilic bronchitis (NAEB).<sup>[14,15]</sup> It is likely that these causes are relevant for the choice of medicines, but they are not yet clearly comprised as repertory rubrics. However, no cases of NAEB could be diagnosed owing to challenges in sputum investigation.

Homoeopathic PFR requires involvement of many practitioners in daily practice. Additional skills in assessing symptoms prospectively,<sup>[16]</sup> proper questionnaires, registration software and practice organisation determine the feasibility and reliability of PFR. All these should be tested in pilot studies. The Central Council for Research in Homoeopathy (CCRH) is in the process of developing PFR in its clinics regarding various indications.<sup>[17]</sup>

This article is an introduction to a series of articles about this research. Here, we illustrate the problem with the present repertory with some preliminary data. In the following articles, we want to guide our readers step by step towards a new way of looking at the repertory. Preparing this research and evaluating first results is like redesigning the homoeopathic repertory through this prognostic concept of validation. We encountered many problems that were neglected so far, such as what is a homoeopathic symptom really, how many variables influence the interpretation of symptoms and when is the improvement really caused by the prescribed medicine? Until now, all practitioners took all these problems for granted and developed their own interpretations and solutions. By bringing more practitioners together in joining the research groups, we can combine knowledge and experience. Researchers in this study have tried to use quantitative measures to find answer to these.

## MATERIALS AND METHODS

### Setting and study design

A multi-centre, exploratory, prospective, observational study was conducted on the patients attending the outpatient departments of ten centres of CCRH, India: Dr. D. P. Rastogi Central Research Institute (H) Noida; National Homoeopathy Research Institute in Mental Health, Kottayam; Drug Standardization Unit, Hyderabad;

Regional Research Institute for Homoeopathy, Mumbai; Dr. Anjali Chatterjee Regional Research Institute for Homoeopathy, Kolkata; Clinical Research Unit (H), Agartala; Regional Research Institute for Homoeopathy Extn., Puri; Drug Proving Unit, Bhubaneswar; Central Research Institute for Homoeopathy, Jaipur; and Regional Research Institute for Homoeopathy, Gudivada. Homoeopathic physicians with postgraduation in Homoeopathy and 5–10 years of professional experience, who consented, were involved as investigators at each centre. All of them were trained about the study protocol, case taking and questionnaires filling and were oriented as per the expected outcomes before the initiation of the study.

All procedures were in accordance with the ethical standards of the responsible committee on human experimentation and with the Declaration of Helsinki of 1975, as revised in 2013.<sup>[18]</sup> Necessary clearance of the 20<sup>th</sup> meeting of the Institutional Ethical Committee was obtained (dated 23 January, 2017), but trial was not registered under the Clinical Trial Registry of India.

### Study duration

The total study duration was 2 years (2017–2018) with 1½ year’s enrolment period.

### Selection of patients

#### Inclusion criteria

- Patients of age between 4 and 65 years, of either sex
- Cough lasting longer than 8 weeks
- Condition-specific inclusions [Table 1].

**Table 1: Condition-specific criteria included in the study**

Condition-specific inclusion criteria*	
Diagnosis	Symptoms
CUACS	Frequent throat clearing Postnasal drip Nasal discharge Nasal obstruction and sneezing
GERD	Chronic cough associated with GERD typical symptoms, negative for pulmonary diseases. Symptoms such as Heartburn Acid regurgitation Water brash
Asthma and related syndromes	Cough Chest tightness Wheeze Shortness of breath
NAEB or atopic cough	Chronic cough Eosinophilia in sputum

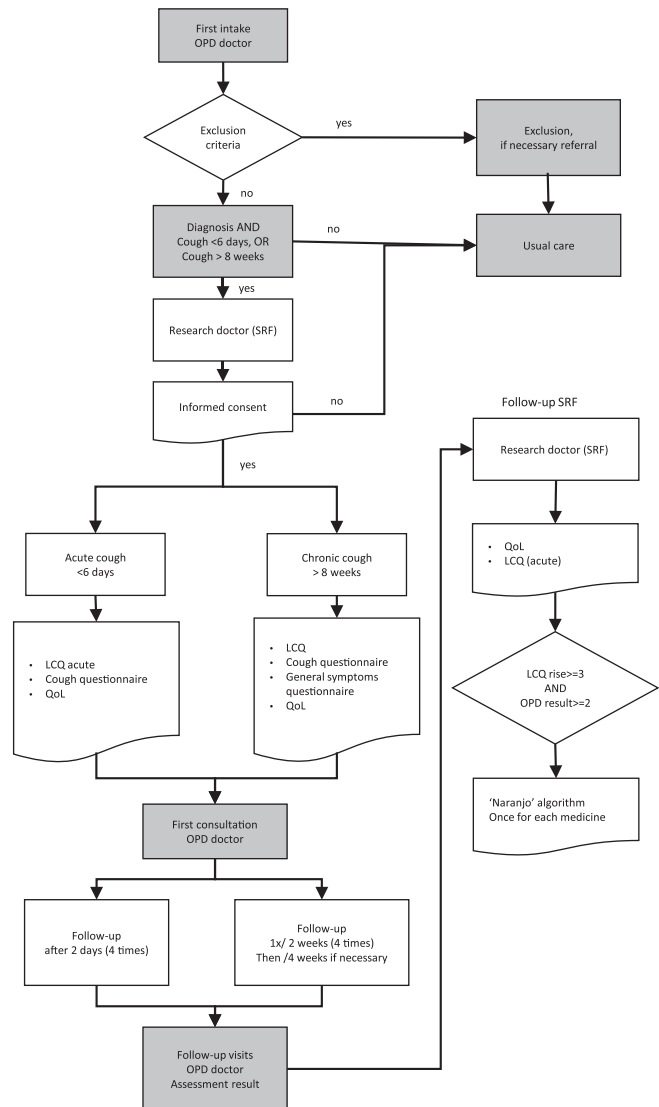
CUACS: Chronic upper airway cough syndrome, GERD: Gastro-oesophageal reflux disease, NAEB: Non-asthmatic eosinophilic bronchitis  
\*Source: Pratter MR. Chronic upper airway cough syndrome secondary to rhinosinus diseases (previously referred to as postnasal drip syndrome): ACCP evidence-based clinical practice guidelines. *Chest*. 2006;129(1 Suppl):63S-71S; Mahashur A. Chronic dry cough: Diagnostic and management approaches. *Lung India*. 2015;32:44-49; Moorman JE, Akinbami LJ, Bailey CM, et al. National surveillance of asthma: United States, 2001-2010. *Vital Health Stat* 3. 2012;(35):1-58; Ishiura Y, Fujimura M, Kasahara K. Eosinophilic Bronchial Disorders Presenting Chronic Cough; Atopic Cough, Cough Variant Asthma and Non-Asthmatic Eosinophilic Bronchitis. *J Genet Syndr Gene Ther*.2014;5:2-6

