

Research Bulletin No.1

June 2014

Our first 125,000 consultations:

A new age of evidence-based homeopathy

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A bright sun in the top left corner of a clear blue sky, with several white, fluffy clouds scattered across the lower half of the image. The sun has a prominent lens flare effect.

A new age
of evidence-based
homeopathy

Dear friends of homeopathy,

We are very proud to be releasing the first issue of the **Vithoukas Compass Research Bulletin**. This publication aims to periodically present the research and development work carried out by the Vithoukas Compass (VC) team.

The first issue marks the achievement of **125,000 consultations** carried out by users of VC. For the first time in the history of homeopathy this allows for the advancement of meaningful statistical research at such a level. This data has already enabled our team to incorporate the first evidence based information available to the user, into VC, thus strengthening the weakest link in repertory based homeopathic practice, namely rubric selection.

The first part of the bulletin is dedicated to **VC's development**, focusing both on the motivating factors and vision which led to its realisation, and proceeds with the **methods and tools** used to ensure that VC would become **a fundamentally precise and scientifically based expert homeopathic system**.

The second part of the bulletin presents the results of analysis of the cases database. User data has been used to extract **valuable statistical results**, not only for improving VC, but also to inform the whole homeopathic community of previously unknown/unconfirmed facts and observations about homeopathic practice. Although these cannot be considered 'hard' statistics (being based on practitioner and patient observations), analysis clearly reveals trends and correlations in the data, allowing for **new and important observations of significant value to homeopaths and researchers**.

This first issue of the research bulletin presents an initial set of relatively simple statistical analyses. The VC team aims to develop increasingly **robust and effective protocols** and to collaborate with other homeopathic research parties, thus utilizing our data for the **best interest of the whole community**. In parallel, our homeopaths will submit the most useful research findings for publication in forthcoming homeopathic journals.

Thank you for your continued interest and support.

Kyriakos Xagoraris (Managing Director, VC Team)
June 2014

The concept for Vithoukas Compass began to take shape in 2005, when a small group of inquisitive homeopathy patients, versed in information technology, began investigating the potential to create a completely new and more powerful expert system to assist homeopaths, employing a scientific methodology and taking full advantage of the latest advances in online applications.

Core visions

CONFIRMATION OF ALL COMPONENTS

The system would have to be as evidence-based as possible. All rules, formulae, and data would be checked carefully for reliability and optimised using large numbers of actual successful prescriptions. The system needed to be suitable for continuous improvement. The same applied for the user interface, which would be continuously field-tested and optimised.

COMPLETE EXPERT SYSTEM TOOLBOX

The system would need to emulate all functions (question based analysis, confirmatory questioning and complex repertory searches) which an expert homeopath performs in order to locate and select the relevant rubrics for the case and arrive at the simulum.

ONLINE SOFTWARE PLATFORM

The software would be online, employing the latest technologies in cloud computing and mobile applications. In this way statistical data from the users would be used to improve the performance of the system and also enable communication between users and other internet services/knowledge bases, hence taking full advantage of an online platform.

Vithoukas Compass: A short history

The influence of George Vithoukas' work

On the island of Alonnisos George Vithoukas (GV) had been doing (and continues to do) important work, training homeopaths in his highly acclaimed courses and contributing to the advancement of classical homeopathy in general. Another aspect of his work is assisting homeopaths in solving difficult cases. His unique talent lies in analysing a case by reading the symptoms and then proposing effective remedies through differential and confirmatory analysis (referring to the repertory and asking a few key questions). His success rate in such cases, prescribing both large and smaller remedies, is very impressive.

Although GV's unique knowledge and experience are evidently major factors in his success rate, it was also clearly observed that the remedy pictures, the relative importance of symptoms, the confirmatory questioning and the final decision on the remedy, are all part of a remarkably consistent remedy scoring method. This scoring method, based on the basic principles of homeopathy, could certainly be described and understood through an expert system.

Evolution of homeopathic software tools

Many experienced homeopaths have been frustrated by the limitations of available software tools and the relative unreliability of repertories in an environment where complex cases, requiring particularly careful prescriptions and management, have been on the increase. Although the Vithoukas Expert System (VES) was successful in the past, it was clear that something more complete, accurate and upgradable could be developed which would be of significant value to users. Remedy pictures, symptom combinations and keynote symptoms play a crucial role in the casetaking process. In many cases a small, rare, perhaps barely noticeable symptom proves critical for the selection of the effective remedy. Aware that all such symptoms cannot possibly be remembered by a single practitioner, VC set out to provide the perfect support system for all homeopaths, from beginners to masters.



Homeopathy software and cases solved using the essence of remedies.

One of the great contributions of Prof. Vithoukas in the field of the Materia Medica has been the description of the remedies in a live manner, giving what he was first to call the "Essence" of the remedies. These essential features are considered the heart, to a large extent the uniqueness, of each remedy and its peculiarities, mainly in the psychopathological area.

