Paediatric Osteopathic Capabilities – an exploratory study and development of possible curricula and assessment concepts.

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Abstract

Aim: A mixed methods study to explore the KSA's required for osteopathic practice, how osteopaths prepare for paediatric practice, and osteopathic paediatric practice in New Zealand.

Method: Literature review, semi-structured interviews with established paediatric osteopaths in New Zealand and a postal survey to registrants of the Osteopathic Council of New Zealand.

Results: 10 interviews were held and the postal survey was sent to all (384) registrants at the time of the study, return rate 22%. 18.5% of people said they didn't treat children (n=15), 81% did (n=66). 36% were female osteopaths (n=29) and 40% were male (n=32), 6% did not declare gender.

Data was provided on 289 children (females n=144, males n=144) aged <1 week – 18 years, with 757 reported treatments (389 for males and 367 for females). Some gender bias in the number of times a patient was treated during the study period was noted: female osteopaths gave more treatments to males than females and male osteopaths gave male or females. The most commonly presented complaints across all ages and genders included neck pain, back pain sports related problems, colic, feeding problems, fussy infants, sleep disturbance and headaches. The most commonly delivered treatment types were

The descriptive terms used by osteopaths to illustrate their diagnosis and aims of management may not be readily understood by non osteopaths.

Conclusion: Most osteopaths had undertaken some form of post graduate training or further learning to support their paediatric practice. The KSA's determined as essential included: communication skills, technical ability, differential diagnosis and developmental progression understanding, paediatric pathologies, and anatomical and tissue quality differences between male and female. The Capabilities for Osteopathic Practice Document was deemed to mostly represent the criteria required for paediatric osteopathic practice. The overall consensus was that there was no need for a mandatory further proscribed award to be required to practice osteopathy on children, although some continuing professional development was recognised as necessary beyond most people's experience of their pre-entry level training and there was caution expressed in the ability of more recent graduates (or those new to paediatric work) to effectively or safely deal with young children under the age of 2.

Dedication

To my husband and family who generously gave of their time and support.

Preface / acknowledgements

Acknowledgement is give to the Osteopathic Council of New Zealand who supported this project financially and thanks is given to the chair Stiofan Mac Suibhne for his constant professional enthusiasm and encouragement in this endeavour. Thanks also to my supervisor, Assoc Prof Jennifer Weller.

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Glossary

Disclaimer: these are the authors own perceptions of these technique meanings and may not be agreed upon by other osteopaths, as terminology is a difficult subject for osteopath. However it is anticipated that most osteopaths will be fairly comfortable with most if not all these descriptions.

Balanced ligamentous tension

– a gentle technique where bony alignment is encouraged by holding the area ina neutral position until the surrounding ligamentous and capsular anatomy rebalances around a physiological axis.

Biodynamics

- A fluidic and energetic related concept to look at vitalistic and metabolic approaches to engagement with the person's physical body and health.

CAM

- Complementary and alternative medicines – which for the purposes of this study were defined as things like homeopathy, acupuncture, naturopathy, dietetics, herbalism, reflexology, reiki,, healing, and similar.

Osteopath

- Someone who practices osteopathy

Osteopathy

- A system of manual medicine that considers that structure and function are linked, that a person has a self-healing and self-regulatory ability, that mind, body and spirit are interconnected and mutually beneficial to health, that circulation and neural function is key to health and that manual medicine can interact with physiology and pathological processes and therefore engage with a person's health, well being and ability to recover from disease and trauma.

Osteopathy in the cranial field

- A very gentle technique which can be applied all over the body and considers that humans have a primary respiratory mechanisms, which is linked to cerebrospinal fluid flow, neural motility

(not akin to peristalsis) and is applied with an understanding of and engagement with the ongoing embryological formation and development of tissues

Indirect technique

- A physical technique which does not engage directly with a tissue barrier during a manaeovre
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Muscle energy technique

- A technique which uses the active participation of the person to contract or use their muscles in order to create fulcrums and tensions that will then help the biomechanical structures to better align themselves and to lead to a lessening of adverse myofascial tension

Rule of the artery osteopathy

- A technique which centres on circulatory aspects, and an engagement with the fundamental properties of tissues and their physiology through arterial flow and microcirculation perspectives, and therefore to a person's health and well being

1 Chapter One: Introduction

Thus study arose as a result of a number of initiatives of the Osteopathic Council of New Zealand (OCNZ).

Legislative regulation of osteopaths in New Zealand by the OCNZ has now been in place for 10 years. Osteopaths have to meet certain entry requirements to be eligible to apply to be a registered practitioner and are then bound by various codes of conduct. There are also published standards for osteopathic practice and a scope of practice statement all of which serve to give some insight into the practice of osteopathy in New Zealand.

However very little is known about the actual nature of osteopathic practice – for example, what types of patients consult osteopaths, what their problems are and what they wish to achieve, as well as what types of care they are likely to receive from the osteopaths, and what clinical outcomes they might expect. In addition the world wide level of evidence for a range of osteopathic interventions across a wide range of patient populations is very poor, and there is virtually no data on what constitutes current osteopathic care or clinical outcomes or efficacy in New Zealand.

Alongside the existing regulatory framework in New Zealand, Australia now has a national health practitioner regulatory authority (AHPRA), which over sees a number of allied health and medical professions. Osteopathy in Australia is one of these regulated professions and the Osteopathy Board of Australia (OBA) took its first national registrants in June 2010. As a consequence Australia has had to consider standards of practice and capabilities required of osteopaths. In New Zealand the OCNZ had already considered it timely to reflect on standards and capabilities, and to further develop discussions around scope of practice (see Appendix One for the OCNZ White Paper, Clear Skies report of Scope of Practice Reform), and especially as New Zealand and Australia are bound by the Trans Tasman Agreement which aims at equivalency of standards and practice between the two nations the time is ripe for more Australasia communication in this regard.

The OCNZ has been leading the development of Australasian standards based on work previously undertaken by the author of this research portfolio, as part of a project team at the University of

Technology, Sydney. That project, led by the author developed a series of osteopathic Capabilities for Osteopathic practice, which have now been adopted (or are in the process of being adopted) in New Zealand, and in Australia. The OCNZ then funded a project to explore the development of assessment processes for osteopaths wishing to practice in New Zealand but who had qualified overseas, or who had qualifications not recognised by the OCNZ. That work has then formed the basis of a larger funded project managed by the author on behalf of the Australian and New Zealand Osteopathic Council (ANZOC) an Australasian peak body with current assessing authority status for Australian Migration, and which accredits osteopathic education courses in Australia and New Zealand, to develop an assessment process for migrating osteopaths.

All of these projects set the stage for wider considerations such as scope of practice that the OCNZ are also undertaking. As part of those considerations, the OCNZ has already developed an extended scope of practice for those wishing to practice various needling or acupuncture techniques – osteopaths who wish that endorsement must undertake an additional proscribed qualification. Other areas of practice that are being considered by the OCNZ in regards to scope of practice are paediatrics, gerontology and pain management.

Against this background the OCNZ wished to explore the nature and extent of paediatric osteopathic practice in New Zealand, and consider what might be the capabilities required for osteopaths wishing to see paediatric patients. An overarching consideration is whether or not the current pre entry level / pre professional registration training of osteopaths is sufficient to underpin these capabilities such that all osteopaths should be able to see paediatric patients with no additional, extended or vocational scope constraints on their registration. If training is deemed sufficient then osteopaths should not need further special training in order to embark on paediatric osteopathic practice. Maintaining one's capability and competence is put to one side for the moment in this discussion. If pre entry level / pre registration training is not deemed sufficient then constraints may need to be placed on an osteopath's ability to practice in this field or scope, until further training has been undertaken or an osteopath is able to evidence their attainment of the appropriate capabilities and standards.

To move forwards in any of these areas of consideration it was clear that an understanding of paediatric osteopathic practice, and the capabilities required would need to be reached, as well as how osteopaths are best trained and prepared and evaluated and supported over time for this type of practice.

1.1 Pre entry level training

The educational biographies of osteopaths in New Zealand are many and varied. The majority of osteopaths practising in New Zealand have trained overseas, in a number of countries and from a number of different educational establishments, and they hold a range of qualifications from diplomas, to bachelors awards to masters awards or sometimes, or in past years, no awards at all. The learning outcomes of all of these institutions over the years will have been quite different, and so over time it is likely that many osteopaths in New Zealand now have a quite diverse set of education biographies that cover their initial training and any further learning they may or may not have undertaken for themselves. So the skill set and capabilities of osteopaths in practice is not currently well know, and this is particularly the case for paediatric practice, as most people informally recognise that the early clinical (pre entry level) training of most osteopaths was more limited with respect to paediatric patients than for adult patient populations and samples. Even current training institutions in Australia and New Zealand differ in the number of hours and range of paediatric clinical opportunities there are available for students.

1.2 Capabilities required for practice

In addition, although the OCNZ is now adopting the Capabilities required for practice as developed by the UTS team it is not certain if they are applicable for all areas of practice (although this was part of their intended design), and if the general osteopathic population of New Zealand actually meets those capabilities and standards (although they are required, or about to be required) to meet them. One of the main drivers for this study was to identify if these capabilities were indeed reflective of desired capabilities for paediatric osteopathic practice or needed revising or addition (the question of whether osteopaths are then currently meeting them is a separate issue).

1.3 Continuing education requirements

For many years osteopaths did not have to undertake any continuing education to maintain their registration. Although this is now altered under the OCNZ, the requirements are still not assessed, and content is not obligatory across all aspects of practice. Hence osteopaths have not been obliged to undertake continuing education in any subjects let alone paediatrics. This study should give some insight into how osteopaths working with paediatric patients have prepared themselves to do so, and if in fact they have undertaken any form of professional development or not.

1.4 Re-registration requirements

Ongoing competency reviews are not currently required by the OCNZ to maintain registration status. Whatever standards are ultimately required there will have to be an appreciation that the current range of capability within the profession may be more variable than desired. This study is not able to consider how such a situation might be resolved.

1.5 Practice setting of osteopaths

Osteopaths in New Zealand work as private healthcare practitioners, with primary healthcare responsibilities. Patients can consult osteopaths without a referral from any other practitioner, and osteopaths do not routinely work in mainstream healthcare services such as hospitals, GP practices or other care teams.

Osteopaths often work as sole practitioners, in rural or geographically wide spread locations, as well as in cities and large towns, and may or may not have associates join them in their practice for periods of time. Even when osteopaths work at the same osteopathic practice, they may do so at different times, and may not meet regularly in the course of their usual practice / patient lists.

Consequently work place based observation, assessment and mentoring is more challenging than for example general practitioners or nurses who routinely work in much larger teams, more closely together. Because osteopaths are usually self employed it is also not practicable for them to be required to work in other practices, as these may be long distances away and be too onerous in terms of travel and time away from work and earnings to be a source of efficient practice based learning and assessment for most osteopaths. Hence opportunities for peer discussions between osteopaths are limited, and working in multi-disciplinary environments or even as part of an inter-disciplinary team are much more limited.

In all of the above ways, the continuing learning opportunities for osteopaths are challenging, and someone wanting to embark on a career seeing paediatric patients may be doing so with limited undergraduate training, few requirements for continuous leaning or assessment in the field, in an unsupportive environment with few opportunities for direct clinical observations and interactions with more experienced peers, or other health care professions dealing with the same patients. This situation would clearly be disadvantageous for patients.

Conversely it may be determined that the capabilities that osteopaths have on graduation are very suitable for paediatric practice as undertaken by osteopaths (whatever that may mean), and that osteopaths are well placed and capable of supporting their own learning to sustain their paediatric osteopathic practice without major input from others or the need for formal further training and assessment. This would imply that osteopaths are currently adequately trained and capable of seeing paediatric patients, and this may be advantageous to patients.

This study was identified to begin to provide vital information and data to the above debate and considerations, and is seen by the OCNZ as a key first step in identifying a variety of factors to inform their discussions on the nature of, practice requirements and regulation of paediatric osteopathic practice in New Zealand.

1.6 Author as stakeholder

Another significant driver arises from the researchers own personal interest in paediatric osteopathic practice, and teaching role as an independent provider of post graduate osteopathic development courses. There is a huge demand for paediatric osteopathic courses, and students and graduate osteopaths alike continually report that their undergraduate programmes do not provide them with sufficient information and skills that they feel confident in embarking on paediatric practice without further training or guidance.

Whilst it could be argued that an education provider (i.e. the author) might have a conflict of interest in researching the capabilities required for practice on behalf of the regulatory authority, and in the light of the likely financial rewards to be gained through the application of that insight, the author and the OCNZ both felt that this study would benefit from the professional expertise and insight that the author could bring to the research role, and that this was therefore an over-riding consideration in the authors participation, and in the OCNZ's support of the author's student costs to undertake this study as part of the programme for the Masters of Clinical Education Award at the University of Auckland and the author will be providing a report to the OCNZ on the project outcomes, separate to this research portfolio.

It should be noted that the above points were highlighted in the ethics committee application for this study.

1.7 Outline of the Study

This study is concerned with considering whether osteopaths have a sufficient range of capabilities, underpinned by relevant knowledge, skills and attitudes, to meet the demands of paediatric osteopathic practice.