### Exclusion criteria

- Having undergone antibiotic treatment within 7 days prior to enrolment in the study
- Indications for referral to a specialist, such as haemoptysis or aspiration of a foreign body
- Patients with uncontrolled hypertension
- Patients on medicines with cough as adverse effects, such as Angiotensin-converting enzyme (ACE) inhibitors
- Patient who smoked
- Patients who abused stimulants or had an illness that made the practical participation in the trial difficult
- Other ongoing treatment which was likely to interfere in the course of this treatment
- Pregnant and lactating mothers.

Although specific for respective conditions, the above criteria were kept broad keeping in view the feasibility of enrolling larger

Organisation prognostic factor research cough



**Figure 1: Flowchart of the study**

number of patients, and also the primary outcome of the study, which was not directly related to various conditions causing cough, but predominantly its core symptom – cough. Other individualising symptoms of patients useful for homoeopathic prescription were also assessed, but the inclusion in the study was not based on the presence or absence of those.

### Screening and enrolment procedure

Initially, all patients were screened for cough, which were based on the age and duration of cough. After fulfilling the preliminary screening, the patients were screened for the specific inclusion condition [Table 1] and then enrolled for the study.

Before enrolment, written informed consent was taken from the patients or guardians of the patients for those aged below 18. In addition, assent was taken for those aged between 7 and 17 years. A detailed case history of each patient was recorded in a pre-designed case-taking proforma, and data were entered in a pre-formatted Excel spreadsheet. A flow chart depicting the process is shown in [Figure 1].

### Intervention

The homoeopathic medicines were procured from government-authorized, Good Manufacturing Practices compliant firms for each centre. The medicine was prescribed mostly from the list of eighty medicines identified from the Essential Drugs List booklet by Ministry of AYUSH<sup>[19]</sup> based on the totality of presenting complaints and individualising symptoms, after repertorisation. The choice of symptoms for prescription was largely from, though not limited to, the pre-defined list of assessed symptoms. Selection of medicine was further guided by repertorisation. The potency was selected as per the susceptibility of the patient and followed serially by the next higher potency as per the need of the case. The repetition of potency and doses entirely depended on the intensity of the complaint. In this study, 3C/6C potency was not repeated >4 doses a day, 12C and 30 potency was repeated thrice or twice a day, whereas 200 potency was used only once a day and 1M only once weekly.

### Follow-up

The patients were targeted to be followed up fortnightly (every 2 weeks) till completion of research period i.e., 8 weeks, or four follow-up visits if necessary up to 12 months.

After inclusion. In case of loss to follow-up before the 4<sup>th</sup> follow-up, the last result of the case was carried forward if the total follow-up period since the last prescribed medicine was longer than 40 days and doctor's score of improvement was recorded as 2 or higher.

### Outcome assessment

The primary outcome in PFR is to find the prognostic relationship between diagnoses, symptoms and personal characteristics and the effect of homoeopathic medicines. This relationship is expressed as Likelihood Ratio (LR) of a diagnosis/symptom/characteristic (prognostic factor) for a specific homoeopathic medicine. LR expresses the difference between a sub-population responding well to a specific

medicine (target population) and the remainder of the research population. In this pilot study, we tested the feasibility of PFR with a large number of prognostic factors. The questionnaire used for this assessment was 'Cough-Related Homoeopathic Symptoms Questionnaire' and 'Questionnaire for General Symptoms', which had thirty elements each. These 7-point Likert scale questionnaires aimed at seeking information pertaining to individual, characteristic features such as mental and physical generals, constitution of the patient, etc.

The secondary outcome parameters included improvement in cough, assessed by using 7-point Likert scales called the Leicester Cough Questionnaire (LCQ)<sup>[20,21]</sup> – Chronic, Quality of life by EQ-5D-5L Scale,<sup>[22]</sup> and causal relationship between clinical improvement and medicine by doctor's assignment (5-point scale) and the Modified Naranjo algorithm. The LCQ and EQ-5D-5L questionnaires and doctor's causal assignment were filled in every follow-up i.e., every 2 weeks. The Modified Naranjo algorithm was filled once, if the doctor assigned a good effect to the case, or again, if the medicine was changed.