In a percentage of complex cases, where many layers of pathology are present, the similimum can be mainly based on essence. Such cases present a challenge to any homeopath and success in them is almost always a function of the experience and insight of the homeopath. Essence prescribing is certainly not a task particularly suited to the use of computer software. It was one of the areas which the VC development team confronted very attentively, and with an open mind, in order to understand as much as possible the subtleties and the deeper factors involved in finding the right remedy.

What is certain is that in all cases, no matter how complex, VC significantly assists the practitioner in putting perspective to the case and in feeling the dynamics of the pathological layers. Important hints in this direction are provided by the candidate remedies, which are clearly presented along with the symptoms, keynotes and symptom combinations, that place them in the results list. Having analysed several essence prescriptions by GV, it was observed that virtually all prescriptions were given in the presence of a number of supporting symptoms, and in most cases the similimum came high on the result list.

In a complex case, GV's online Remedy Notes especially, and the Materia Medica, provide important insights on the essence of the remedies.

A recently added function of VC to support the discovery of remedies which could be useful for essence prescribing is the Notable remedies list. In this list are displayed remedies which present highly specific symptoms and peculiar symptoms, mainly related to psychopathology, present in the case. These remedies normally relate very closely with candidates for essence prescribing. The continuous improvement in the repertory and further study will certainly bring upgrades in this list and other features to help in this area.

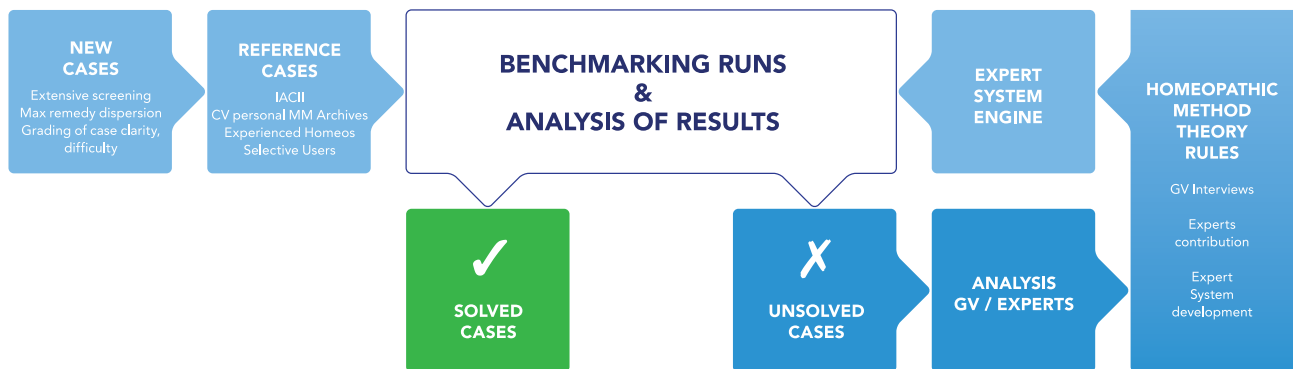
Vithoulkas Compass: A short history

VC in more detail

VC is based on a complex remedy scoring function. Every remedy/symptom combination in a case is scored according to several symptom parameters: rubric, repertory degree, repertory chapter, specificity, combinations of symptoms, keynote symptom status, likelihood ratio, and the presence or absence of symptoms. The final score for each remedy very accurately reflects the scoring in an expert practitioner's mind.

In order to develop this expert system, which would be accurate and reliably help effective prescription we have aimed for a clear evidence-based approach and the use of mathematical optimisation software for the fine-tuning of all parameters used in algorithms. The prototype (finished in 2009) was developed, based on all the available concepts and data, and was benchmarked against a set of approximately 150 carefully studied cases. Results proved very promising. Cases which remained unsolved by the system were then analysed in cooperation with George Vithoulkas and new sets of parameters and formulae were developed. Through subsequent benchmarking and analysis VC became increasingly accurate and reliable.

Expert System Development



Confronting the problems related to the inability of a human (analyst or mathematician) to correctly factor in and finetune large numbers of parameters, the development team decided to employ specialised computer software to perform the task. In 2011, as VC was appearing online, the benchmarking platform consisted of a specially developed Matlab module which performed thousands of solve operations per hour and in just a few hours came very close to the ideal combination of parameters to offer the best success rate for VC. The priority for the team was now the accumulation of a reliable set of reference cases with the maximum dispersion of successfully prescribed remedies.

This enabled the system to handle very accurately both large and small remedies in a wide variety of very different cases. This set of reference cases is continually growing and includes two populations, the reference set of cases and the testing set of cases. Based on results so far, the future of VC can only be described as bright. Repertorisation parameters, symptoms, remedies, and individual cases can all be studied, included in the reference sets, benchmarked, and thus contribute to the evolution of the system. We can now state very confidently that the calculation of the correct remedy as a methodological problem, is becoming less of a problem than that of repertorisation, through which the selection of the correct rubric may be achieved. This area is being addressed very keenly and innovative propositions are in the pipeline.