This study is highly important to help establish preliminary data which currently does not exist, as to the nature of paediatric osteopathic practice, the possible curricula required for its delivery and what a set of capabilities for paediatric practice may look like that encompasses the knowledge, skills and attitudes (KSAs) that not only osteopaths consider are required for their profession-specific approaches to paediatric care but which other healthcare providers and stakeholders also consider are necessary for the ethical, legal and safe practice of paediatric healthcare in New Zealand.

To develop a set of capabilities for paediatric osteopathic practice it is first necessary to consider what paediatric osteopathic practice might be and what type of curricula are required to meet these needs.

Data on whether osteopaths feel their undergraduate programmes sufficiently prepare them for the challenges of paediatric practice can be gathered but is not the primary focus of this study. This study is concerned with gathering data from a variety of sources about possible paediatric curricula for osteopaths, such that when all data is compiled, a provisional set of capabilities for paediatric osteopathic practice can be postulated and explored in an attempt to achieve consensus amongst the osteopathic community.

Brief consideration can be given as to what types of assessment approaches may support paediatric osteopathic practice, to highlight how such a set of capabilities may be able to be utilised within an osteopathic context. However, developing a proposal for assessments under a scope of practice or professional structure framework would not be an expected outcome for this study.

1.7.1 Key Research question

What capabilities for paediatric osteopathic practice are desirable in a New Zealand healthcare context?

Specific research questions

1. How widespread is the practice of paediatric osteopathic practice in New Zealand, and what types of paediatric patients and presentations do osteopaths encounter?

2. What do osteopaths do in terms of working with children? What knowledge, skills and attitudes (KSA) are required of osteopaths managing these paediatric patients?

3. Is there a gap between graduate KSAs and what is required for a paediatric osteopathic practitioner? If so, what KSA's are required to bridge it?

4. Where are these skills attained if not at undergraduate level and what is required to support maintenance of professional standards in paediatric osteopathy?

5. How are paediatric osteopathy skills assessed or how might they be assessed in a New Zealand context?

1.7.2 Basic aims of the study

1. Gathering information on extent and range of paediatric osteopathic practice (important for planning education). This will be done through surveys of practitioners. Results will illustrate the need / scope for undergraduate and continuing education.

2. Gathering information in surveys and interviews from osteopaths, students and experts about the KSAs. This will also include literature reviews. A list of KSAs will be produced from all sources, which will undergo a Delphi. Results will determine the required capabilities and thus the curriculum for undergraduates and CPD.

3. Gathering information on curricula and assessments – both current and potential – based on interviews and literature review. Results used as a starting point for planning an assessment regime (development of any actual assessment will be outside the scope of this study).

1.7.3 Significance

This significance is reflected in the outcomes listed below, the relevance of which has been introduced above.

1.7.3.1 Main Outcomes:

1) A picture of paediatric osteopathic practice in New Zealand, illustrative of patient presentations and osteopathic concepts in management.

2) A proposed set of capabilities underpinned by a review of the knowledge skills and attitudes required for osteopathic paediatric practice in a New Zealand healthcare context.

1.7.3.2 Secondary Outcome:

1) Preliminary data on curricula and assessment strategies which might support the set of capabilities in osteopathic professional life.

1.8 Outline of this research portfolio

Introduction

Given above, chapter one places the context of this study.

Literature Review

Chapter two will cover the literature review to support this study.

Methods

Chapter three will review and describe the methods used in this study

Results

Chapter four will illustrate the data, analyse the data and highlight points of interest.

Discussion

Chapter five will discuss the outcomes in general, and in the light of the literature review

Conclusion and areas for further research and study

Chapter six will cover the conclusions and discussion of future areas for study and research.

Appendices and references

These will follow after chapter six.

2 Chapter Two: Literature Review

2.1 Background to osteopathic practice.

Osteopaths practice primarily as self-employed sole practitioners (occasionally in a group practice of one, two or maybe three other osteopaths) and only very rarely in any formal contractual relationship with other healthcare providers. There are no specialisms in practice which require further credentialing or training after graduation / entry into the profession, and any osteopath who wishes to follow any particular group of patients, or focus any particular type of presentation does so under their own volition, supported by a variable and infrequently available collection of continuing education opportunities and does not need to provide evidence of awareness of or attainment of any particular standard for their ongoing osteopathic practice. As regulation currently stands in New Zealand the only time ongoing capability is assessed is if there is any complaint, or if the person wishes to migrate overseas. Even in these contexts competence review is not performed in the same way for each candidate in each jurisdiction or regulatory authority. Osteopaths working in New Zealand are regulated by the Osteopathic Council of New Zealand (http://www.osteopathiccouncil.org.nz/) which publishes competencies required for general osteopathic practice. These are assumed to be relevant for all patients.

Osteopaths develop special interests, their own personal professional style and follow protocols for treatment that can be mostly self-determined as the evidence base for osteopathic practice is limited.

For all patients this is of concern, but in particular paediatric patients offer their own unique and special needs which any healthcare practitioner must be aware of. As many osteopaths see paediatric patients the capabilities required for paediatric osteopathic practice should be defined and the question should be asked as to whether the capabilities that currently regulate osteopathic practice are sufficient for paediatric patient care as performed by osteopaths. Batalden's article on 'General Competencies And Accreditation In Graduate Medical Education' (Batalden, Leach, Swing, Dreyfus, & Dreyfus, 2002) sets the case for developing competencies and identifies an approach to this objective which informs this study.

2.2 Use of CAM therapies

The uptake of CAM therapies by patients, and referrals from medical practitioners to CAM therapists including manipulative therapists appear to be common (Boon, Verhoef, O'Hara, & Findlay, 2004; Greene, Smith, Allareddy, & Haas, 2006; Hollenberg, 2006; Poynton, Dowell, Dew, & Egan, 2006) and there is considerable interest in CAM (including manipulative therapies) among primary care professionals (van Haselen, Reiber, Nickel, Jakob, & Fisher, 2004). Indeed, non medicinal therapies along with chiropractic and osteopathy are now widely accepted in Australia and can be considered mainstream (Cohen, Penman, Pirotta, & Da Costa, 2005) whilst general practitioners appear to underestimate their patients' use of many CAM therapies (Pirotta, Cohen, Kotsirilos, & Farish, 2000).

Complementary and alternative medicine (CAM) is a thriving sector in Australian health care which remains largely disconnected from the health mainstream. Social forces are coercing the two health systems into relationship in an ad hoc and uncoordinated manner as institutions and professions respond to consumer needs for integration (McCabe, 2005), and there is an increasing need for allopathic healthcare practitioners to be better informed about CAM therapies (Giordano, Boatwright, Stapleton, & Huff, 2002). Increasingly, the use of CAM practitioners is also being included in mainstream care regimen guidelines, requiring a further level of 'integration'. (Note: integrated healthcare is also further discussed below, see page 27).

As there remains a wide variation in claims (often unsubstantiated with evidence) about which CAM therapy is best suited for which condition (Long, Huntley, & Ernst, 2001), this creates confusion for patients and providers alike (Hsiao et al., 2006). Despite this, research indicates (Sherman et al., 2004) that patients are willing to try a range of therapies outside the mainstream healthcare delivery system, indicating that increased research and education is required. In fact, inclusion of education about CAM therapies in healthcare education settings is not only thought to be desirable (Wetzel, Kaptchuk, Haramati, & Eisenberg, 2003) but may help professionals answer increasing patient inquiries about CAM therapies (Kreitzer, Mitten, Harris, & Shandeling, 2002).

As stated elsewhere it is hoped that this study will contribute to the understanding of what paediatric osteopathic care is in New Zealand today.

2.2.1 Health seeking behaviours in osteopathic paediatric care

The health seeking behaviours mentioned above relating to general CAM use extends to osteopathic patient groups. A number of parents and carers seek osteopathic care for their newborns and children. Many are self-referred and some others may be pointed towards osteopaths from traditional or mainstream health care providers or information sources (such as the Christchurch Hospital Women's Health Service post natal depression webpage http://www.cdhb.govt.nz/cwh/maternity/post1.htm). However, patient expectations and those of other healthcare providers regarding the nature of the potential care by osteopaths for paediatric patients may be varied or unable to be determined because of the lack of clear guidelines for practice, any defined scope of practice and lack of formal post-graduate or continuing professional development courses (leading to qualifications) that are required for any sort of defined career pathway or employment opportunity for osteopaths.

As stated elsewhere in this research portfolio, there is also limited evidence to define what on osteopaths sees paediatric patients for, what types of care are administered, what outcomes are expected and what possible risks paediatric patients are exposed to when consulting an osteopath. Some insight into types of patients and conditions seen by osteopaths can be gathered from various sources though, and one example is within a listserve originated by the American Academy of Osteopathy (http://www.facebook.com/pages/Postgraduate-American-Academy-of-Osteopathy/190852298434), there is a compilation of conditions seen by osteopaths within the PediSIG group which include otitis media, suckling difficulties, positional plagiocephaly, and autism. This PediSIG is a group of qualified osteopaths in America who have a special interest in using osteopathic care for paediatric patient populations. Their list is comparable to that discussed informally within the New Zealand osteopathic profession.

2.2.2 So, do babies 'need' what osteopaths do?

This is an important question especially as many osteopaths could be accused of treating only the 'wealthy well'. This may or may not be unfair, but is worth exploring. The debate surrounding the libel case of Singh versus the British Chiropractic Association (BCA) is very interesting, and goes right to the heart of these concerns.

> According to an internet user (http://skeptvet.com/Blog/2010/04/simon-singh-ins-a-victory-in-bca-libel-suit, accessed 04/02/2010):

> "the lawsuit stems from an article Dr. Singh wrote in the Guardian newspaper criticizing the BCA for promoting chiropractic treatment for clearly inappropriate conditions despite clear evidence against doing so. In the article, Dr. Singh says:
>
> **"The British Chiropractic Association claims that their members can help treat children with colic, sleeping and feeding problems, frequent ear infections, asthma and prolonged crying, even though there is not a jot of evidence. This organization is the respectable face of the chiropractic profession and yet it happily promotes bogus treatments."** "

Note: as the article has been formally withdrawn it is accessible only from various internet contributors who provide it on their own volition, such as http://svetlana14s.narod.ru/Simon_Singhs_silenced_paper.html which provides the link given just above.

This article caused much debate and resulted in the BCA suing Mr Singh for libel. This matter was resolved in April 2010, with the BCA discontinuing its libel suit against Mr Singh (http://www.chiropractic-uk.co.uk/gfx/uploads/textbox/Singh/BCA%20Statement%2015th%20April%202010.pdf, accessed 04/02/2011) as despite an earlier ruling that the article was defamatory, the appeal took a different view.

Although that debate centred on the BCA's support of the descriptions (and delivery) of chiropractic practice by its members, osteopathic care is now being scrutinised and similar commentary is emerging in criticism of osteopathic practice. There are many such blogs, commentaries and social media messaging on this topic, and one has been picked out to illustrate:

http://answers.yahoo.com/question/index?qid=20100902162702AA1CmO2 accessed on 26/2/11

Here people are criticising New Zealand osteopaths for making claims about their paediatric osteopathic practice which the commentators find confusing or misleading. Note: including this reference here does not in any way constitute the authors opinion of the osteopaths involved in this reference, nor of their paediatric practice, and should not be read as an agreed criticism of their work, or as an indication of bad practice. It merely serves to illustrate the presence of some of the concerns or issues.

2.2.3 Evidence for paediatric osteopathic practice

It is outside the scope of this study to explore and critique the evidence base for paediatric osteopathic practice, beyond stating that it is an essential component to understanding that practice, and the outcomes of any such investigation are clearly essential to the underlying knowledge, skills and attitudes that inform any curriculum in paediatric osteopathic practice, its assessment and any group of overarching capabilities and competencies for practice required by the relevant regulatory authority.

In the absence of such evidence it is essential that the public and other healthcare providers are not mislead or confused about osteopathic are of paediatric patients. There is a lot of confusion regarding these matters, which this study cannot address in full but it is hoped that some greater understanding will emerge as a result of this study. Some limited evidence commentary is provided though, as an illustration.

2.2.3.1 Limited evidence review

The following topic areas have been identified in the literature, which are of interest:

- Osteopathic palpatory examinations and treatment
  - How reliable are the palpatory findings, is there much inter-rater agreement, and how this can be approved? Osteopaths use palpation as their prime mode of diagnosis and treatment, and so their skills in this area need to be explored, the accuracy of findings and their reproduce ability, as well as the relevance of any palpatory findings to the clinical presentation.
    - This has not been much explored with respect to paediatric practice, but some evidence is emerging within general spinal and muscular palpation and examination. Here the evidence continues to point out that there is limited reliability and reproducibility, but that training and consensus between assessors improves these aspects.

      1.Content validity of manual spinal palpatory exams - A systematic review. Najm WI, Seffinger MA, Mishra SI, Dickerson VM, Adams A, Reinsch S, Murphy LS, Goodman AF. BMC Complement Altern Med. 2003 May 7;3:1. Epub 2003 May 7. Review.

      2.Reliability of spinal palpation for diagnosis of back and neck pain: a systematic review of the literature. Seffinger MA, Najm WI, Mishra SI, Adams A, Dickerson VM, Murphy LS, Reinsch S. Spine (Phila Pa 1976). 2004 Oct 1;29(19):E413-25. Review.