LCQ is a validated questionnaire to evaluate health status in cough. It is a self-administered 19-items questionnaire with a 7-point Likert scale, and three domains (physical, psychological and social). The total score range is 3–21 and domain scores range from 1 to 7; a higher score indicates a better quality of life. LCQ questionnaire is available in 17 Indian languages. For literate patients, translated version was used as per the feasibility of verbal communication of that local area and for illiterate participants, the attendants facilitated the interpretation of the questionnaire.

The 5-level EQ-5D version (EQ-5D-5 L) which also includes a visual analogue score for well-being, was introduced by the Euro QoL Group in 2009 to improve the instrument's sensitivity and to reduce ceiling effects. The descriptive system comprises the following five dimensions: Mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has five levels: No problems, slight problems, moderate problems, severe problems and extreme problems.

Further, all the enrolled patients were asked to fill the specifically designed PFR questionnaires – 'Cough-Related Homoeopathic Symptoms Questionnaire' and 'Questionnaire for General Symptoms' as mentioned above. These questionnaires were filled at baseline only.

The doctors assigned the effect of the prescribed medicine on clinical judgement in the Physician Assessment Scale' as '1: Deterioration of the patient', '0: No effect', '1: Some effects (25% improvement)', '2: Good effects (50% improvement)', or '3: Very spectacular changes (cure)', at each follow-up visit.

The Modified Naranjo algorithm<sup>[23]</sup> is a 10-item questionnaire, in the process of validation, assessing conventional and homoeopathic outcome criteria, that are believed to be related to indicate the causal relationship between therapy and improvement.



In this pilot study, cases with doctor’s score of 2 or higher and a follow-up observation of the effect of the medicine of 40 days or more were attributed to respective medicine populations.

### Statistical methods

#### Sample size

The sample size for determining the prevalence of symptoms in the target (medicine) populations depends on the frequency of the respective medicine prescribed. Many medicines are successfully prescribed in <1% of the whole population. If we strive for medicine populations of at least 10, we need more than 1000 patients. Including more patients in the study is likely to result in providing a closer impression of the target population. We estimated that more than 5000 patients are needed for a proper improvement of the repertory chapter ‘Cough’. One of the goals of this pilot study was to verify these numbers. However, this was a pilot study, due to which convenient sampling was done following which 216 patients were enrolled.

#### Statistical analysis

For this introductory article, we used the Excel Spreadsheet for calculation of frequencies and LRs and plotting graphs for frequency distributions. The essence of this PFR is the determination of the ‘medicine populations’ i.e., the populations responding well to specific homoeopathic medicines, on the one hand, and the determination of the prevalence of diagnoses/symptoms/characteristics in the whole population and in respective medicine populations, on the other hand, in order to constitute the  $2 \times 2$  contingency table to be able to calculate LRs of diagnoses/symptoms/characteristics for specific homoeopathic medicines. In this assessment, the prevalence of a homoeopathic symptom in a population responding well to a specific homoeopathic medicine is compared with the prevalence in the remainder of the practice population, rendering LR. LR is applicable using Bayes’ formula updating the chance that a medicine will work if the symptom is present.<sup>[15]</sup> Bayes’ formula (posterior odds = LR  $\times$  prior odds) is derived from the law of conditional probability and describes how we learn from experience. It is well known for its application in diagnostic reasoning: What is the chance of this diagnosis, given these symptoms? We follow the same kind of reasoning, but applied in prognostic reasoning: What is the chance the this medicine will work, given these symptom? Assessing the relationship between symptoms and successful prescriptions, we calculate LRs for a specific symptoms for different medicines. The medicines with highest LRs are the best medicines given for a symptom. Combining LRs of different symptoms, we can estimate the most eligible medicines. If we know the best medicines for cough and the best symptoms indicating these medicines, we can incorporate this knowledge in an algorithm-based computer programme, guiding the user in asking the most relevant questions and choosing the best medicine given the personal characteristics of the patient. Working out

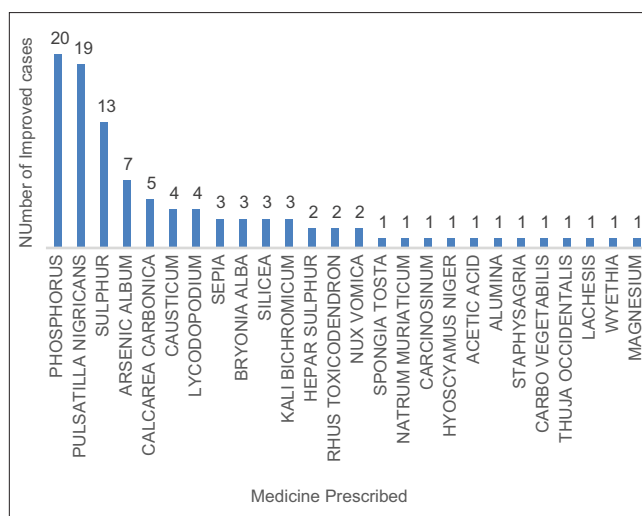


Figure 2: Prescription graph at fourth follow-up

such an algorithm is the ultimate outcome of a PFR study such as this.