VC acute

In April 2014 the VC team brought online the VCAcute, a separate expert system for acute pathologies. Developed using the same procedures as the VC, it is based on a specially structured acute repertory to facilitate casetaking. Its expert system has been optimised for the particularities of acute prescribing. Still in the 'beta' phase, it is already generating very promising feedback from users and has logged approx. 1200 prescriptions.

Repertory

After the study of several options for the choice of the foundation for VC repertory, it was decided to develop a new repertory based on Kent. Kent's repertory gave the best results in benchmarking with real world cases, has relatively low 'noise', and, more importantly, it is well known by most classical homeopaths and has been used, studied and revised, by most known homeopaths since its appearance. The experience of George Vithoulkas, having a success rate in the range of 90% using Kent's repertory for the first 30 years of his career, was another major factor in choosing Kent as a base for the VC system. His astonishing familiarity with this repertory would be very useful in several stages in the project.

During the thousands of case analyses of real cases and the detailed study of remedy keynote symptoms and pictures, the VC homeopaths added large numbers of useful rubrics and updated many of the Kent rubrics using information mainly from other classical sources. Repertory development is a painstaking process requiring a meticulous, structured approach and an effective quality assurance system in place. For the VC team it represents a major achievement which required many thousands of hours, and also a continuous process for the future. The next milestone for the VC repertory development is the realisation of the Confirmed Repertory sometime in the next few years. The repertory is expected to be periodically updated using the VC field data statistics and input from other homeopathy research projects which employ the required standards. All future repertory additions will be benchmarked against large reference sets of cases. The latest addition to our repertory, after several subsequent upgrades to the search tool, is a function which differentiates symptoms which have never been used by users in the first 3 years of VC operation. It is the first evidence-based information in VC aiming to support rubric selection. The development team is testing other future possibilities on this front. As the user data set becomes larger and more reliable such additional tools will most probably be very valuable to the practitioner.

VC's Core Strength

Remedy pictures and keynote symptoms

Analysed and transcribed over many hours of work with GV in different stages of the VC project, remedy pictures for more than 200 remedies, in the form of detailed representation of each keynote symptom, combination of symptoms and symptoms whose absence reduce a remedy's score, were organised and later confirmed and finely adjusted using real cases and the results of the system.

The likelihood probability of specific symptoms for a specific remedy was also calculated to be used in the confirmatory process of remedies, namely the selection of the confirmatory questions. The process of optimising this function is continuous, employing experienced homeopaths and data from the users.

During the completion of the VC beta version the expert system was benchmarked using sets of model cases from GV personal archive and resolved cases by other homeopaths. The VC 'brain' was tested using various versions of the repertory, notably with a repertory which includes only the keynote symptoms. The most important outcome of these tests is that a smaller but more reliable repertory is more effective than a larger one which contains more noise and inaccuracies. The 'sensitivity' of the expert system related to repertory 'quality' was not further quantified but it became very obvious on seeing the results of the benchmarking. The VC team plans to publish more on this subject.

In all subsequent and current upgrades of the expert system, the finetuning of remedy pictures - the keynotes and differentiating symptoms - is an important operation very high in our priorities.

Vithoukas Compass not only calculates the most probably correct remedies, but also presents candidate remedy keynotes, differentiating symptoms and case-specific symptoms, to assist with patient questioning and remedy confirmation.

Vithoukias Compass: A short history

Differential Analysis and Specific Remedy Analysis functions - VC's unique tools

Vithoukias Compass not only calculates the most probably correct remedies but also presents candidate remedy keynotes, differentiating symptoms and case-specific symptoms to assist with patient questioning and remedy confirmation. The basic Differential Analysis functions appeared from the very beginning of the VC online system and have been upgraded several times. The last upgrade has been the most important since a full expert system was built around them, based on several important variables, which optimise the displayed results. This was a logical progression since it gradually became apparent that an experienced homeopath uses a 'strategic' methodology in order to be efficient with symptom checking and patient questioning. Also special attention has been given to small remedy confirmatory symptoms.

The goal of the development team was to incorporate in the VC toolbox all the features needed by an experienced homeopath using the repertory, from the simple ones like keynote checking, to the more complex ones such as case-specific search of similar symptoms or sub-symptoms, keyword searches and differential symptoms. The Specific Remedy Analysis function is another unique VC tool which increases productivity and empowers the user to discover rubrics which are otherwise difficult to find; It can instantly display keynote symptoms related to selected remedies either for the whole repertory or for specific repertory chapters; it also incorporates a remedy/keyword search option and uses the differential analysis expert system when the user selects to analyse multiple remedies. In cases where deeper repertory searching is needed it is an indispensable tool in the hands of the practitioner.