      3.Interobserver reliability of osteopathic palpatory diagnostic tests of the lumbar spine: improvements from consensus training. Degenhardt BF, Snider KT, Snider EJ, Johnson JC. J Am Osteopath Assoc. 2005 Oct;105(10):465-73.

- Osteopathic terminology
  - Profession specific terminology can provide barriers to communication, which is not helpful to effective patient care between providers. It hampers research and limits inter-professional dialogue and understanding. There is limited standardisation in osteopathic terminology, and much work needs to be done in this area. Some commentary has begun in the general manual medicine literature, but this needs to begin in earnest within the osteopathic arena.

4.A Model for Standardizing Manipulation Terminology in Physical Therapy Practice. Mintken PE, Derosa C, Little T, Smith B; for the American Academy of Orthopaedic Manual Physical Therapists.. J Man Manip Ther. 2008;16(1):50-56.

5.Manual physical therapy: we speak gibberish. Flynn TW, Childs JD, Bell S, Magel JS, Rowe RH, Plock H. J Orthop Sports Phys Ther. 2008 Mar;38(3):97-8. Epub 2008 Feb 27.

6.AAOMPT clinical guidelines: A model for standardizing manipulation terminology in physical therapy practice. Mintken PE, DeRosa C, Little T, Smith B; American Academy of Orthopaedic Manual Physical Therapists. J Orthop Sports Phys Ther. 2008 Mar;38(3):A1-6. Epub 2008 Feb 29.

- Professional identify

7.Complementary oppositions in the construal of self and others. Koch E. J Psycholinguist Res. 2008 Sep;37(5):355-71.

11.[Manual therapy, chiropractic, osteopathy. From alternative therapy to medicine]. Ylinen J, Piispanen J, Silen K, Airaksinen O. Duodecim. 1996;112(14):1264-73. Review. Finnish. (translated by some Finish osteopathic colleagues).

- Patient profiles

8.Patient characteristics and quality of life among a sample of Australian chronic pain clinic attendees. Kerr S, Fairbrother G, Crawford M, Hogg M, Fairbrother D, Khor KE. Intern Med J. 2004 Jul;34(7):403-9.

12.Complementary medicine use in children: extent and reasons. A population-based study. Simpson N, Roman K. Br J Gen Pract. 2001 Nov;51(472):914-6.

13.Survey of complementary and alternative medicine use at a tertiary children's hospital. Lim A, Cranswick N, Skull S, South M. J Paediatr Child Health. 2005 Aug;41(8):424-7.

14.Use of complementary and alternative medicine in pediatric otolaryngology patients attending a tertiary hospital in the UK. Shakeel M, Little SA, Bruce J, Ah-See KW. Int J Pediatr Otorhinolaryngol. 2007 Nov;71(11):1725-30. Epub 2007 Aug 21.

- Patient presentations

9.Towards evidence based medicine for paediatricians. Is cranio-sacral therapy useful in the management of crying babies? Bradley E, Finlay F. Arch Dis Child. 2009 Jul;94(7):555-6. Review.

10.Cranio-sacral therapy and the treatment of common childhood conditions. Attlee T. Health Visit. 1994 Jul;67(7):232-4.

2.3 Integrative healthcare background.

In all aspects of healthcare government policy is increasingly requiring an integrated approach to patient care and that patients (consumers) are to be involved in the care process. However a definition of 'integrated' remains in question (Boon, et al., 2004), and the lack of clear roles and boundaries for paediatric osteopathic practice and required capabilities only serves to complicate this debate.

Complementary and alternative medicine is a thriving sector in Australian healthcare which remains largely disconnected from the health mainstream. There are a variety of claims by CAM therapies (often unsubstantiated by evidence) as to which is best suited for whatever condition (Long, et al., 2001) and this creates confusion for patients and providers alike (Hsiao, et al., 2006). Despite this research indicates (Sherman, et al., 2004) that patients are willing to try a range of therapies outside the mainstream healthcare delivery system indicating that increased research and education is required. Accordingly, social forces are coercing the two health systems into a relationship in an ad hoc and uncoordinated manner as institutions and professions respond to consumer needs for integration (McCabe, 2005).

2.3.1 Healthcare system arena in New Zealand

Orientation to any enquiry into paediatric osteopathic capabilities involves considering the healthcare system and environment in which osteopaths work in a New Zealand context. The Paediatric Society of New Zealand Position Paper of 2004 http://www.paediatrics.org.nz/index.asp?pageID=2145878337 entitled 'Improving Coverage of Well Child Care and General Practitioner Care' notes that:

- "The Health and Disability Commissioner's Code of Health and Disability Services Consumer Rights includes the obligation for "….services provided in a manner that minimises the potential harm to, and optimises the quality of life of, that consumer" and "…..co-operation among providers to ensure quality and continuity of services"
- The New Zealand Health Strategy includes well child care as a New Zealand health goal,
- The Primary Health Strategy and The Child Health Strategy state well child care as a priority".

Currently there are no set guidelines as to curricula content for paediatric practice for osteopaths, no defined scope of practice or agreed capabilities (encompassing the required knowledge, skills and attitudes required for paediatric osteopathic practice) and therefore individual osteopaths seeing paediatric patients have no nationally applicable regulatory guidelines for their paediatric practice. Thus it may be that osteopaths are not aligning their care towards paediatric patients in the best possible manner as there are no published or researched criteria upon which to consider and evaluate their approaches to paediatric patients. In such as environment it is not possible to state that paediatric osteopathic care is aligned with the emphasis contained within the position statement of the Paediatric Society of New Zealand referred to above.

Key point:

In this context in cannot be determined that paediatric osteopathic practice meets the best practice emphasis for health care delivery for paediatric patients in New Zealand. Establishing capabilities for paediatric osteopathic practice would inform regulatory authorities, educational institutions and other stakeholders such as patients, parents and the wider healthcare community as to the relevant and possible placement of osteopathy in an integrated approach

to paediatric healthcare in a New Zealand context. It would also serve to inform osteopaths as to the nature of the capabilities they should have attained prior to establishing a paediatric practice, serve as a guide in their own personal professional development programmes, inform educational providers about the standards and curricula required for undergraduate and post-graduate curricula for osteopaths, and be informative to other future researchers exploring this subject.

2.3.2 Role confusion as a barrier to integrative care

Integrated healthcare, as in interdisciplinary care, interprofessional referrals and incorporation of allied health initiatives into mainstream healthcare delivery requires clear definitions of roles (in terms of cost, patient outcomes and professional satisfaction) to be effective (Jones, 2005), and issues of professional identity are common findings in research of interprofessional relations and collaborative care teams (Hind et al., 2003; King & Ross, 2003). A modern healthcare culture of professions such as chiropractic and osteopathy is still emerging, and with self-identity is recognised as important to integration with other providers (Nelson et al., 2005). Scope of practice clarification alongside establishing defined sets or domains of capabilities required for practice are central for roles and boundaries in integrated healthcare systems to be well understood and for improved patient care to be achieved. It is hoped that this study will begin to lift the veil on the nature of paediatric osteopathic practice.

2.3.3 Professional identities literature

Discussions on how to achieve integrative healthcare, or even inter-disciplinary or multi-disciplinary healthcare which do not require participants to engage as closely need to acknowledge the findings within the professional identities literature. This literature gives insight into how communities and groups perceive themselves, their roles and boundaries, and their place in the healthcare system hierarchy in which its practice is located. Again although there is little of direct relevance to paediatric osteopathic practice there is no reason to believe that it will operate counter to the identified trends within the professional identities literature – some of which are highlighted below.

During the interviews and data analysis some consideration of these themes will be undertaken to see if there is any clarification as to professional identifies issues amongst paediatric osteopaths which might be of interest to this study.

2.3.3.1 Social identity theory literature

To further contextualise this research, it is useful to highlight that there are several approaches to the study of the professions, and these include the application of social identity theory (Tajfel H & JC, 1986.) and the communities of practice theory (Lave & Wenger, 1991). This latter will be discussed below.

Social Identity theory asserts that group membership creates self-categorisation and enhancement in ways that favour the ingroup at the expense of the outgroup (Jetten, Spears, & Postmes, 2004), or low status versus high status groups (Boen & Vanbeselaere, 2001).

2.3.3.2 Communities of practice literature

The community of practice theory is concerned with knowledge acquisition that is collaboratively created, where each member is valued, and the aim is to develop all members, including the less-experienced through considering all to be full members of the community with shared interests. The community of osteopathic paediatric care providers has not been much studied and it is not certain across that group what constitutes effective practice, reasonable practice or what standards should be applied. Some evidence might emerge within the data as to whether there is a type of community of paediatric osteopathic practise in New Zealand, and if that is the case, it may well be able to be researched.

Ideally all members of a community of learning and practice have equal status, but this might not be the case, and this might negatively impact on the functioning of that community. Seemingly the learning and development within the communities of practice model could not operate if members within the community were unequal, i.e. were operating on an ingroup-outgroup basis, which can limit knowledge acquisition and sharing (Nadler & Halabi, 2006). Consequently lack of intra- (also also presumably inter) professional communication and awareness may be a bar to best practice development through being unable to be informed by 'other' professional actions and research. It is the author's suspicion that there may be a type of community operating, but that there already exist sub-groups with differing status, and that practice communication is already being hindered between osteopaths, let alone with respect to other healthcare communities or even patients. Data on this issue may or may not emerge as a result of this study.

Placing the community of osteopaths within, alongside or in some relation to other communities of practitioners, such as paediatricians, general practitioners, extant multidisciplinary health care teams and so on may be a challenge in the absence of a clearly defined and well functioning community of paediatric osteopaths. Putting people together in some sort of closer proximity the naturally forms wider communities, that have to learn to function together, under the umbrella term of 'integrative health care'. Finding a way to make these wider communities more functional would be useful, and interprofessional understanding and dialogue must be central to that process. It is anticipated in the literature that as professions naturally work together more (A. McCallin, 2005), learn together more (Hammick, Barr, Freeth, Koppel, & Reeves, 2002; Hind, et al., 2003; King & Ross, 2003), research together more (A. M. McCallin, 2006), and generally become more aware of others roles, boundaries and potential contributions (Reeves, Freeth, McCrorie, & Perry, 2002) that integrative care may be more realistic and achieve improved patient care outcomes.

Integrative healthcare including CAM therapies and in particular paediatric osteopaths is thus an under-explored 'community of practice' within the literature and it seems that CAM therapies (including osteopathy and chiropractic) may operate under the social identities theory as well as the communities of practice theory. Data to support these concepts will hopefully emerge from this study. And if as a result of this study more formation is available about osteopathic practice, this can only serve to further interprofessional dialogue and education.

2.4 Practice and Practice Theory literature

When one is considering the ability of osteopaths to provide appropriate care for people the following question is very important:

'What is practice and how should performance be considered?'

The following quote indicates a need for appropriate definitions:

> 'To promote adequate care it is necessary first to define it' (p. 494) (Saturno, Palmer, & Gascon, 1999)

2.4.1 Practice definitions

The following discussion (till 2.4.2) is from Stone[1], Boud and Hager (unpublished, 2010) and illustrates the differences between these approaches to practice definition:

Current literature on the nature of practice and its relationship to assessment and learning draws out various concepts of practice (Kemmis, 2005; Schatzki, 2001; Schwandt, 2005). These include that it must be situated, contextualised and related to the 'people doing it' and 'having it done to them'. Schwandt amongst others has looked at the practice traditions and has formulated 2 models that represent types of practice:

Model 1: is based in scientific knowledge traditions. Practice is seen as an array of "techniques that can be changed, improved or learned independently of the 'contingent and temporal circumstances" in which practices are embedded. To achieve this, such knowledge must by definition eliminate the inherent complexity of the everyday thinking that actually occurs in practice.

Model 2: draws from practical knowledge traditions. Practices are fluid, changeable and dynamic, characterised by their 'alterability, indeterminacy and particularity'. In this model, knowledge must be a flexible concept, capable of attending to the important features of specific situations. Practice is understood as 'situated action'.

> "Schwandt's $Model_1$ (see **Error! Reference source not found.**) includes a cluster of approaches ased broadly in scientific knowledge traditions, while his $Model_2$ is based in what he calls the practical knowledge traditions. The first is strongly present in much current discussion promoting evidence-based practice and accountability measurement. The relation of practice to knowledge is instrumental and based on means-end rationalities. The goal is to find efficient means to an end—improvement in practice of one kind or another. Knowledge is always understood as being 'about something' (p 317) that is distinct from the knowing subject and can be 'applied' to the object. In $Model_1$ practice is seen as an array of 'techniques ' that can be changed, improved, learned etc, independently of the 'contingent and temporal circumstances'

[1] Stone – Caroline Stone is the same person as the author of this thesis, Caroline Dean.

(p 317) in which practices are embedded. The kind of knowledge generated about practice ought to be 'explicit, general, universal and systematic' (p 318). To achieve this, such knowledge must by definition eliminate the inherent complexity of the everyday thinking that actually occurs in practices.