### RESULTS

A total number of 1174 patients were screened, out of which 216 patients fitted the inclusion criteria. The remaining 958 had to be excluded due to one or the other exclusion criterion. Data of 216 patients were analysed.

At the first consultation, 35 different medicines were prescribed, including *Phosphorus* (41 times), *Pulsatilla* (36 times) and *Sulphur* (24 times). At the fourth follow-up consultation, 104 cases with positive result (score in Doctor’s assessment scale 2 or higher) were found. For these cases, 28 medicines were used [Figure 2].

The PS ‘cough in open air’ and ‘Generals, open air’, as represented in the repertory, are shown in Table 2 for the medicines *Sulphur*, *Pulsatilla* and *Phosphorus*. In these repertory rubrics, the ‘polarity problem’, with the same medicine in both opposite rubrics, appears in the symptom ‘Cough, open air aggravates/ameliorates’, and only regarding *Sulphur*. After PA, *Sulphur* is indicated by ‘Cough, open air aggravates’ in plain type. The symptoms ‘Cough, open air ameliorates’ and ‘Generals, open air ameliorates’ are both strong indications (bold type) for *Pulsatilla*; only the symptom ‘Cough, open air aggravates’ is a strong indication for *Phosphorus*, while ‘Generals, open air aggravates’ does not indicate *Phosphorus*.

After evaluating 104 successful chronic cough cases in this programme, we have 13 *Sulphur* cases, 19 *Pulsatilla* cases and 20 *Phosphorus* cases [Figure 1], that were followed up for 66 days on an average (range 40–124 days). The outcome regarding the symptoms ‘Cough in open air’ and ‘Generals in open air’ is shown in Table 3.

Comparing the outcome of our prospective with the repertory entries, after PA, it was observed that:

**Table 2: Repertorisation of the polar symptoms ‘cough in open air aggravates/ameliorates’ and ‘generals in open air aggravates/ameliorates’ (RADAR v. 10.5, Archibel, a Zeus soft company at Belgian)**

Rubric	Number of medicines mentioned under the rubric	Sulphur in grade	Pulsatilla in grade	Phosphorus in grade
Cough - air, in open - aggravates	61	2	-	3
Cough - air, in open - ameliorates	36	1	3	-
Generals - air, in open - aggravates	90	3	-	-
Generals - air, in open - ameliorates	151	-	3	-

**Table 3: Outcome of prognostic factor research of the symptoms ‘cough in open air’ and ‘generals in open air’ for the medicines Sulphur, Pulsatilla and Phosphorus, n=number of cases**

Symptom	Change in symptom	Sulphur (n=13), n (%)	Pulsatilla (n=19), n (%)	Phosphorus (n=20), n (%)
Cough in open air	Always better	0	1 (5.3)	0
	Frequently better	0	5 (26.3)	1 (5)
	Sometimes better	1 (7.7)	2 (10.5)	1 (5)
	No influence	6 (46.2)	6 (31.6)	13 (65)
	Sometimes worse	4 (30.8)	4 (21.1)	4 (20)
	Frequently worse	2 (15.4)	1 (15.4)	1 (5)
	Always worse	0	0	0
Generals in open air	Always better	0	1 (5.3)	1 (5)
	Frequently better	0	8 (42.1)	2 (19)
	Sometimes better	10 (76.9)	9 (47.4)	11 (55)
	No influence	2 (15.4)	1 (5.3)	5 (25)
	Sometimes worse	0	0	1 (5)
	Frequently worse	1 (7.7)	0	0
	Always worse	0	0	0

For *Sulphur*:

1. Cough is worse in open air (better in one patient, worse in six patients) in PFR; worse (plain type) in the repertory
2. Generally, the patient is better in open air (better in ten patients, worse in one patient) in PFR; worse (bold type) in the repertory.

For *Pulsatilla*:

1. Cough is better in open air (eight against five, plus difference in intensity) in PFR; better (bold type) in the repertory
2. Generally, the patient is better in open air in PFR (18 against 0); also better (bold type) in the repertory.

For *Phosphorus*:

1. Cough is worse in open air (five against two); better (bold type) in the repertory
2. Generally, the patient is clearly better in open air (better in 14 patients, worse in 1); no difference in the repertory.

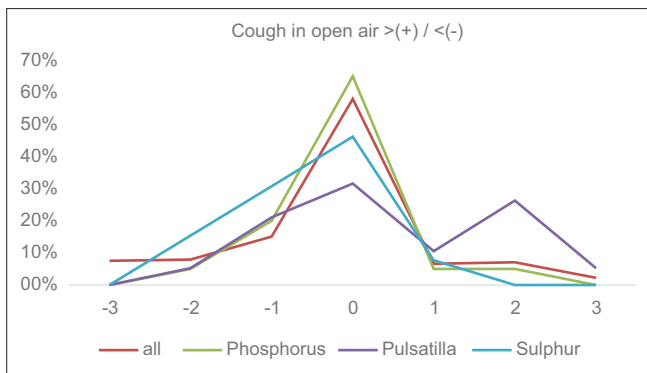
Numbers are small and follow-up is short for chronic cases, so this is not a final outcome, but the origin of the data is clear and all we have to do is gather more data with longer follow-up. For *Pulsatilla*, the PFR data confirm the repertory, for *Phosphorus* partly and for *Sulphur* not, refer the Discussion section.