Other new functions related to remedy analysis, which boost the user's capabilities and productivity, are being researched to be added in future versions.

The effect of the Differential and Specific Remedy Analysis functions on prescription effectiveness is currently being carefully studied to improve repertorisation. The challenge concerning symptom proposition tools is to minimise the probability of symptom suggestion to the patient. Already there are clear indications in the statistical data which confirm that symptoms described spontaneously by the patient are clearly more reliable than those provided in response to leading questions asked by the practitioner. The future development of the VC toolbox will follow such important observations about sources of potential inaccuracy in homeopathic practice in order to control them as much as possible.

VC knowledge base

Knowledge, and access to, the Materia Medica is a cornerstone of successful practice. VC currently includes Materia Medica books from Kent, Boericke, Allen and Clark and concise remedy notes from the courses of the IACH. The user can also add personal notes for any remedy.

The current content of the VC library is consistent with the philosophy of VC: 'less of high quality is better than more'. One of our development projects, in cooperation with our user community, is the enrichment of the VC online knowledge base to include more high quality usable information about remedies.

For more information concerning the features of VC please visit www.vithoukiascompass.com

VC Statistics

The results presented in this article are a selection from an initial analysis of the VC user data set. The VC database currently (as of May 2014) comprises 125,000 consultations, 52,000 recorded prescriptions and 17,000 completed follow-ups.

The data set was filtered to exclude cases, prescriptions and follow-ups whose characteristics were not consistent with normal practitioner usage. Additional filtering of the data was performed to create the effectiveness reports based on follow-ups.

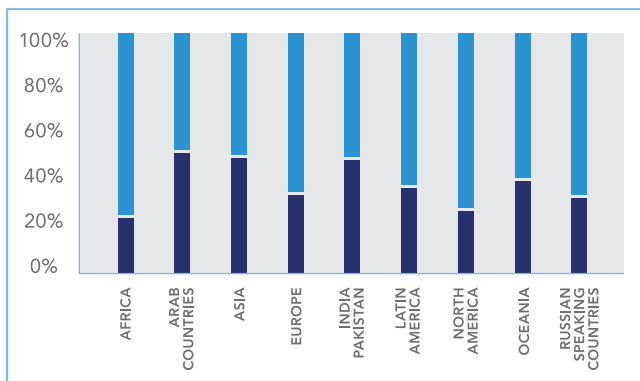
Statistics presented below are part of the general study around homeopathic practice for the purpose of informing the homeopathic community and improving methods and tools used in classical practice.

1. AGE AND GENDER DISTRIBUTION OF PATIENT POPULATION

1a. 60% female:40% male patients.

Evidently women seek homeopathic treatment more frequently than men.

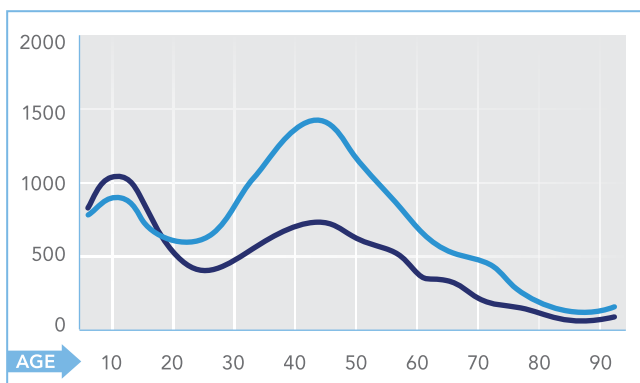
1b. Geographical Data



The gender distribution graph (1b) presents a significant variability between countries. For example, in Germany, the USA and Russia, the female constitutes the majority of homeopaths' patients, whereas in Arab countries and in India men are slightly more than women.

■ MALE ■ FEMALE

1c. Age and Sex Distribution



Graph 1c shows the patient age and gender distribution. Children and middle-aged women are the most frequent patients of homeopaths. The prevalence of female patients between the ages of 30 and 55 could be due to different reasons such as the female psyche being more open to alternative medicine and the effectiveness of homeopathy in treating hormonal issues. It could also be valuable to study the relatively low numbers of teenage and elderly patients.