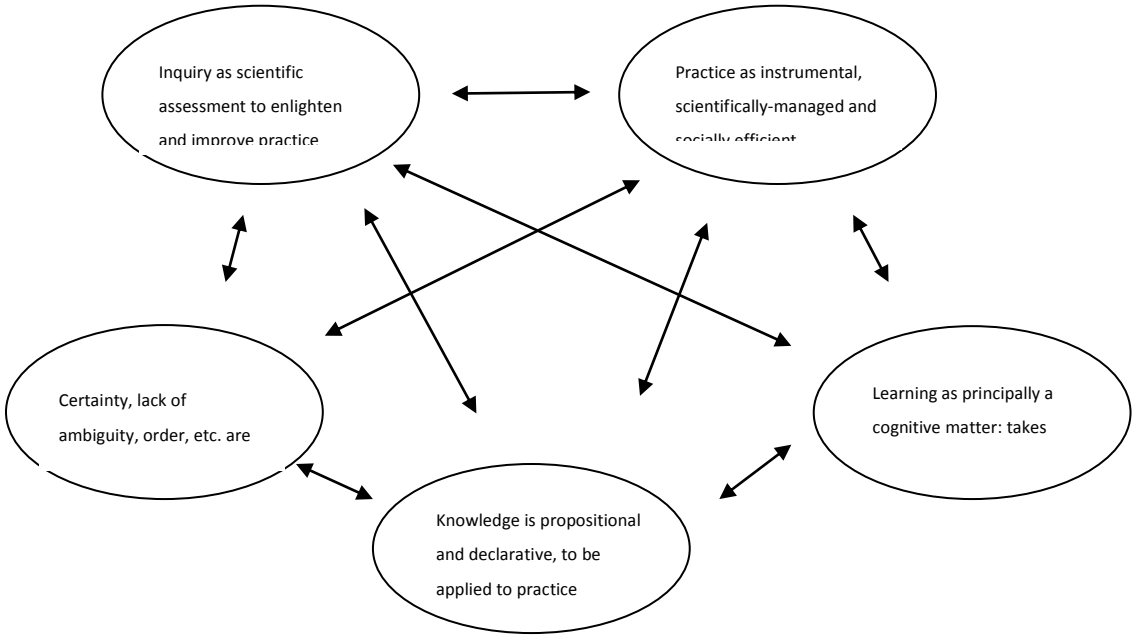


Figure 1: Schwandt's model 1

Model$_2$ (see **Error! Reference source not found.**), in contrast, takes up ideas about practice of eople such as Schatzki (Schatzki, 2001) , who sees practices as 'embodied, materially mediated arrays of human activity centrally organised round shared practical understanding' (p 2). Practice in Model$_2$ is 'human activity concerned with the conduct of one's life as a member of society'. Practice is a 'purposeful, variable engagement with the world' (p 321). Practices are fluid, changeable and dynamic, characterised by their 'alterability, indeterminacy and particularity' (p 322). What is important is the specific situation in which particular instances of practice occur and hence the context-relativity of practical knowledge. Knowledge must be a flexible concept, capable of attending to the important features of specific situations and so on. Practice is understood as 'situated action'. "

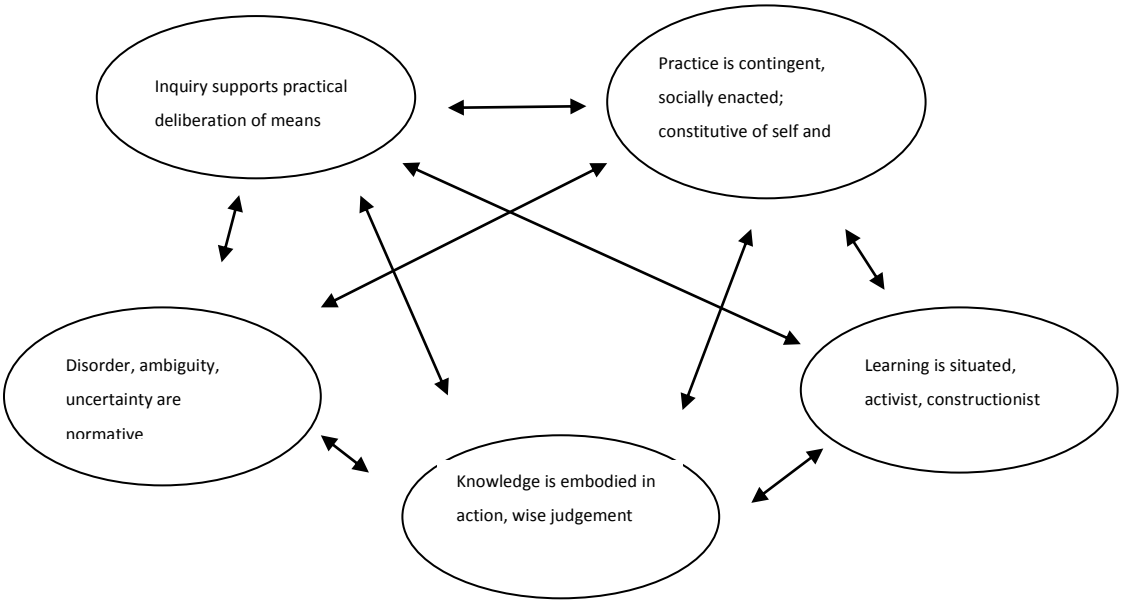


Figure 2: Schwandt's Model 2

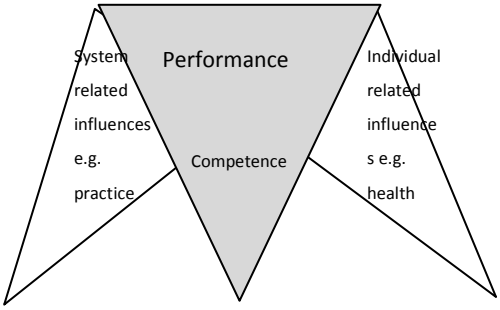
2.4.2 Competence or capability – what to assess?

From a regulatory perspective the protection of the public and the maintenance of appropriate standards in practice indicate the need for professionals that can monitor their own competence, meet any required ongoing performance reviews and be capable of adapting their learning needs and actual practice based on a continuous review of their work and of their own personal professional capability on an individual case basis over time. Performance in such a context can be many different things, depending on the particular situation encountered by a particular individual at any given time.

It is important that any assessment process aims to capture the candidate's ability to perform across a range of situations, and over time.

Much of the literature on competence assessment has utilised Millers work (Miller, 1990), which organises competence in relation to a triangle, with a hierarchy or components from knows, knows how, shows how, and does. 'Does' relates to the actual doing of the task, and for a long time was equated with competence. However, the use of Millers triangle is now considered outdated, or at least in need of further development. Rethans (Rethans et al., 2002) has described the Cambridge Model, which furthers the concepts of Millers triangle adapting it for issues such as performance review and the long term monitoring of clinical practice (see Figure 3).

Figure 3 Cambridge Model



Miller's model and the assessment processes based on it are best suited to a one-shot in time style of high stakes assessment which considers the current competence of a practitioner, but this is not the best approach for reviewing ongoing professional capability as it is more suited to the assessment of decontextualised competence, not performance and capability across a range of situations and cases. For this the Cambridge model as described above is more suitable, as it recognizes the situated nature of practice, and how performance over time is challenged by a variety of factors.

A further way of interpreting Miller's work in the context of the assessment of capabilities as opposed to competencies, and which can be complementary to the Cambridge model, has been described by Sturmberg (Sturmberg & Farmer, 2009), and their summary of the components needed to assess capability is shown in Figure 4.

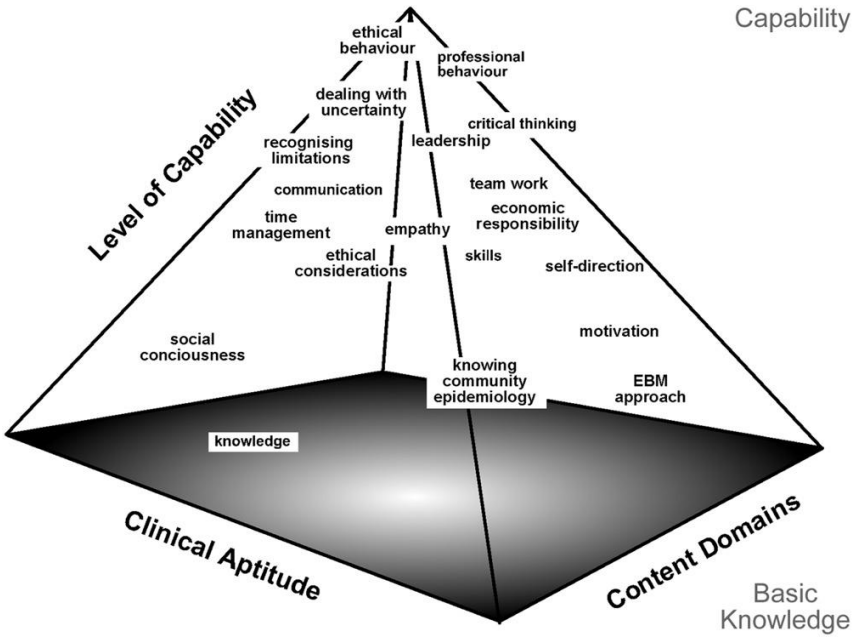


Figure 4: Sturmberg's Capability Components

This begins to represent the capabilities needed in a modern healthcare care provider, where as evidence based dogma recedes(Sturmberg, 2009; Tonelli, 2006), it is replaced with an understanding that there is much subjectivity and variability leading to uncertainty in health and healthcare (Sturmberg, 2010).

Seen in this light, the number of components needed to be included within an assessment process that is broadly encompassing of these concepts becomes quite large. This fact impacts on assessment tool choice, and means that the range of tools needed to be considered is potentially quite large.

2.4.3 Relationship to learning and assessment

Any assessment process must be oriented to an appropriate definition of practice, and be capable not only of screening individuals who currently meet that standard, but who also appear capable of maintaining their capabilities in the face of clinical complexity and changing evidence and be able to meet the challenge of future clinical uncertainty effectively. Thus a credentialing exam at a profession's point of entry into their work is unlikely to ensure ongoing capability, and repeated and differing

assessment strategies may be required if stakeholders are to reassure themselves as to an osteopaths ongoing capability in any given field of work, such as paediatrics.

As Kaslow states:

> 'embracing the culture of competency assessment may require a shift of focus toward the ongoing maintenance of competence as a primary goal and the promotion of both an internalized and institutionalized assessment of that competence at all phases of the professional life span', page 441 (Kaslow et al., 2007)

Boud (Boud, 2009) summarises the implications for assessment:

> "Practice and practice theory point to a number of features we need to consider in assessment. The first is the notion of context knowledge and skills used in a particular practice setting. The kinds of knowledge and skills utilised depend on the setting. Secondly, bringing together knowledge, skills to operate in a particular context for a particular purpose. Practice involves these together, not each operating separately. Thirdly, knowledge and skills require a disposition on the part of the practitioner, a willingness to use these for the practice purpose. Fourthly, there is a need in many settings to work with other people who might have different knowledge and skills to undertake practice. And, finally, the need to recognise that practice needs to take account of and often involve those people who are the focus of the practice."

2.4.4 Osteopathic and paediatric context

Considering the nature of osteopathic care in Australasia for the 21st century is a challenge and how all of the above factors are expressed within osteopathic paediatric practice is not currently understood. One starting point would be to reflect on whether the nature of osteopathic practice follows the broader concepts and definitions as introduced, or not. It is hoped that the data from this study will give insight into this, and therefore help support arguments for a proposed professional support strategy to ensure attainment and maintenance of paediatric osteopathic capabilities.

2.4.5 Professional Structures to support paediatric osteopathic practice

All of the above discussion on assessment and capabilities then is relevant to the type of professional support structure used for paediatric osteopathic practice.

A support structure might range from peer discussions, and informal networking, it might be a requirement to attend a number of non award based continuous professional development courses over time, or it might involve the need for prescribed qualifications and changes to the scope for practice for those that do not hold them, for example. Depending on the nature of support or professional requirement identified and adopted the assessment strategy to work alongside that support would vary.

As the practice definitions and theories identified here are strongly aligned with work placed learning and assessment principles, it is likely that work place based learning and assessment tools would be a reasonable choice when wishing to assess or support paediatric osteopathic capabilities and practice. However, given the geographical spread and sole-practitioner basis for many osteopaths work context, there are logistic challenges to work placed assessment to be considered. Another component or set of tools might be a mentoring approach, used to support some form of work place based assessment process.

It is hoped that this study will gather data on the expert osteopaths' opinions as to the suitability and practicality of such approaches to professional structure, or if they favour other approaches.

3 Chapter three: Methods

3.1 Ethics

Approval was sought and granted from the ethics committee of the University of Auckland, via two applications, as will be explained below.

3.2 Researchers position

The researcher is an osteopath, of 25 years standing, originally qualifying and practising in the UK, and moving to Australia a few years ago. The researcher is active in the profession both in New Zealand, Australia and the rest of the world and has a wide ranging knowledge of different osteopathic professional contexts. Researching one's own profession and other comparative occupations requires particular sensitivities, honesty and rigorous reflection to reduce bias and improve validity. However, being a member of one of the professions to be studied can give the researcher special insight into the research area, which should be encouraged and declared (Lather, 1991). The awareness of her own profession and that of physiotherapy and chiropractic over the years, nationally and internationally has lead to the researcher's interest in the nature of osteopathy, scope of practice and assessment issues and what might underpin the 'best practice' for the profession.

3.3 Methodology

This is a mixed methods study.