Figure 3 shows the frequency distribution of the influence of open air on cough for the whole population and for *Phosphorus*, *Pulsatilla* and *Sulphur*. All graphs, except for *Pulsatilla* in

Figure 3 resemble a normal chance distribution. The divergent form of the *Pulsatilla* curve can be caused by small numbers, but also by confirmation bias: Amelioration in open air is an indication for *Pulsatilla*, therefore this medicine shall be prescribed more easily if this symptom is present. There is no peak in aggravation, so this does not indicate a bipolar symptom.

In fact, all our results show (nearly) normal frequency distributions. The peak of the distribution can lay outside the middle because some symptoms, such as ‘Generally better in open air’ apply for most patients. If patients responding well to a specific medicine are generally better in open air, this does not necessarily mean that ‘Better in open air’ indicates that medicine. According to Bayes’ theorem, the symptom should be seen more frequently in patients responding well to a specific medicine than in the remainder of the population, expressed as LR being >1.

Our preliminary data indicate that it is also possible to integrate new prognostic factors in the repertory, such as diagnosis and symptoms from validated conventional questionnaires (LCQ), although numbers are still too small [Table 4]. The diagnoses related to chronic cough are: CUACS, GERD, asthma and related syndromes and NAEB (or atopic cough) [Figure 4]. The results of treatment are measured, among others, with the LCQ questionnaire. This questionnaire contains symptoms that could be related to specific homoeopathic medicines, such as ‘chest or stomach pain from cough’, ‘tired from cough’ and



**Figure 3:** Frequency distributions for the symptom ‘open air aggravates/ameliorates of the whole population and of subgroups responding well to *Phosphorus*, *Pulsatilla* and *Sulphur*

**Table 4: Some variables measured in the research project that could serve as additional repertory rubrics**

Diagnosis/symptom	LR of Sulphur	LR of Pulsatilla	LR of Phosphorus
CUACS	1.06	0.71	0.55
GERD	-	-	2.80
Asthma	0.74	1.33	2.18
NAEB	1.22	1.36	0.77
Chest or stomach pain from cough	1.69	1.12	1.36
Tired from cough	1.25	1.06	1.23
Cough from paints or fumes	1.28	0.85	1.42

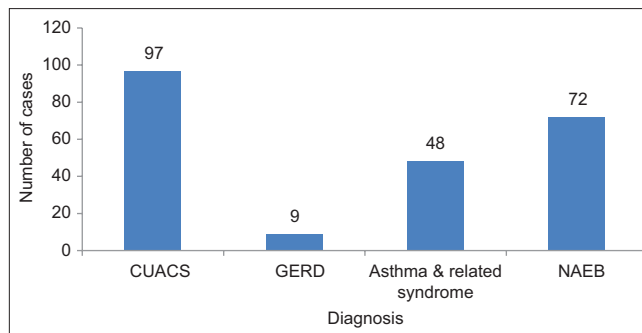
CUACS: Chronic upper airway cough syndrome, GERD: Gastro-oesophageal reflux disease, NAEB: Non-asthmatic eosinophilic bronchitis, LR: Likelihood ratio

‘cough from paints or fumes’. The individual outcome of the questionnaire in the strongest intensities (‘always’ and ‘most of the time’) at the first consultation can be measured in subgroups responding well to specific medicines.

## DISCUSSION

The effectiveness of Homoeopathy depends on the correct prescription of the most used medicines; ideally, they should never be prescribed when not indicated and always when indicated. Similarly, frequently used symptoms indicating specific medicines have priority when we want to improve our method. As mentioned in the introduction, the origin and quality of most repertory entries are unknown, and there are systematic mistakes. The proper way to assess the prognostic value of symptoms is prospective research, checking well-described symptoms during the first consultation. The effect of medicines should be monitored for an adequate period and assessed regarding improvement and causal relationship between improvement and medicine.<sup>[24]</sup>

For the first time, we have many PS regarding the prevalence in the whole population and in some populations responding well to specific medicines. This enables more fundamental considerations about representing PS in the repertory. The intuitive solution for PS, PA, rendered improved effectiveness



**Figure 4:** Distribution of chronic cough cases as per diagnosis

of Homoeopathy, but still suffered from other systematic mistakes of the repertory. A small mistake in intuitive estimates of repertory entries by different experts could lead to opposite, contraproductive, outcome.

Assessing the three most used medicines in only two PS, we already found discrepancies with existing repertory entries in two of the three medicines, apart from the polarity problem. However, we must be careful with numbers because they are only valid when based on high-quality research, if not, they can misleadingly be presented as ‘hard facts’. Observers must be experienced homoeopathic practitioners and well trained in PFR. Even if the observers are well trained, variation between observers has to be monitored and, if necessary, handled. Variation can be caused not only by vagueness of the protocol or the questions, but also by numerous other variables such as culture, language and profession.

One could argue that symptoms can be bipolar: Both aggravation and amelioration of a symptom can indicate a specific medicine, more than any other medicine. This would mean that a considerable number of patients have both amelioration and aggravation from the same influence. However, such a conclusion could only follow from the direct questions such as ‘Are your complaints both aggravated and ameliorated by cold?’, or ‘Are your complaints aggravated by both heat and cold?’. You cannot combine the population outcome of two separate questions because some patients will have aggravation, whereas other may have amelioration by the same influence. This is due to statistical variation.