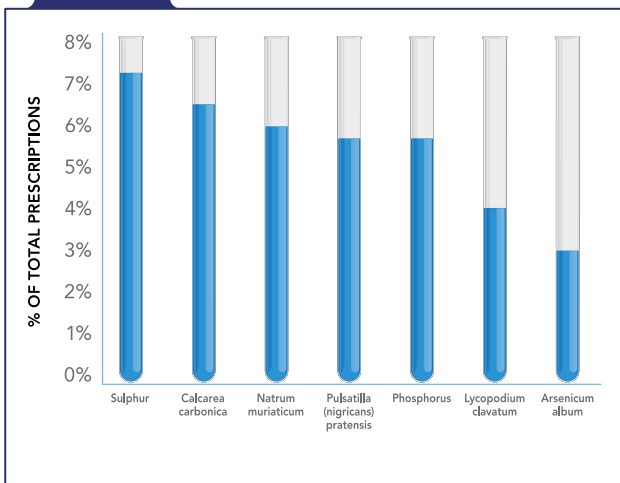
■ MALE ■ FEMALE

Statistics

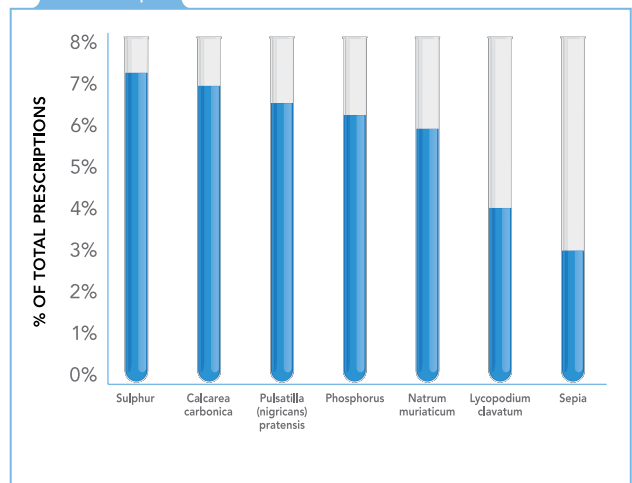
2. MOST COMMONLY PRESCRIBED REMEDIES

A simple statistic showing the most prescribed remedies in certain areas of the world interestingly reveals the variability between continents. This could be due to differences in homeopathic education and/or environmental factors affecting different specific population groups. Certainly more analysis is required.

2a. TOTAL

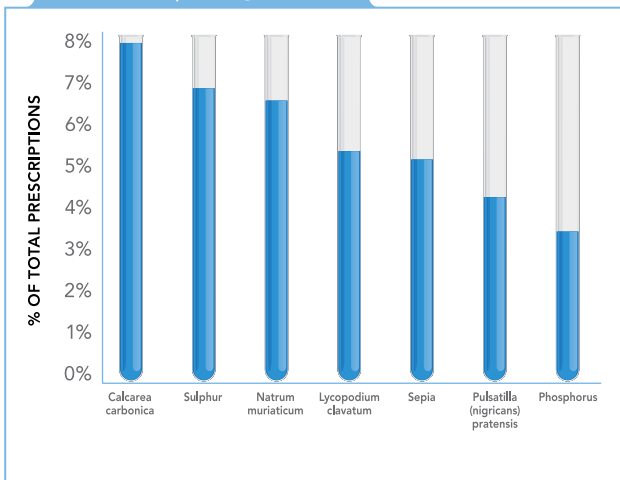


2b. Europe



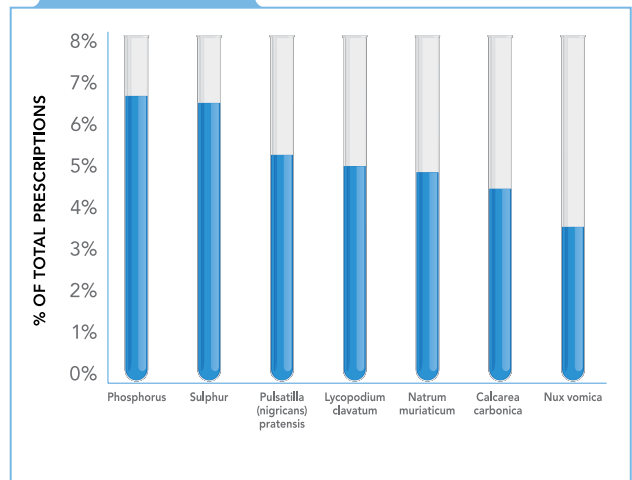
In Europe Sulphur is the first remedy with calcarea carbonica and Pulsatilla following.

2c. Russian speaking countries



In Russian Speaking countries Calcareo Carbonica is the first remedy.