1. Literature / document review
2. Interviews with experts (exploring the extent of paediatric osteopathic practice /range of conditions seen, the knowledge, skills and attitudes (KSA) the individual feels is required, their personal educational journey, and data on assessment they have undertaken in paediatric osteopathy). This will use a semi-structured interview format which will be consistent between interviewees.

3. Survey (mirroring the above - extent / range of osteopathic practice for paediatric patients, educational journey, assessment). Note: here, the KSA's component will be using data gathered from the expert interviews above, so some supplied items may be surveyed using a Likert scale, with a small space available for suggestions for other KSA's that the individual feels are lacking from the list.

3.3.1 Data searches regarding paediatric curricula, knowledge, skills and attitudes

Literature searches through Medline, CINHAL and Ask Eric produced no relevant literature on osteopathic paediatric capabilities or KSA's.

The following two documents were reviewed, which were course documents outlining learning outcomes and underlying curricula relating to the study of osteopathic paediatric practice.

1) University of Auckland Medical Paediatrics Curriculum / learning outcomes document. These are the learning outcomes for 5th year medical students, and perhaps cover issues which are roader than those required for paediatric osteopathic practice (although the extent is a question which is relevant in this study).

2) Masters Of Paediatric Osteopathy Course Document, offered by the British School of Osteopathy in conjunction with the Foundation for Paediatric Osteopathy, UK. The award was validated by the University of Bedfordshire. It is not currently running as it is being redesigned, but is still relevant to this study.

At the time of this study there were no other active Masters programmes in Osteopathy to consider, although several have emerged now this study is drawing to a close. They are the Master of Science (MSc) in Paediatric Osteopathy, to be validated by the University of Wales, UK, and run in conjunction

with the German School of Osteopathy, and the Masters of Paediatric Osteopathy shortly to be offered at Victoria University, Australia.

The documents were read through and notes made as to the key skills and attitudes required, curricula learning items and learning outcomes.

3.3.2 Sample size and sampling strategy

Interviews – convenience sampling was used - a small number of practitioners in NZ are recognised by the community of osteopaths as practitioners with a paediatric expertise or interest. There are approximately 380 osteopaths in practice in New Zealand many of whom see paediatric patients. 10 osteopaths were approached to participate as 'experts' and all 10 agreed. Further comments on the choice for this expert panel are given below.

Survey – sample size - all osteopathic practitioners in registered with the OCNZ in 2010 were surveyed by post. With a small community it is plausible to sample the whole population (being registered osteopaths in NZ) and no advantage was perceived from taking a smaller sample.

3.3.3 Interviews

3.3.3.1 Ethics for this section

An initial ethics approval was sought for the interview and initial document searching and literature searching only. Approval was sought and granted from the ethics committee of the University of Auckland.

3.3.3.2 Choice of expert panel

Selection criteria – that they practiced in either Auckland or Christchurch being two of the main populated areas of osteopaths in New Zealand, and who had a reputation amongst the osteopathic profession of new Zealand as having an active special interest in paediatric osteopathy. They should represent a range of osteopathic styles and approaches to paediatric care so as to give insight into a

range of possible approaches that patients might be exposed to; and should have (represent) a range of educational histories and a variety of post graduate learning experiences so as to gain insight into how a number of people experienced in paediatric practice gathered their skills and prepared themselves for practice.

The above approach was taken as there is little research into definitions of 'expert' within osteopathy and no work appears to explore paediatric osteopathic expert definitions at all. The definition of the term expert in other professions is also not clear and criteria for inclusion are under-developed. This can be challenging for the validity of some research methods, for example the Delphi method (Baker, Lovell, & Harris, 2006) however this is not a universal constraint and expert choice for this study is informed by Shepard's work on defining expert practice (Shepard, Hack, Gwyer, & Jensen, 1999).

3.3.3.3 Recruitment

The expert osteopaths were approached by the researcher via email with general information, and invited to reply to the researcher if they were interested in participating in the interviews.

The interviewees who responded were all provided with introductory letters, information sheets and consent forms, as screened by the ethics committee, and a sample of the questions to be considered during the interviews was also given to them. They were also given a copy of the Capabilities required for osteopathic practice document which was to be discussed within the interview also. These items can be seen in Appendix Two.

Once the 10 participants had agreed to be interviewed, the researcher independently liaised with all 10, to negotiate a time when they would all be available either in Auckland or Christchurch such that the researcher could fly from Perth, Australia to Auckland and Christchurch in order to undertake the interviews in person.

The interviews were done over a period of 10 days in July 2010. The researcher attended either the interviewees home, clinic or other agreed place. Each interview took between 1 and 2 hours. The interviews were all audio recorded and transcribed apart from one where a request was made by the interviewee for note taking only, which was accepted.

The data from the interviews was used in several ways. One was to provide information as to the typical nature of osteopathic paediatric practice, so as to start developing a general survey instrument which

could be sent to all practicing osteopaths in New Zealand, to investigate aspects the current nature of paediatric practice.

3.3.4 Interview data analysis

This data is qualitative and so requires qualitative data analysis methods, such as transcribing, coding and theming (Miles & Huberman, 1994).

3.3.5 Survey

Survey development / administration / maximising response rate / reminders are all important components to a successful mail survey. Designing and managing surveys by mail has been researched of some years (Dillman, 2006) and this literature will inform the approach to mail surveys in this study. There are various best practice guidelines identifying the various steps used within quantitative survey design and testing which also inform this study (ABRAMSON, 1990; Boynton & Greenhalgh, 2004; Meadows, 2003a, 2003b; Rattray & Jones, 2007).

3.3.5.1 Following analysis of the interviews several items for the questionnaire were identified.

Regarding patients:

Gender, location, age of patients

Presentation types

Seeing other practitioners as well

Co-existing conditions

Regarding the osteopaths

Practising paediatric care or not

Gender, time in practice, range of formal and informal training or learning experiences

Referral to and from osteopaths to other practitioners

Osteopathic diagnosis

Osteopathic aim

Treatment / care types

A draft / initial form was laid out.

3.3.5.2 Items not included

In the original conception of the study it was anticipated that data on the KSA's required for osteopathic practice could be gathered from the survey population. Following initial document analysis and from the initial review of the interview data it was already clear that there was a good consensus on types of KSA's that may be required to underpin osteopathic capabilities for paediatric practice. As the included items for the survey just listed above would already make the survey tool relatively long, it was felt that including the KSA data items would overload the participant thereby potentially leading to fewer returns, and therefore the loss of valuable data on the extent and range of osteopathic paediatric practice in New Zealand. This latter was the main priority for the survey.

3.3.5.3 Ethics for this stage of the project

As the form items were significantly drawn from the interview data and document searches it was not possible to draft the form for the initial ethics approval, which covered the gathering of the interview data and document and other literature searches.

Once the form had been drafted, then it was possible to apply again for ethics approval for this second stage of the study. Approval was sought and granted from the ethics committee of the University of Auckland.

3.3.5.4 Comparisons with other instruments or data

Discussions with osteopaths familiar with questionnaire or survey design were undertaken to gather their feedback on items that might be included, or range of data that might be useful to collect.

One paper was identified regarding the profile of paediatric patients seen by American osteopaths (Lund & Carreiro, 2010). This layout was felt to be informative, and elements of that format were chosen for the survey in this study.

3.3.5.5 Initial consideration of data analysis using the form

A variety of data analysis methods are possible for the type of survey items included.

Descriptive

Descriptive tests are a basic count of items, to see how many males, how many females and so form. It will also look at spread of ages, frequency of presentation types, and number of referral to doctors or other osteopaths, for example. Descriptive stats will be done by simple counting, or using Microsoft Office Excel 2007 computer programme.

T-test

The t-test looks at whether the averages for two groups are statistically different. A t-test may be able to be used on some of the presentation data, such as differences between the average numbers of presentations of male and female patients, or between the average number of treatments given to patients by male and female osteopaths, for example. Any t-tests done will be carried out using Microsoft Office Excel 2007 computer programme.

Qualitative analysis

Qualitative coding and theming of the open ended items may be useful. The osteopaths will be able to write whatever they wish in the box for 'osteopathic diagnosis' or 'osteopathic aim' and it is hoped that these sections will yield data suitable for qualitative data analysis, such as coding and theming. Similarly the osteopaths will be able to self describe their training and continuing learning experiences regarding their paediatric education and training, and some of that data may be suitable for coding and theming. If the data yielded is small then paper and pencil coding and theming will be used (i.e. done by observation / by hand). If large amounts of data is yielded then the software programme NVivo8 may be used for the coding and theming analysis.

3.3.5.6 Initial testing of the form

All of the above items were reviewed and the form slightly revised. The form now needed some sort of testing. It was not possible to use quantitative questionnaire validation methods on this tool, as its construction was not suitable for such items. The osteopath reviews of the form items should ensure a reasonable face and content validity.

Instead, a process of testing, feedback, refining and retesting was used to improve the form where possible.

Interviewing osteopaths with experience of paediatrics about the initial form

> Another expert paediatric osteopath who had not been interviewed was identified with purposive sampling, and contacted by the researcher about contributing to the survey form development. That person, female, agreed and reviewed the form, making minor comments about treatments / care options listed.

Each item of the form was questioned about, regarding such things as: ask what was not clear, hard to understand, inconvenient, any language issues, any expressions that should be used, not enough space, clarity of instructions, ambiguity, missing options, any other comments they might want to make.

Lack of categorisation and poor definition of terms

> Speaking to various osteopathic colleagues it is clear that term confusion is still present, but it was felt that even if some terms might be prone to shaped of grey rather than being absolute the terms chosen were sufficiently clear to limit any data loss as a result. It was not possible to resolve such issues prior to sending out the survey, and beyond the scope of this study.

Interviewing osteopaths with limited experience of paediatrics about the initial form

4 osteopaths, 3 females and 1 male were identified as being less experienced in paediatric osteopathic practice. This sample was taken using convenience sampling from a group of osteopaths who had recently attended an introductory paediatric osteopathy courses delivered by the researcher. This group expressed similar comments to the expert, but gave more comments about the possible list of items to be included under the heading of 'presentations / symptoms'. One member of this group highlighted that it might be unclear as to whether the presenting symptoms were ones that the osteopath had identified, or whether they were the ones the patient reported, as these could be different. A difference might arise as the patient might report a symptom but the osteopath might write down the associated diagnosis. Hence it was decided to use the patient / carer description, to try to get close to the range of factors that patients might feel re important when consulting an osteopath.

Again, each item of the form was questioned about, regarding such things as: ask what was not clear, hard to understand, inconvenient, any language issues, any expressions that should be used, not enough space, clarity of instructions, ambiguity, missing options, any other comments they might want to make.

3.3.5.7 Getting a small cohort to actually use the form and give feedback

2 of the osteopathic experts originally interviewed, one male and one female, filled in the form and gave their feedback on various aspects. Both reported the form was understandable, there was a reasonable amount of space to put in items, that the items included were ones they wanted to fill out (i.e. were relevant to their paediatric practice), and there were sufficient opportunities to fill in information that they felt illustrated their practice.

Again, each item / are of the form was questioned about, rather than the form as a whole.

3.3.5.8 Final revisions

All the above feedback was compiled, and a final version of the form constructed.

3.3.5.9 Sending out the final version

The following process was followed.

3.3.5.10 Survey period

This was kept within a one month limit for turnaround – i.e. from the time the first notification was sent out in mid September, to the final submission date in mid October. However, the survey requested data from August to the final submission date, which covered 2.5 months from August to mid October, 2010. Some osteopaths returned data until the end of November, and this was included in the data analysis. A longer survey period may have revealed richer data, but this would have been difficult given the constraints of the Masters schedule. Giving a quick turnaround time was challenging for some people, as they reported (unprompted) on their consent forms that they found it a challenge, however, giving people a longer time to reply may have lead to a lower return rate as people would have had time to 'forget' the project because it could have been 'shelved' for some weeks before supposedly being completed.

4 Chapter Four: Results

4.1 Document review

The details in the reviewed course documents were extensive and it appeared that the learning objectives for a Masters level course might be more than is required for general paediatric osteopathic practice, especially as currently osteopaths from Australia already qualify with Masters of Science Award in Osteopathy as their registration entry level award. Depending on one's educational history some of these learning outcomes may well be covered in existing entry level courses for osteopathic practice. In other words there may be overlap between pre registration course content and outcomes, and these other Masters courses, which are aimed at already practising osteopaths.

Some of the components in the Masters relating to general paediatric medicine would be required, and some to underlying osteopathic concepts, but gauging a cut off point regarding standards to attain was not possible from the documents alone. The osteopathic Masters course documents included a lot of items that would be extremely interesting and useful to know, but might be beyond the level required by an osteopath wishing to see a few simple paediatric cases s part of their general case load. The Masters courses seemed more designed for those wishing to specialise in paediatric osteopathy, which is not necessarily the same as having a minimum level of competence in the subject, sufficient for basic registration and practice.

The following extract from the British School of Osteopathy Masters programme gives insight into the types of curricula of interest to paediatric osteopathic practice and would indicate a number of the relevant KSA's to underpin a set of paediatric osteopathic capabilities.

It was hoped that the interviews would shed light on the standards required, and it was anticipated that the interviewees would identify a number of similar strands and learning outcomes.