Another relevant problem is confirmation bias: Amelioration in open air is a well-known indication for *Pulsatilla*, therefore this medicine shall be prescribed more easily if this symptom is present. The concordance of the repertory rubrics with our outcome for *Pulsatilla* can be caused by confirmation bias, especially because follow-up is still short. Former research learnt that confirmation bias becomes less with longer follow-up in chronic cases. Further, *Sulphur* and *Phosphorus* are mentioned under the rubric ‘GENERALS – AIR, IN OPEN – agg.’ And ‘GENERALS – AIR, IN OPEN – amel.’ in the Kent’s repertory in second grade. The initial findings in this study, however preliminary, confirm these indications.

Although most repertory entries are based on <10 cases, we must realise that numbers of various medicine populations in the underlying research are still small. Larger numbers will increase the reliability of the data. There are, however, other factors that increase our confidence in the outcome. First of all, the concurrence with the existing repertory entries (but beware of confirmation bias). If the research outcome of PFR is different from the existing repertory entries, we can search for confirmation in retrospective research, best case analysis and expert opinion. However, such sources are liable to confirmation bias caused by the very repertory entries. Repetition of the same PFR by others in different countries is the best way to get optimal certainty. The first 'generation' of PFR is especially suited to find inconsistencies between the existing and research data that should be assessed further. This induces a circular process of a steadily improving repertory.

RTI is not only one of the most frequently treated indications in homoeopathic practice but also responsible for 75% of all antibiotics prescribed in conventional medicine.<sup>[25]</sup> There is an urgent need of reducing the use of antibiotics because of rapidly increasing mortality due to antimicrobial resistance (AMR). Homoeopathic general practitioners do use antibiotics lesser,<sup>[26]</sup> but the method is difficult to use for less trained healthcare workers such as accredited social health activists. It can be expected that other healthcare workers will eventually be inclined to try Homoeopathy in cases of AMR. Self-medication with Homoeopathy in RTI will also increase, but self-medication with few medicines and insufficient knowledge about the medicine is ineffective. We should anticipate more interest in Homoeopathy by patients and less trained healthcare workers by designing an algorithm for treating RTI to manage the 10–20 most successful medicines for this indication, to be used on electronic devices such as personal digital assistants (PDAs). The algorithm starts with checking for symptoms that discriminate between the preferred medicines. These are mostly general (polar) symptoms, therefore it is imperative that these symptoms are validated by PFR. Then, the algorithm produces further confirmatory questions for the most eligible medicines that come up from the symptoms that the user selects from the initial questionnaire. This way, healthcare workers with short training in the homoeopathic method and knowledge of the medicines in the algorithm can carry validated expert's knowledge with them in their PDAs. The same improved knowledge will also improve the results of fully trained homoeopathic practitioners.

We want to stress that PFR is not about simplifying the homoeopathic method and other measures to assess the prognostic relationship between diagnoses, symptoms and personal characteristics and effect of homoeopathic medicines be explored. The quality of the homoeopathic practitioner depends heavily on his/her knowledge of *Materia Medica*. Practitioners with limited knowledge of *Materia Medica* should realise that they can only treat cases that are recognisable with their limited knowledge. Re-thinking and re-developing parts of the repertory and using modern technology give us the

opportunity to customise the repertory for different groups of healthcare workers that play different roles in healthcare. All said, *Materia Medica* remains the final court of appeal, irrespective of how refined a repertory gets. However, developing a statistically validated repertory base, based on the inputs from real-time practice in today's times, can be a great tool in the hand of a practitioner.

## CONCLUSION

Collecting accurate data about homoeopathic treatment and homoeopathic symptoms gives us the opportunity to fundamentally re-think and re-develop a part of the homoeopathic repertory for applying suitable new developments in statistics and technology. Priority should be given to PS and the indications for respiratory tract infections. This should lead to a more accurate and accessible instrument, not only to improve results of experienced homoeopathic practitioners but also to bring effective Homoeopathy within the reach of interested healthcare workers, or beginners in Homoeopathy who could use the algorithm for treating multi-faceted cough.

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## Conflicts of interest

None declared.

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**होम्योपैथी में ध्रुवीय लक्षणों का बेहतर उपयोग करना: दीर्घकालिक खांसी में भविष्यसूचक घटक अनुसंधान के एक मार्गदर्शी अध्ययन की प्रस्तावना**