2d. North America



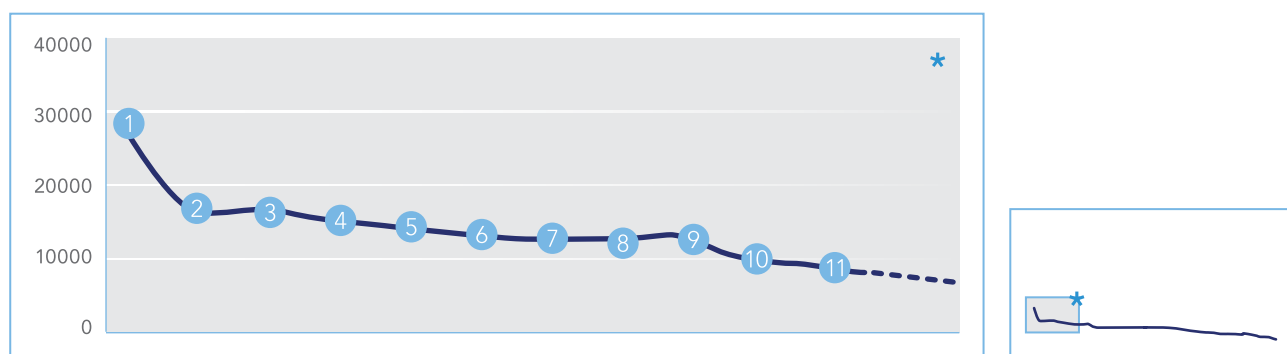
In North America Phosphorus is slightly more frequent than sulphur.

3. USAGE FREQUENCY AND THE DISTRIBUTION OF RUBRICS

3a. Most commonly used rubrics:

- 1 GENERALITIES - FOOD and DRINKS - sweets - desire
- 2 GENERALITIES - COLD - agg.
- 3 GENERALITIES - FOOD and DRINKS - salt - desire
- 4 MIND - ANXIETY - health, about
- 5 GENERALITIES - FOOD and DRINKS - fat - aversion
- 6 MIND - SYMPATHETIC
- 7 MIND - IRRITABILITY
- 8 GENERALITIES - WARM - agg.
- 9 MIND - FEAR - high places
- 10 MIND - CONFIDENCE - want of self-confidence (low)
- 11 GENERALITIES - FOOD and DRINKS - eggs – desire

3b. Note the most prescribed rubrics can be seen clearly.



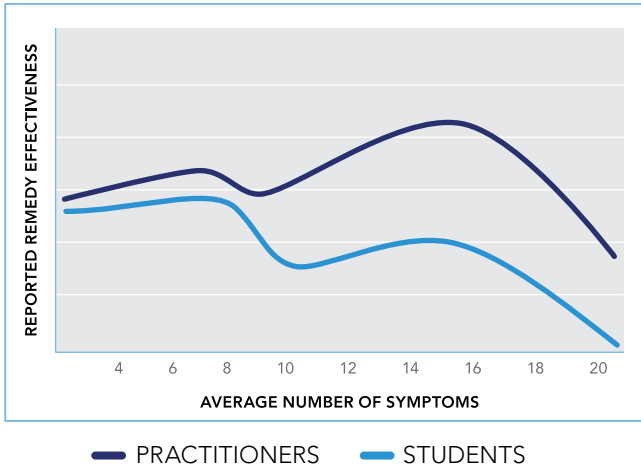
The graph demonstrates the general pattern of repertory use.

Some basic metrics

- The VC repertory currently comprises approximately 80,000 rubrics, of which 50% are yet to be used.
- 98% of rubric entries represent approximately 22,000 rubrics.
- 80% of all rubric entries represent approximately 3,000 rubrics.

This distribution demonstrates the relatively small set of rubrics which form the core of the homeopathic practice. The VC team has based the accuracy of the remedy pictures in the expert system on this core set of rubrics and will continue the process of additional confirmation for these rubrics. The minimisation of inaccuracies/errors in the core rubric set will ensure the best performance of VC. The addition of confirmed rubrics will aid the study of the effectiveness of rubrics outside the core set. Preliminary analysis results of reported prescription effectiveness show that even rarely used rubrics can be useful but are also associated with a higher rate of ineffective prescriptions.

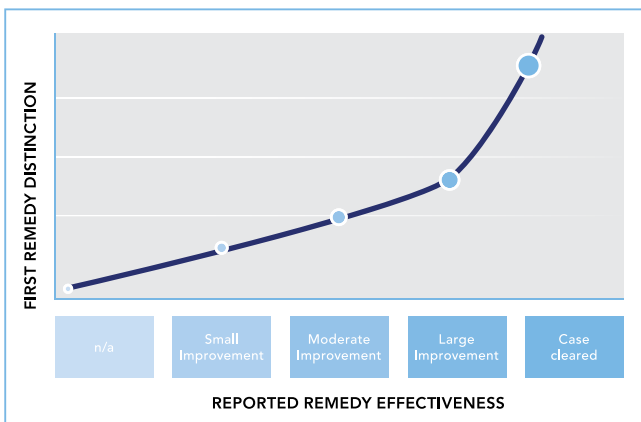
4. REPORTED PRESCRIPTION EFFECTIVENESS IN RELATION TO THE NUMBER OF SYMPTOMS



4a. This graph shows the relation between the effectiveness of the prescription and the number of symptoms used by the homeopath in seeking a remedy.

It can be clearly observed that less experienced homeopaths are more successful when using a smaller number of symptoms, about 7-9, while more experienced practitioners have reported significantly greater success when using about 16-18 symptoms. This graph clearly emphasises the importance of rubric selection in solving a case. Less experienced homeopaths need to be prudent about adding symptoms. The effect on the success rate of using the differential and the specific analysis functions and the importance of observing more frequently reliable symptoms will be among the subjects of more detailed study.