2.3 Units

Practical/clinical elements and academic/theoretical elements are thoroughly integrated within the delivery of the programme, the subject content of each unit and within the assessment programme. Your developing knowledge, skills and understanding build from month to month rather than being stand-alone elements. However, the planned learning outcomes for each unit are distinct and articulate the learning required for the achievement of credits. Credits are only awarded for the successful completion of a Unit.

The subject matter of the MSc in Paediatric Osteopathy is divided into eight compulsory Units.

Unit	Unit Title	Credit	Location
1	Birth and Delivery	15	Foundation/BSO
2	Research and Postgraduate Learning	15	BSO
3	Infection and Immunity	15	BSO
4	Advanced Applied Anatomy	30	BSO
5	Respiratory System	15	BSO
6	Orthopaedics	15	BSO
7	Central Nervous System	15	BSO
8	Clinical Practice	60	Foundation

There is a minimum of two days weekend teaching for each of units 1-7. Teaching which will assist you in meeting the learning outcomes for all of the units will also take place during clinical tutorials, teaching on the registration day and in clinics with patients.

Unit 1 Birth and Delivery – Naval Mair

Unit one incorporates a one-day orientation day taking the form of an introduction to paediatrics. This provides you with an introduction to other members of your student group, tutors, the course programme, the Foundation for Paediatric clinics, clinic protocol, policies, rules, health and safety and your obligations as a student paediatric practitioner. You will also be required to familiarise yourself with the Foundation's case history form, issues of consent and child protection.

The first unit is designed to introduce you to the essential features of normal, pre-term and abnormal delivery, how to conduct an examination of a neonate, common obstetric and neonatal problems, relevant palpation and the principles and practice of condylar decompression and CV4 techniques.

The effects of birth have considerable osteopathic significance are usually very responsive to osteopathic management and care. A large proportion of patients attending the Foundation's clinic are newborn babies.

Unit 2 Research and Postgraduate Learning – Steven Vogel (for academic year 08-09)

Osteopathy in the UK is now a professionally led health care profession with the privilege of having been granted state sanctioned self-regulation. A responsibility of the professional, especially those working within a postgraduate framework, is to contribute to the development of the profession by creating new practice knowledge.

This is achieved partly by seeking to gain a critical understanding of practice issues such as efficacy using reflection and self and peer appraisal and understanding the principles of research. This unit is designed to help you to gain such insight and to enable you to gain confidence in handling and evaluating competing critical, methodological and theoretical models. You will choose a topic for future investigation and carry out a thorough search of the relevant literature.

This will provide an effective foundation for the extended piece of work you will undertake evaluating your learning experiences in the Clinical Portfolio you will complete in Unit 8. The assessment for this unit is in the form of a research proposal.

Unit 3 Infection and Immunity - Stephen Beaver

This unit explores the nature of the non-adult immune system and the influences on it of disease processes and of medical interventions such as vaccinations. Infections and immune disorders represent both common and serious complaints in children.

Unit 4 Advanced Applied Anatomy – Carole Meredith

This unit is designed to help you to acquire a detailed and comprehensive knowledge of relevant anatomy and in particular, to review cranial anatomy, foramina, patterns, and the face and dental appliances. The selection and modifications of osteopathic technique, and further palpation will be covered, building on and reinforcing your previous knowledge. It highlights and emphasises the importance of using basic osteopathic/anatomic principles to guide osteopathic interventions. Because these are issues that underpin and integrate all elements of the course, this is a double unit and continues throughout the two-year programme.

Unit 5 Respiration – Peter Armitage

Glue ear, URTIs and asthma are common childhood complaints presenting in clinical practice and asthma is a potential emergency condition. The respiratory unit comprises a number of lectures, workshops and practical exercises designed to introduce you to the essential features of respiratory functioning and presenting problems in children. This includes a review of the respiratory anatomy, physiology and examination, otitis media, first breath, asthma, CV4, 12th rib release, respiratory effect on lymphatic and autonomic nervous system function and the effect of emotional shock on the respiratory system.

Unit 6 Orthopaedics – Karen Carroll

Orthopaedics represents a significant number of paediatric conditions in clinic. The diagnosis of orthopaedic problems in children is not straightforward. Children often present with conditions such as knock knees, bowed legs, flat feet, scoliosis, etc, that are generally normal for children and misdiagnosed as pathological. Alternatively patients with normal "growing pains" and symptoms that may suggest benign musculoskeletal pain in adults may be sinister pathologies and often missed or inappropriately treated The orthopaedic unit covers orthopaedic problems of childhood e.g. paediatric back pain, gait and lower limb mechanics, malignancy, craniosynostosis, plagiocephally, HVT of children, osteochondritis, slipped epiphyses,developmental dysplasia at the hip.

Unit 7 Central Nervous System (CNS) – Mark Wilson

This unit covers conditions which a common amongst patients within the Foundation's's Clinics which relate to function of the nervous system, often quite serious of chronic conditions, requiring complex management. These include cerebral palsy, epilepsy and behavioural problems such as the autistic spectrum and attention

defict/hyperactivity disorders. The seminars will include a critical review of each condition and the selection and application of osteopathic approaches.

Unit 8 Clinical Practice – TBC
This is the Unit that provides you with an opportunity to integrate your growing theoretical knowledge and understanding within the complex and unpredictable context of practice in a busy children's clinic. You will learn to reflectively evaluate your own developing skills as a paediatric clinician, assisted both by tutor and peer appraisal and by your own reflection, informed in the clinical portfolio by an awareness of current research and advanced scholarship.

For more detailed information about the Units see the MODINF Forms at Appendix 2 and the Unit Guides

2.4 Diagram of Course Structure

See next page.

4.2 Expert Interviews

There were 10 interviews, of 7 female and 3 male osteopaths. Each interview lasted between 1.5 to 2 hours. All but one of the interviews was taped. One interviewee felt she would be too tongue-tied to speak if she knew she was to be recorded, but was happy to talk if hand written notes were taken instead, which is what was done for that interview.

The researcher transcribed all tapes (taking between 3-4 hours per hour of recording). The 9 interviews provided 15 hours of recording, and the transcribing took approximately 35 hours. This was done over a period of several weeks in between other work and personal commitments. The written notes for the remaining interview were 6 sides of A4 long, and took approximately 30 minutes to transcribe.

The interviews were therefore all converted to an electronic document format, using Microsoft Word 2007 software. These documents were then imported into NVivo8 software which is a qualitative analysis s software programme, where the data could be coded and themed for analysis.

Once the first series of coding had been done a number of nodes had been identified, but it was necessary to revisit the coding for the interviews again, in the light of understanding gained by going through all the data from all 10 interviews. This led to some minor revision of the nodes and their hierarchy, and accordingly the interviews were re coded where required.

The interviews revealed data relating to several of the research questions.

4.2.1 Comments on profiles of their paediatric practices

The comments that the interviews gave regarding their paediatric practices were use as a framework to help develop the survey instrument.

The data provided by the interviewees and the survey respondents seemed to be complementary, and therefore it is felt that the data collected gives a reasonable view into common paediatric practice in New Zealand.

The following is an excerpt from the tree nodes in NVivo8 that were coded to these themes.

Tree Node	Presenting problems		5	8

Tree Node	breastfeeding issues		3
Tree Node	colic and unsettled or crying babies		5
Tree Node	coming with no specific presenting problem		5
Tree Node	Difficult or traumatic birth		5
Tree Node	EENT		4
Tree Node	Feeding problems		3
Tree Node	general medical disorders		2
Tree Node	GIT issues		6
Tree Node	learning difficulties		5
Tree Node	plagiocephaly		4
Tree Node	respiratory issues		1

The following are excerpts from the coding in NVivo8 that were identified in the 'presenting conditions' node listed above. Further detail was located in the child nodes under this heading (and listed above) which informed the survey development, and subsequent general data analysis in this study.

<Internals\expert interviews\Interview 1> - § 2 references coded [0.46% Coverage]

Reference 1 - 0.08% Coverage

we see a lot of feeding issues

Reference 2 - 0.38% Coverage

we see a lot of babies that are coming because they have had a difficult labour either because they have got problems from that or it might be secondary,

<Internals\expert interviews\Interview 10> - § 2 references coded [8.06% Coverage]

Reference 1 - 4.58% Coverage

colic, reflux, constipation, learning difficulties, kids that have had severe trauma, cerebral palsy, autism, adhd, I had kids with gall stones, quite a few episodes of those and parents not wanting the gall bladder removed as they were so young. That kind of stuff. Acute scenarios, kids that are pre sort of appendicitis, kids with lots of continuous runny noses, recurrent ear infections, lots of maybe acute infections on top of chronic infections, so kids that are more, tend to get bronchitis, but have had underlying constant colds that move into bronchitis, that kind of stuff. The odd situations where there might be tumours, not many but some

R – where it was pre diagnosed,

P – no, the kid starts limping, knee pain or hip and I had to refer them off, one with brainstem tumour that they didn't know, that we diagnosed it (well, we didn't diagnose it but we knew that there was,

R –that it wasn't quite right,

P – yes, so we have had quite a bit of that. We have had renal reflux,

Reference 2 - 3.48% Coverage

And I think it varies, if you are talking about learning difficulties, about adhd, all of those things require such multi factorial approaches that you can't just have osteopathy with that, you have to look at diet and allergies, you have to have a look at what is happening at school and emotionally, and refer them, or whatever – there are some stuff that we feel comfortable talking to them about, and some stuff we refer to other practitioners for. So that is really different, and it can be, can be but not always a slower response, with learning difficulties. So you have to have some way of assessing it say, every 3 months to know if, OK has the child changed, what has changed, what is different, what has changed, are they reading better, or what.

<Internals\expert interviews\Interview 2> - § 1 reference coded [0.49% Coverage]

Reference 1 - 0.49% Coverage

most of what I see is very young babies, up to 3 months, some of them up to 6 months, but certainly those first few days, under a week to the first three months so getting the newborns sorted out

<Internals\expert interviews\Interview 4> - § 2 references coded [4.01% Coverage]

Reference 1 - 2.01% Coverage

There seems to be an enormous range of presentations. I predominantly see neonates, to one year, although I did see a lot of children from years 4-8 – there seems to be a toddler period where they don't come for treatment. We get quite a lot of referral for check ups after birth, latching problems, failure to achieve expected milestones, concentration, learning and coordination problems, particularly in the 4-8 year, infections, children who are just not right (parental description), diarrhoea and constipation, head shape with no other symptoms, facial asymmetries, failure to turn head either way, injuries and headaches, those are probably the common ones.

Reference 2 - 2.00% Coverage

its partly complexity and it is partly getting into the realms of how structure and function is relating to presentation, and whether that is in the realms of normal or whether we are talking about structure and function that falls outside the realm of the well child, and into the realm of injury and pathology. I sometimes touch on pathology, diagnostically e.g. pyloric sphincter stenosis that has been missed. But that is the divide, I am not on the whole I am dealing with babies and thinking 'has that baby got some weird syndrome that I should know about', on the whole I am dealing with babies who are who are basically well but not functioning properly.

<Internals\expert interviews\Interview 7> - § 1 reference coded [1.63% Coverage]

Reference 1 - 1.63% Coverage

From birth trauma to learning disabilities to ? to children with cerebral palsy, all that, well anything really. Anything that the parents or the patient might think is a viable treatment for that condition. A lot of it is word of mouth and they are doing it as an adjunct to other things. By the time they get into the clinic they have an idea about what other things may be available, treatment wise.

4.2.2 Comments on skills of new graduates and those new to paediatric practice

The overall emphasis seemed to be that they were all virtually all self taught, and had done courses and other learning after they had started ton their paediatric practice, to supplement the skills they had begun to understand they would need in order to develop their work further.

They expressed a variety of doubt about new grads, but felt they should be allowed to do some work without having to do extra post registration proscribed courses, for example.

However this issue of supervision of new grads as they learned their initial paediatric skills in practice remains unresolved, with some feeling they should be able to go and just get on with things, whilst many others thought they should not.

It will require further work and discuss to determine how this issue should be resolved and it became quickly evident that the study would not be able to achieve consensus on this item.

The following are the excerpts from the coding of the interviews (in NVivo8) covering discussion about new grads, which reveals the variations in views.

<Internals\expert interviews\Interview 1> - § 2 references coded [3.93% Coverage]

Reference 1 - 1.94% Coverage

that is very difficult to remember what you knew when you came out. You know, and I have had this debate with other osteopaths in relation to new graduates, where we are kind of saying 'they should know that' but then we are thinking 'should they?' How well, I think reasonably well prepared, but I don't think if I'd have had, ...I don't know that I would have had a 2 week old baby in with cystic fibrosis in, I don't know if I would have got it.

R – so, what did you feel well prepared about?

P – well, initially prepared about treating them, reasonably, you know, moderately comfortable with that, I don't think particularly well prepared to diagnose the under 2's. And I don;t know that you can do that in an undergrad, I think that is a post grad thing.

Reference 2 - 2.00% Coverage

P – I think to be particularly militant, new graduates should be required to do a series of learning modules / whatever the title, I personally think that they shouldn't be treating under 2's until they have done that and had good peer support and seen quite a lot of under 2's in peer supported way

R – and could that be in a sort of "I'll see a few on my own and talk to someone afterwards"

P – it could be, initially thought it should be being in with someone else,... and doing some modules / a module, and so they should be restricted, as I think that they know enough. I just don't. And then I think it would be a very productive thing if the whole profession had to do those modules / some modification of those modules, in order to be able to maintain practice rights for children.