**पृष्ठभूमि:** ध्रुवीय लक्षण के बार-बार उपयोग के बाद भी होम्योपैथिक रेपर्टरी सबसे अधिक समस्याग्रस्त टिप्पणियों को दर्शाते हैं। **उद्देश्य:** अध्ययन का उद्देश्य 27 ध्रुवीय खांसी के लक्षणों, 3 गैर-ध्रुवीय खांसी के लक्षणों एवं 30 सामान्य ध्रुवीय लक्षणों के बीच के संबंधों और विशिष्ट होम्योपैथिक औषधियों के विरुद्ध सफल प्रतिक्रिया का आंकलन करना था। **पदार्थ और पद्धति:** केन्द्रीय होम्योपैथी अनुसंधान परिषद् के अंतर्गत, दस केन्द्रों में एक बहु-केन्द्र, गवेषणात्मक, प्रत्याशित, अवलोकनात्मक अध्ययन किया गया। दीर्घकालिक (8 सप्ताह से अधिक समय तक टिकने वाली) खांसी के 216 रोगियों का नामांकन किया गया। रोगियों का नामांकन क्रोनिक अपर एयरवे कफ सिंड्रोम (सीयूएसीएस), गैस्ट्रो एसोफेजियल रिफ्लक्स डिजीज (जीआईआरडी), अस्थमा (दमा) एवं संबंधित लक्षण और नॉन-अस्थमैटिक इन्सोफिलिक ब्रोंकाइटिस (एनईबी) के चार अंतर्निहित निदानों के अनुसार किया गया। 30 सामान्य ध्रुवीय लक्षणों, 27 ध्रुवीय खांसी के लक्षणों, 3 गैर-ध्रुवीय खांसी के लक्षणों का आंकलन आधाररेखा पर किया गया। नामांकन और फॉलो-अप परामर्शों के दौरान, दो विधिमान्य प्रश्नोत्तरियों (लीसेस्टर कफ क्वेश्चनेयर-क्रोनिक एंड यूरो क्यूओल (ईक्यू)-5डी-5एल) को उपचार के प्रभाव का आंकलन करने के लिए भरा गया। यदि चिकित्सक एसेसमेंट स्कोर 2 था तो सुधार एवं लिखी गयी औषधि के बीच के अनौपचारिक सम्बन्ध के आगे का आंकलन मॉडिफाइड नरान्जो एल्गोरिथ्म का प्रयोग करके किया गया। **परिणाम:** चौथे पुनर्निरीक्षण में, अच्छे परिणाम वाले 10 से अधिक कसों में तीन औषधियों की पहचान की गई: फॉस्फोरस (एन = 20), पल्साटिला (एन = 19) और सल्फर (एन = 13)। इस परिचयात्मक लेख के लिए, हम मौजूदा आंकड़ों के साथ कुछ परिणामों की तुलना करते हैं, मौजूदा आंकड़ों एवं शोध निष्कर्ष के बीच विसंगतियों को दर्शाते हैं और विशेषकर श्वसन तंत्र संक्रमणों (आरटीआई) में भविष्य के उपयोग को दर्शाते हैं। **निष्कर्ष:** होम्योपैथिक पद्धति और इसके व्यवहारिक उपयोग में सुधार लाने में प्राथमिकता विशेषकर आरटीआई से संबंधित ध्रुवीय लक्षणों को दिया जाना चाहिए।

**Optimiser l'utilisation des symptômes polaires en homéopathie: introduction à une étude pilote de la recherche sur les facteurs pronostiques dans la toux chronique**

**Contexte:** Les symptômes polaires représentent les rubriques les plus problématiques des répertoires homéopathiques, malgré leur utilisation fréquente. Objectif: L'objectif de l'étude était d'évaluer la relation entre 27 symptômes de toux polaire, 3 symptômes de toux non polaire et 30 symptômes polaires généraux, et une riposte efficace à des médicaments homéopathiques spécifiques. **Matériels et Méthodes:** Une étude multicentrique, exploratoire, prospective et observationnelle a été menée dans dix centres sous l'égide du Conseil Central de Recherche en Homéopathie. 216 patients ont été inscrits avec une toux chronique, durant > 8 semaines. Les patients ont été inscrits selon quatre diagnostics sous-jacents de syndrome de toux chronique des voies respiratoires supérieures (CUACS), de reflux gastro-œsophagien (RGO), d'asthme et de syndromes associés, et de bronchite éosinophile non asthmatique (NAEB). 30 symptômes polaires généraux, 27 symptômes de toux polaire et 3 symptômes de toux non polaire ont été évalués à la base de référence. Lors des consultations de recrutement et de suivi, deux questionnaires validés (Leicester Cough Questionnaire chronique et EuroQuol (EQ)-5D-5L) ont été remplis pour évaluer l'effet du traitement. Si le score d'évaluation du médecin était >2, la relation de cause à effet entre l'amélioration et le médicament prescrit a été analysée plus en détail à l'aide de l'algorithme de Naranjo modifié. **Résultats:** Au quatrième suivi, trois médicaments avec > 10 cas ayant un bon résultat ont été identifiés: Phosphore (n = 20), Pulsatilla (n = 19) et Soufre (n = 13). Pour cet article d'introduction, nous comparons certains résultats avec les données existantes, réfléchissons aux divergences entre les données existantes et les résultats de la recherche et réfléchissons à l'utilisation future, en particulier dans les infections des voies respiratoires (RTIs). **Conclusion:** Dans l'amélioration de la méthode homéopathique et de son utilisation pratique, la priorité doit être donnée aux symptômes polaires, en particulier liés aux RTIs.

**Optimización del uso de síntomas polares en la Homoeopatía: Introducción a un estudio piloto de la investigación de factores de pronóstico en la tos crónica**