5. REPORTED PRESCRIPTION EFFECTIVENESS IN RELATION TO THE REMEDY SCORE DIFFERENTIAL



5a. The above graph shows that the remedy with the highest score is more effective as the difference between the scores of the second and third candidate remedies increases

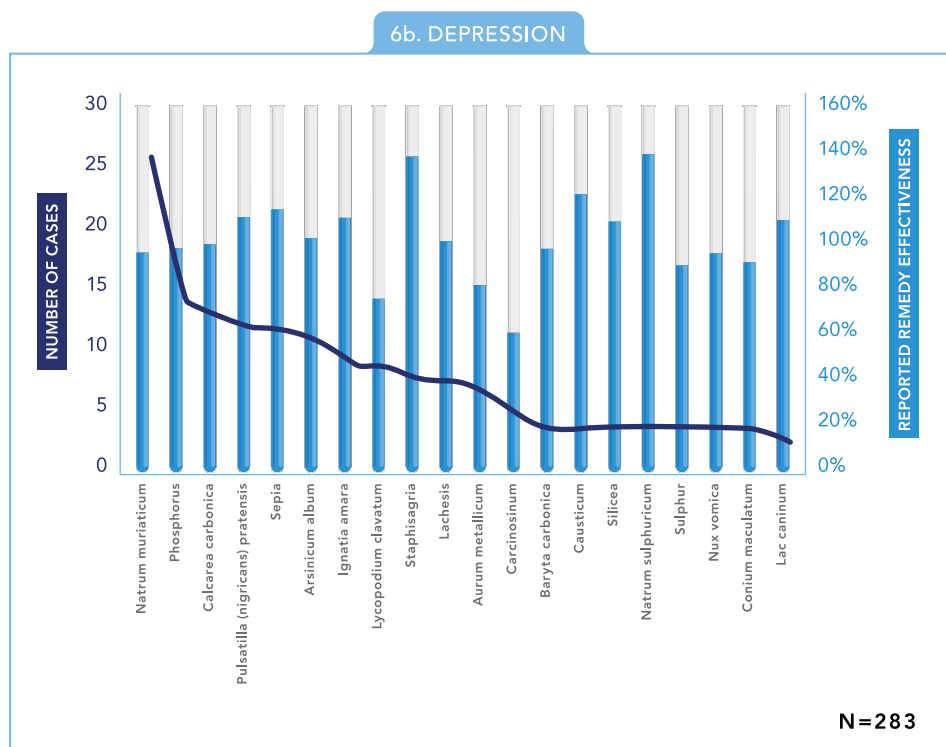
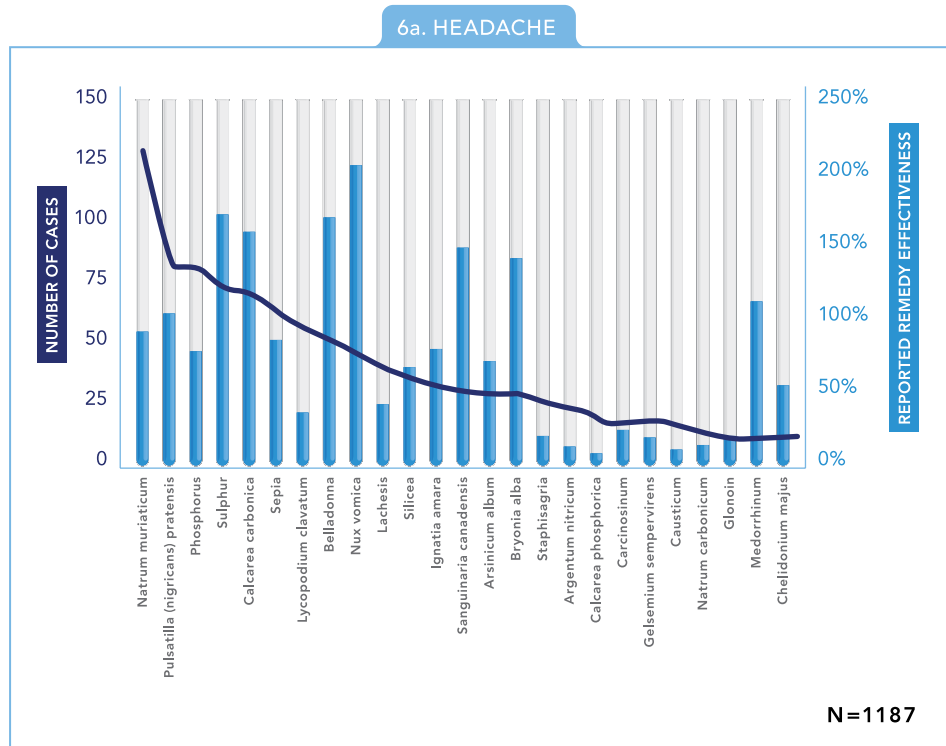
This metric is an indication of the general good performance of the expert system. The data is incomplete and statistical bias may be affecting the result, for example due to some patients who have not returned after their problem is solved. To increase the clarity and reliability of the expert system statistics, the plan of the VC team is to set up a special data gathering project involving interested homeopaths.