<Internals\expert interviews\Interview 10> - § 5 references coded [9.85% Coverage]

Reference 1 - 1.24% Coverage

When I first started to work with paeds I suppose I didn't get those complicated patients walking in, and as I have got more experienced the complicated cases have walked in, you know what I mean. I don't know if the others, if they get really complicated cases, or not

Reference 2 - 2.67% Coverage

But, when I first graduated I wasn't confident that I could get anyone better, you know what I mean, but I was not more confident that I could get an adult better, at times I felt that I would feel that some would and some wouldn't get better. I never had a lot of confident in myself. It was more that as I could see people getting better, that I could have more confidence that something was working and that as my skills improved that I would get better. Was I doing then what I am doing now with kids, no, I have so much more experience now, I don't even know how I did, yes.

Reference 3 - 1.00% Coverage

and they don't have to do OCF, they can structural look at various things, and they could help a lot of general kids, without needing to be specialised or have extra training, and I would hate to have that taken away.

Reference 4 - 2.97% Coverage

being able to do an examination, I don't know that I had a lot of experience examining children at undergrad bi I felt that I could easily transfer from the adult. I could lie them down, rotate the vertebrae, side-bend them, etc, and work it out, I had enough knowledge to work it out. Even when I did the Masters, obviously I because more skilled, and I had a lot more knowledge about otitis media for example, I didn't know all of that before hand, so would I be as skilled at managing a child with otitis media as a new grad,

maybe not, but hopefully I would have know when to recognise if things were not getting any better, and to refer on.

Reference 5 - 1.97% Coverage

I think most graduates would be able to come out and say I need to refer x on, and I find that in out practice, we get a lot of practitioners ring us and say we are treating this child and I haven't get a response can you give me some guidance, and we do. We have a lot of practitioner sthat ring us like that. So in general people do know when to, you might get the odd person that thinks they can play god, but I don't know.

<Internals\expert interviews\Interview 2> - § 1 reference coded [1.68% Coverage]

Reference 1 - 1.68% Coverage

if I had left straight from college and started straight with babies, then no, I wouldn't have done it. But I spent a long time with another practitioner who did do a lot of 'prac babies' and I'd gone so far with what I had learned doing adults, and I had to work my way into kids so I thought the next challenge as a professional is to come and do babies. I was getting a bit bored, so I thought what else could I do or what would seem interesting. So really it was just to start practicing, just working with developing skills with 4 year olds, then 3 year olds, then slowly working back down the sizes, as I hadn't had that much exposure the babies in my own life.

<Internals\expert interviews\Interview 3> - § 1 reference coded [2.66% Coverage]

Reference 1 - 2.66% Coverage

I have 2 new grads working with me, and yes, ... they are done similar, they are doing their won juniors, like I have – I don't feel like I am at any necessarily higher point or anything, in terms of recommending anything other than what they are already doing. I don't think what they are doing is anything different to what I would be doing as we all have the same training background. And I think the only thing, I can given them advice on the fact that they might not know the answer first off and they might need to see the baby a couple of times before they work it out, but apart from that there is not much more that I am adding to that I feel.

<Internals\expert interviews\Interview 4> - § 1 reference coded [0.98% Coverage]

Reference 1 - 0.98% Coverage

I don't really know what they are getting at an undergrad level, so I can't answer that? Having kind of felt my way here myself, and gradually got more into it, and having lots of cranial courses, so there is no way I can think back to when I was an undergraduate I can't say if I could have done it otherwise juston my own.

<Internals\expert interviews\Interview 5> - § 1 reference coded [0.42% Coverage]

Reference 1 - 0.42% Coverage

I think that if you have got some basic cranial osteopathy skills then you can start treating babies, that's what I am saying

<Internals\expert interviews\Interview 6> - § 1 reference coded [5.60% Coverage]

Reference 1 - 5.60% Coverage

Healthcare providers. Does refer, but not usually referring children to other osteopaths. As they seem to omit things – ie not enough 3D in their anatomical or integrated biomechanical stuff. Other osteopaths – there are problems with the younger grads – can't feel. Possible issues with ego – especially males, so doesn't refer to them. So, if they are not egotistical it is better for the patients.

<Internals\expert interviews\Interview 7> - § 1 reference coded [3.69% Coverage]

Reference 1 - 3.69% Coverage

you think that there is a tendency for people to come out early in their careers and they are used more to working with adults then they are a bit more short-term-ist

P – yes, especially if they are hooked into ACC, then they are missing out on what osteopathy is about anyway, because they are only meant to treat this one thing.

R – bit that is interesting, as if they are used to getting recompense through that system, actually it is not something that you do with children?

P – no, well you can but it is not going to be ideal. I think ACC has dumbed the whole thing down. Anything that controls you income or what you do just do, its anti what we are trying to do. We have a guy working with us for a year now, , and he has just realised it, he has done ACC all his life virtually, he has missed out a lot of what he is getting back to now, being with us, and knowing what it is really meant to be about.

<Internals\expert interviews\Interview 8> - § 1 reference coded [6.25% Coverage]

Reference 1 - 6.25% Coverage

-so, if you wanted to sum up what the key knowledge, skills and attributes are, what are critical things, in order to do paeds work

P – there needs to be a level of, its quite a mind field this one, but at the end of the day I feel quite whole heartedly in the graduated osteopath. The skill and understanding they have. They have learned to drive. It is that same thing. I still believe that basis means that they are capable within that generalist practice to be able to treat.

Obviously if they want to particularly treat babies and children I do believe there needs to be more study done, because the courses that are being run, I think some are better, but not all, I don't think there is much at all that is given to it [paeds]. As far as where the osteopath graduated could turn out to be an issue. Which is a worry as I would love it all to be the same.

<Internals\expert interviews\Interview 9> - § 2 references coded [18.43% Coverage]

Reference 1 - 5.44% Coverage

R – in the light of what you have said about the need for some training in these sorts of areas, just before we started you made a statement about being taken aback by new graduates seeing a 4 day old. Can you talok about that, why were you worried and what were you worried about.

P – um,

R – what is the problem

P – the problem is that they are a new graduate, and I am assuming some things here, and wouldn't have had much under graduate exposure to newborns, I might be wrong. And the problem that I have come across is that they don't have the palpatory abilities to make any kind of assessment. And they twll the parent that the baby is fine, and the parent then goes off and never consults the osteopath again, so its more at that level. I would be concerned in some other cases that they wouldn't have any palpatory ability in the treatment of a new born, and especially the very young. I was worried more that they would be ineffective rather than they wouldn't manage it.

Reference 2 - 12.98% Coverage

– essentially useless at providing benefit, or possibly a bit heavy handed,but the concern is that you are misleading them from an osteopathic perspective

P – yes, and I have had a few patients come in and say 'I took my baby to the osteopaths, but they didn't seem to know much, and that they were obviously not used to handling babies'. I've had that comment quite a lot, actually.

R - so you think the newer grads in that instance are not being up front with the parents that are coming in, they are saying 'oh yes, I'll have a look anyway' as opposed to being up front and saying 'look I don't know anything much about this, but I will give you my initial screening, but that might not be worth much' but they are not actually taking ownership of that in public.

P – that is my concern, my big number one concern, and I don't know how you get around it, as I know that is what I did. I also know that I spent 2 years working part time with the osteopathic centre for children in London, and got huge exposure. I know geography and numbers don't always allow that, but, that's unfortunate. I don't know how you would do it here.

R – so there is the ability to have contact with somebody to just see what on earth babies do, how you hold then, how much you can handle them, those are the absolute minimum exposure, so that's not something you can practice in isolation.

P – if you are a parent, then its different. I mean, some of these new graduates coming out haven't even touched a baby before, and one of your first questions are about 'what skills do you need to to relate ot the patient' – there is a lot of skill, a huge amount of understanding that you need, and this is horrible, but you almost can't have this if you are not a parent. And I wouldn't use that as a thing to allow you to do paeds or not, but, its important. Obviously people van get it in other ways, but,

R – obviously it needs to be recognised that it is more of a challenge

P - and maybe you could do thing like, even if an under graduate came out, and, because I hear undergrads coming out and saying' babies are easy to treat' but I say, 'no they are not'. And that with an understanding of the issues of how difficult they are, we could make them more self aware as to whether they should be doing that or not. That would be a goal in undergradudate training

4.2.3 Comments on capabilities document

The interviewees provided a range of feedback on the capabilities documents, which will be refined and presented to the Osteopathic Council of New Zealand to include in their ongoing review of those Documents.

Essentially it does seem as though the capabilities documents are broadly satisfactory as they are.

<Internals\expert interviews\Interview 1> - § 2 references coded [7.62% Coverage]

Reference 1 - 4.33% Coverage

I think when I looked at this, I didn't think that this was, like on the initial thing on the front, on the front [of the participants information blurb] it says 'you will be given the paediatric capabilities, and then I looked at this, and I thought 'these aren't paediatric capabilities', they are good clinical capabilities but there is nothing that skews them about paediatrics, and if we are saying that the discussion is about the need to potentially move into an environment where there are other things that people have to add to their clinical practice, at a post grad level in order to ensure safety and competence for paediatrics, I don't think this demonstrates that. But, your question of how would it demonstrate it.....

R – essentially would you want to have a generic list and then a whole lot of specific list

P – yes

R – would you want it appended as an appendix, or a separate thing, or an additional speciality clarification or, do you want it to still have something within the generic?

P – I think there could be something in the body of it, but it needs to be clearly specific to, so that i=t is really easy to see that this is in relation to under 16's or under 2's or however you are going to chop it up. So that you can say that you need to do all of that stuff if you are seeing an adult, but that's what we are expecting at various levels, depending on where you are, but if you are seeing a child, based on where you are with your varying levels, you need to also be aware of this stuff ... and I don't think that comes through, and I think if it would be added to the body of it rather than as an appendix or separate document, I think it should be within it, as it is part of practice.

Reference 2 - 3.29% Coverage

is the threat to life important enough to have included in something like this [capabilities document]

P – I think so, and esp in the under 2's they are the most vulnerable, most potentially and quickly compromised in a long term manner, if things aren't death with that need to be dealt with.

R – I am thinking whether I would put that in domain 3 or 4?

P – not perhaps in 3,

R – should it be in 4 then...it sort of applies in several areas.

P – 3.4? and you could put stuff in there about potential risk and threat and as a generic across all the age groups, and maybe in 3.5 parts ongoing care, and be more specific about age related vulnerabilities, but my hesitancy that in putting it in the osteopathic section 3, but we already have enough confusion about the fact that paediatrics, the extension of scope about paediatrics, about everyone knowing cranial and doing lots of cranial, that is the thinking out and about, and I don't know if you would increase that if you would put it in there as opposed to primary healthcare responsibilities. Which is really what it is. A lot of people do come without seeing another healthcare provider so you are acting as an entry point, and you are acting in a primary healthcare manner, and so really that is where your responsibility sits in relation to..

<Internals\expert interviews\Interview 2> - § 4 references coded [7.54% Coverage]

Reference 1 - 1.15% Coverage

the information in these 6 domains is relevant to any health professional, and also to just about any business person, in any profession. Obviously the person oriented care and communication, but, if you go into a shop, if you go to a lawyer, they have a similar range of things that they need to deal with.

R – it is when you then get down into the elements and their criteria that is becomes very much more particular

P and specific to the profession.

Reference 2 - 2.26% Coverage

and also there is a parent who has there own independent needs and desires. As I said before you are treating two not one, and that somehow needs to be addressed in that [capability descriptor]. Because you are not dealing, your patient is not the same as you, if you are treating an adult, you are an adult, they are an adult, fine, but when you go to treating a child, or a baby, a child is going to, there is going to be an authority gradient, they will do what you say, or try to do what you say, what an adult tells a child the child believes, so you have to be careful, you have to be aware of that. There is a difference. And it is that social conditioning and the physical strength of the baby – you can overpower a child / a baby very easily, with the physical side of things, but also with the social side of things. So I think that is something that isn't in there [the capabilities].

Reference 3 - 2.95% Coverage

element 2 – its the definition of what's appropriate – do you ask the child or the parents, some kids are independent. Some times you need to send the child out of the room, eg if little Jonny broke their arm or put his back out stealing a cookie from the jar, he is not going to do it [talk about it] because he thinks he is going to get in trouble from his mum, so sometimes you need to send them out, but you don't have to do that very often. But, you have got to be aware that the child has got their parent and you to try to answer, and kids try and please.

- element 3 – ensures patient comprehension – very difficult with a baby – that is where you have go to trust the hands. And with the 5-15 year olds, they have different things that they want, and different things they understand, you haven't got to talk down, you have got to talk with them, sometimes you have got to talk to the parent, and ignore the child, and sometimes talk to the child and ignore the parent, that can be quite difficult. So, that can be expanded [in the element].

- element 4 – ensures patient's goals and concerns are identified and integrated into the clinical analysis – fine.

Reference 4 - 1.19% Coverage

with 2.7 and 2.10 – reads criteria – yes it covers it, but it covers it from an adults way of saying it. Not the child's way of saying it. From a child point of view, adults are huge, they do amazing things, there is that authority there, you have to be careful and gentle yet firm, there is a balance there. So its just remembering the child's point of view. Children don't always know how, or even if they are able to reach out and ask for help whereas an adult does.