**Fondo:** Los síntomas polares representan las rúbricas más problemáticas en los repertorios homoeopáticos, a pesar de su uso frecuente. **Objetivo:** El estudio objetivo fue para evaluar la relación entre 27 polar síntomas de tos, 3 síntomas no polar de tos y 30 síntomas polares generales, y la respuesta exitosa a medicamentos homoeopáticos específicos. **Materiales y métodos:** Se realizó un estudio multicéntrico, exploratorio, prospectivo y observacional en diez centros del Consejo Central de Investigación en Homoeopatía. 216 pacientes fueron inscritos con tos crónica, con una duración de 8 semanas. Los pacientes fueron inscritos según cuatro diagnósticos subyacentes de Síndrome de Tos Crónica de las Vías Respiratorias (CUACS), Enfermedad de Reflujo Gastroesofágico (ERGE), Asma y síndromes relacionados, y Bronquitis Eosinofílica No Asmática (NAEB). 30 síntomas polares generales, 27 polar síntomas de tos y 3 no polar síntomas de tos se evaluaron al inicio. Durante las consultas de inscripción y seguimiento, dos cuestionarios validados (Cuestionario de tos de Leicester crónico y EuroQuol (EQ)-5D-5L) para evaluar el efecto del tratamiento. Si la Puntuación de Evaluación del Médico fue >2, la relación causal entre la mejora y la medicina prescrita se evaluó aún más utilizando el algoritmo Naranjo modificado. **Resultados:** En el cuarto seguimiento, se identificaron tres medicamentos con un resultado tan bueno de los 10 casos: Fósforo (n. = 20), Pulsatilla (n.= 19) y Azufre (n.= 13). Para este artículo introductorio, comparamos algunos resultados con los datos existentes, reflexionamos sobre las discrepancias entre los datos existentes y el resultado de la investigación y reflexionamos sobre el uso futuro, especialmente en las Infecciones del Tracto Respiratorio (RTIs). **Conclusión:** Al mejorar el método homoeopático y su uso práctico, se debe dar prioridad a los síntomas polares, especialmente relacionados con las RTI.

## Optimierung der Anwendung polarer Symptome in der Homöopathie: Einführung in eine Pilotstudie zur prognostischen Faktorforschung bei chronischem Husten

**Hintergrund:** Polare Symptome stellen trotz ihrer häufigen Anwendung die problematischsten Rubriken in den homöopathischen Repertorien dar. **Ziel:** Ziel der Studie war es, den Zusammenhang zwischen 27 polaren Hustensymptomen, 3 nichtpolaren Hustensymptomen und 30 allgemeinen polaren Symptomen und einer erfolgreichen Reaktion auf bestimmte homöopathische Medikamente zu bewerten. **Materialien und Methoden:** Eine multizentrische, explorativ, prospektive Beobachtungsstudie wurde an zehn Zentren des Zentralrats für Die Forschung in der Homöopathie durchgeführt. 216 Patienten wurden mit chronischem Husten aufgenommen, der >8 Wochen dauerte. Die Patienten wurden gemäß vier zugrunde liegenden Diagnosen des Chronisches Oberatemhustensyndrom (CUACS), gastroösophageale Refluxkrankheit (GERD), Asthma und verwandte Syndrome und nicht-asthmatischer Eosinophiler Bronchitis (NAEB) registriert. 30 allgemeine polare Symptome, 27 polare Hustensymptome und 3 unpolare Hustensymptome wurden an der Basislinie bewertet. Während der Einschreibungs- und Folgekonsultationen wurden zwei validierte Fragebögen (Leicester Hustenfragebogen chronisch und EuroQuol (EQ)-5D-5L) zur Beurteilung der Wirkung der Behandlung ausgefüllt. Wenn der Physician Assessment Score >2 war, wurde der kausale Zusammenhang zwischen Verbesserung und verordneter Medizin mit dem modifizierten Naranjo-Algorithmus weiter bewertet. **Ergebnisse:** Bei der vierten Nachbeobachtung wurden drei Arzneimittel mit >10 Fällen mit gutem Ergebnis identifiziert: Phosphor (n = 20), Pulsatilla (n = 19) und Schwefel (n = 13). Für diesen einen führenden Artikel vergleichen wir einige Ergebnisse mit den vorhandenen Daten, reflektieren Diskrepanzen zwischen den vorhandenen Daten und Forschungsergebnissen und reflektieren die zukünftige Anwendung, insbesondere bei Atemwegsinfektionen (RTIs). **Schlussfolgerung:** Bei der Verbesserung der homöopathischen Methode und ihrer praktischen Anwendung sollte den polaren Symptomen, insbesondere im Zusammenhang mit RTIs, Vorrang eingeräumt werden.

### Optimierung der Anwendung polarer Symptome in der Homöopathie: Einführung in eine Pilotstudie zur prognostischen Faktorforschung bei chronischem Husten

**背景:** 极地症状代表同源性治疗中最成问题的标尺, 尽管它们经常使用。目的: 研究目标是评估27个极地咳嗽症状、3个非极性咳嗽症状和30个一般极性症状之间的关系, 以及对特定同源药物的成功反应。材料与方法: 在中央同性恋研究理事会下的十个中心进行了多中心、探索性、前瞻性、观察性研究。216名患者被登记患有慢性咳嗽, 持续8周。根据慢性上气道咳嗽综合症 (CUACS) 的四个基础诊断, 患者登记, 胃食道反流病 (GERD)、哮喘及相关综合征和非哮喘嗜酸性支气管炎 (NAEB)。30种一般极性症状, 在基线评估了27个极性咳嗽症状和3个非极性咳嗽症状。在入学和后续咨询期间, 两份经验证的调查表 (莱斯特咳嗽问卷慢性和EuroQuol (EQ)-5D-5L) 填写评估治疗的效果。如果医生评估分数为 +2, 则使用修改的 纳兰霍 算法进一步评估改善与处方药之间的因果关系。结果: 在第四次随中, 确定了三种效果良好的10例药物: 磷 (n=20)、白头翁 (n=19) 和硫磺 (n=13)。对于这篇介绍性文章, 我们将一些数据与现有数据进行比较, 反思现有数据和研究结果之间的差异, 并思考未来使用, 特别是在呼吸道感染 (RTIs) 中。结论: 在改进同源性方法及其实际应用时, 应优先考虑极性症状, 特别是与RPI相关的症状。