6. REPORTED PRESCRIPTION EFFECTIVENESS FOR SPECIFIC MAIN SYMPTOMS

The following tables show the reported effectiveness of prescriptions for specific main symptoms. The number of prescriptions for each remedy are shown in descending order as a line, and the reported remedy effectiveness is shown as a bar graph.

Headache / Depression

These graphs represent the preliminary work with relatively small data sets. Statistical analysis can go deeper in order to investigate the main symptoms which led to prescription of specific remedies and may bring to light patterns which reduce or increase specific remedy effectiveness. Thus the repertory and criteria for rubric selection/emphasis can gradually be optimised. The weakest link of the practice, namely rubric selection involving patient input, the homeopath's questioning and the repertory, will be a major focus of study for the VC team.



Statistics

7. SYMPTOM LIKELIHOOD RATIOS FOR REMEDIES

7a. The tables present the likelihood ratios of the prevailing symptoms for 3 remedies. In the VC data set the calculation of symptom statistics is generally straightforward. Such statistics can prove very valuable in developing the practice, whilst other possibilities for more advanced analyses include symptom combinations and pathology analysis.

REMEDY	SENSITIVITY	LR
Calcarea carbonica		
GENERALITIES - FOOD and DRINKS - eggs - desire	39.6%	6.1
GENERALITIES - FOOD and DRINKS - sweets - desire	38.5%	1.6
BACK - PERSPIRATION - Cervical region - sleep, in	30.8%	9.7
MIND - FEAR - high places	22.0%	2.4
MIND - ANXIETY - health, about	16.5%	1.3
MIND - FEAR - dark	15.4%	2.3
EXTREMITIES - COLDNESS - Foot	15.4%	2.9
GENERALITIES - COLD - agg.	12.1%	0.8
EXTREMITIES - NAILS - brittle	11.0%	4.5
GENERALITIES - FOOD and DRINKS - eggs - desire - boiled - soft	11.0%	9.0
Pulsatilla (nigricans) pratensis		
GENERALITIES - FOOD and DRINKS - fat - aversion	38.0%	3.4
MIND - CONSOLATION - amel.	34.9%	7.6
GENERALITIES - WARM - agg.	28.7%	2.9
GENERALITIES - FOOD and DRINKS - sweets - desire	26.4%	1.0
GENERALITIES - AIR - open - amel.	22.5%	4.6
MIND - WEEPING, tearful mood, etc.	21.7%	4.1
STOMACH - THIRSTLESS	20.2%	3.1
MIND - MOOD - changeable, variable, etc.	17.1%	4.1
EXTREMITIES - UNCOVER, inclination to - Feet	16.3%	3.1
MIND - OFFENDED, easily	14.0%	2.1
MIND - FEAR - high places	14.0%	1.4
Natrum sulphuricum		
EXTREMITIES - UNCOVER, inclination to - Feet	26.7%	4.1
GENERALITIES - FOOD and DRINKS - sweets - desire	26.7%	1.0
GENERALITIES - SYCOSIS (Sycotic Miasm)	26.7%	32.2
GENERALITIES - WEATHER - cold - wet - agg.	20.0%	8.3
GENERALITIES - FOOD and DRINKS - vegetables - agg.	20.0%	83.7
GENERALITIES - WEATHER - warm (hot) - wet - agg.	20.0%	26.5
MIND - SUICIDAL disposition	13.3%	13.4
RECTUM - DIARRHOEA - vegetables, after	13.3%	145.1
MIND - SUICIDAL disposition - thoughts - restrains himself because of grief given to relatives	13.3%	145.1
ABDOMEN - LIVER and region of	13.3%	22.7
GENERALITIES - STOOL - after - amel.	13.3%	241.8
GENERALITIES - WEATHER - wet - agg.	13.3%	9.8



Vithoukas Compass Research and Development

Principal areas of research include:

- New and innovative ways to systematize case-taking
- Tools for more effective usage of the repertory and rubric selection
- Knowledge management of homeopathic source materials
- Advanced data statistics
- Homeopathic studies and experiments
- Homeopathic educational tools

The VC team is always open to cooperate with practicing or research parties for the purpose of exchanging data and to participate in projects which promote well-founded homeopathic practice.

**To receive more information and apply
for a free trial, please visit our website.**

www.vithoukascompass.com

Online with an expert system

In line for a revolution in classical homeopathy



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