<Internals\expert interviews\Interview 4> - § 5 references coded [6.97% Coverage]

Reference 1 - 0.81% Coverage

yes, further one, primary healthcare responsibilities. It might be important to rephrase the first element – individuals welfare – the criteria is not so good, although element breakdown is a bit better. 'Welfare' is beyond what osteopaths do take responsibility for.

Reference 2 - 1.02% Coverage

an individual's welfare in respect of / appropriate in the context of osteopathic care. Make it more akin to what we do. Primary healthcare responsibility is important, but need to be careful with initial criteria. We are not GP's in that respect. We can be gatekeepers, but we are not great at all the elements of gate-keeping per sae.

Reference 3 - 1.66% Coverage

over the page of the capabilities document, still in number 4, I have some queries: 4.6 is a difficult one I think. I thought uhm. That's a bit blurred. I don't know if we can comment on the finite resources thing. However if people do come, I do have a discussion with them about length of time and possible overall commitment, but I don't do comparative cost analysis with them. I try to be responsible about how the public purse is used, but how far that goes in the detail of the capabilities I don't know. On 4.7 I think I would fail miserably.

Reference 4 - 0.80% Coverage

4.7.1. I have issues with – public health and strategies concerning health education. Is this just about how I would advise my patients regarding stretching etc, or is it the bigger picture of public health. Or is it my individual relationship with the patient?

Reference 5 - 2.68% Coverage

its initially overwhelming, but OK when you unpick it. The next section goes into promotion in the larger sense. Then, collaborative arrangements – and I think some of these are interesting to discuss. For example, 5.2.3 I am afraid I stay silent – I don't do this type of promotion in my practice – my own insecurities and doubts or critical questions about what we do and where we fit in about what we are doing would prevent me from doing that. 5.3.3 team based approaches – I think as a profession the model we were educated in, and not sure how it is done now, is very much about referring on when its not in your domain, and collaboration is not part of it, and that may be now to do wi8th the profession growing up, but there is not a huge amount of this even now – not many people work in multidisciplinary clinics, and with some cross referral, but it is usually a one way process.

<Internals\expert interviews\Interview 5> - § 1 reference coded [2.24% Coverage]

Reference 1 - 2.24% Coverage

Osteopathic care and scope of practice – personal osteopathic scope and capabilities – eg if you are treating a 2 year old and they come in with glue ear, and they have got some delayed speech it is important to always encourage the mother to keep up with the doctors to monitor the glue ear, as sometimes the osteopathic treatment is not going to have the desired effect and they may need to go and get the grommets in. And not to lead them along a path and go 'ok', as you don't want delayed speech in a 2 year old. But, if the osteopathy is having the desired effect maybe they won't need the grommets. But you have to be clear about time limits, and stay in touch with the doctor.

<Internals\expert interviews\Interview 6> - § 1 reference coded [6.25% Coverage]

Reference 1 - 6.25% Coverage

Capabilities document – initial reaction was a bit overwhelming. But, on reflection it did actually cover paeds stuff. Perhaps the emotional expression in the tissues and the osteopathic engagement with it is not really expressed in the capabilities, either for adults or children. Body, soul, spirit, being – should all be in there. Need to include mechanisms. Treatment of fluids, brain and membranes should also all be in capabilities document.

<Internals\expert interviews\Interview 7> - § 1 reference coded [0.41% Coverage]

Reference 1 - 0.41% Coverage

TAPE CHANGE – discussion moves to capabilities.

P - not sure I've got that much to say about this.

<Internals\expert interviews\Interview 8> - § 1 reference coded [2.50% Coverage]

Reference 1 - 2.50% Coverage

R – so not sure if you ahve had a look at the capabilities,

P – no, sorry,

R – OK well I'll just briefly outline the capabilities document, and if you could just read the main descriptors, have you any comments about those leading paragraphs, without going into the rest of the elements etc..

P – I don't have any objections to any of those.

<Internals\expert interviews\Interview 9> - § 1 reference coded [3.98% Coverage]

Reference 1 - 3.98% Coverage

R – so, have you had a look at the capabilities

P – a bit. But, as they are quirte generalised, I think they are quite applicable, its all quite similar in terms of processes.

R – it comes down more to the details.

P – yes. Where did they come from?

R – from the UTS project, and a series of focus groups. [explanation about the whole UTS project, which is not necessary to transcribe, as it is off subject].

P – its all common sense really, isn't it.

R – yes. So, is there anything else that you wanted to say?

P – no I don't think so. My main points are that it mustn't be enforced, that new grads must be more self critical, those are the two more things, and that people realise they are like little aliens.

4.2.4 Comments on assessing capability and on professional / regulatory structures

Again the data revealed lots of ideas as to how this could be done, and the key emphasis seemed to be on flexible learning with some observation if possible.

However, it was recognised that this might have to be accepted that this would maybe have to be negotiable. Overall the learning environments had to be supportive of sole practitioners working independently, with limited resources available.

The following is an excerpt from the tree nodes in NVivo8 that were coded to these themes:

Tree Node	Learning approaches and assessment		6	7
	Tree Node	General scope with no additional training		9
	Tree Node	interprofessional education		4
	Tree Node	need for direct observation for skill development		9
	Tree Node	personal experience of babies		6
	Tree Node	personal experience of learning paeds skills		7
	Tree Node	qualifications needed or desirable		7
	Tree Node	self directed learning		8
	Tree Node	simply seeing patients - time in practice		8
	Tree Node	the sole or lone practitioner		2
	Tree Node	working with others		10

The data coded within those nodes are illustrated below:

<Internals\expert interviews\Interview 1> - § 2 references coded [0.97% Coverage]

Reference 1 - 0.63% Coverage

We have always done quite a bit of doubles here, so that whenever we have got someone that is relatively new, we spend quite a bit of time doing doubles with them, and so that is a very good learning mode. And, so those are probably them amin things.

Reference 2 - 0.34% Coverage

I think it should be able to be adjusted to the way that people's lives are, so that it can be incorporated most easily, eg online,

<Internals\expert interviews\Interview 10> - § 1 reference coded [2.16% Coverage]

Reference 1 - 2.16% Coverage

what is your gut feeling about, how much do you need to know, what sort of qualification is required, do you need to do the Masters level, or by something less / just a series of modules etc

P – yes, just a series of modules would be fine, you don't need to do a Masters. There are some OCF versions starting up but that would probably only attract the OCF types, so there would need to be a version for osteopaths that didn't do OCF, covering the knowledge required.

<Internals\expert interviews\Interview 3> - § 1 reference coded [2.12% Coverage]

Reference 1 - 2.12% Coverage

Not a written exam. There should be preparatory courses to orient you to the whole exam etc. If I went into something like that now I would be set up to fail – I might be fine in practice and fine with patients, but actually communicating it in an exam, maybe not. I know how to write notes that I understand in clinic, and I know how to communicate it to patients, but I find talking about it osteopathically a bit trickier. As I haven't learned communication between practitioners as much as with patients and mothers.

<Internals\expert interviews\Interview 4> - § 1 reference coded [1.94% Coverage]

Reference 1 - 1.94% Coverage

that is a really difficult question to answer. For myself, how would someone assess if I am a competent practitioner, it is probably with some difficulty? I do think that these capabilities go a long way, if they are applied to paediatric practice. Because it removes us from – if we are at some level going through these capabilities when we are seeing babies, and aiming towards fulfilling these criteria, we are well on the way to being reasonably safe, in our approach to babies. But I don't know if we need more workshops together and appraise each other, , or people sitting in the same practice, I am aware it is a really fluffy area.

<Internals\expert interviews\Interview 7> - § 1 reference coded [1.12% Coverage]

Reference 1 - 1.12% Coverage

P – and now the course is so difficult you are not even getting the right people, that have the hands on ability rather than just the intellectual. You can learn skills I know, but there are a lot of people that wouldn't even look at a course as it is too medically oriented.

<Internals\expert interviews\Interview 9> - § 1 reference coded [28.43% Coverage]

Reference 1 - 28.43% Coverage

R – given the fact that they know those sort of things, how are they best developed then?

P – the new grads?

R – new grads or those new to the idea of paediatric osteopathy

P – I don't know is the answer to that. Ideally they would do work with someone that sees a lot of babies, or something. It's always ideal but doesn't always happen. I would hope that they would make an effort to go and work with someone, sit in etc, as its not something you can learn online. You can learn, I mean there are aspects you can learn online, I would be quite happy to do the medical stuff and diagnostic stuff, but the actual treatment and osteopathic diagnostic stuff, I don't see any way other than doing some practical

R – and how useful, or in what way would it be for peer mentoring, and discussions at a distance, and writing reports on what you were doing or difficulties you were having etc

P – very useful, discussions, report (writing) not sure, the peer mentoring is really useful and we should be doing some more of it

R – so if in cpd you had to do some discussions, if you were doing paeds work you would have to have signed off that you had had eg 3 reports signed by an agreed person,

P – if it counted for cpd points perhaps, you wouldn't have to do it, but could do it,

R – well, should you, in the absence of people having the double ups etc, if that is not practicable, and its hard to impose that (to have to work with others)

P – you could make it a recommendation though

R – but perhaps you could do it so that if you were doing paeds you had to do some sort of paeds medical online, and have peer discussions on patient interactions, and mentoring feedback, so it would be compulsory

P – so your statement would be that if you are working with children, there could be a compulsory component. Interesting idea, and it would need to be carefully worked out, how often, pover how many years and so on

R – regardless of feasibility, is it useful learning

P – yes, of course

R – and would that mitigate some of the problems of joe blogs working in isolation

P - it would help, but it wouldn't resolve the issue of having hands on experience

R - for you the hands on, because some people have drawn their line in the sand, that hands on is pretty important

P - and not just the hands on, but the handling, and dealing with the parents

R - and what about videos for all that

P - I don't really like that,

R - why is that

P - as I think you know what you are expected to say, and so just say that. I just think that the actual learning interaction is much better, more real, and you would get far more out of it. But then again, in NZ how would you do that. There is no children's clinic. Unitec should have one.

P – that would be one of my big recommendations, that Unitec had one.

R – but if you wanted too hypothetically turn Unitec from 5 years to 4 years, and dumped paeds into the post grad arena / provisional year arena, your recommendation would be that the paeds education HAD to include hands on. You can't do it by abstractly learning.

P – No. And I was just thinking about that, if they did dump it out, the trouble once it's out there are no sticks afterwards. I would like to see new grads do an extra paediatric module.

R – but that could very easily be put into a provisional year, with restricted practice such that it would then be compulsory to do some extra modules, and some general models and learning outcomes etc. And you could overlap with the provisional phase requirements for the overseas osteopaths. The paeds could follow those sort of mentored learning tasks. You could get accreditation for prior learning which would offset requirements.

P – just thinking about the difference say with someone like Chris, who has been out for 6-7 years now but doesn't do paeds. If he wanted to there wouldn't be the same concerns or requirements compared to a new grad. What would I expect at that level. Where would you draw those lines.

R – so why would you be happier

P – he would have the skills of patient management, some diagnostic experiences beyond a new grad, those are the differences, but still not have paeds knowledge of when to refer on and the basic pathology knowledge,

R – but, you almost need to have greater oversight of their actual handling if they are a very new grad, compared to someone of Chris's experience. Close observations until you had completed your provisional period, for example, but peopleembarking on paeds mnight not have the same oversight requirements.

P - I suppose it's probably one of those things, its like the grandfather thing, its the new grads, you can't change a whole lot of what's happened. We can't influence what is already there, but we can influence what is coming along. So perhaps that is where it should be targeted. It might be nice to have something for people to do if they really wanted to move into paeds.

R – if we identify this through the form of the capabilities, we could clarify that sort of thing.

MISSED - TAPE CHANGE

P –if you say 'we must do this or you are not allowed to treat children' – it would be a disaster.

This data will be very useful for future focus groups to consider these issues further. The design of this study did not allow for sufficient discussion between practitioners to determine an appropriate final proposal as to assessment strategies and professional structures.

Much less concrete data on what learning outcomes would be satisfactory emerged than was expected,

This serves to illustrate that although individual osteopaths might be happy with their understanding, this had not been transformed into a profession wide consensus on the issue. Much work remains to clarify thee issues.

4.2.5 Comments on KSA's to support paediatric practice

Here again, the main threads and topics discussed did closely match those within the previously mentioned Masters Level programme documents. There was interesting commentary on the emphases that osteopathic aspects of the course might take, and communication issues was a very strong theme here, but overall, the interviewees could not give clear learning outcomes. This will need further work, but the blue printing, or mapping of potential curricula items has emerged on which to discuss further issues.

The study has therefore provided a much needed frame of reference to take discussion of these issues further.

The following is a table of the main tree nodes developed and coded from the interview data, to act as this initial framework.

These nodes form the main themes for the KSA framework, and these nodes are comparable to topic areas highlighted in the previously discussed Masters programme documents. There is also quite a degree of overlap with the Medical Students learning outcomes for the University of Auckland's programme, although again this does not consider the issue of relative depth of KSA attainment required or desirable for the various professions involved. Again, that will have to be investigated further outside of this study.

Type	Name	Memo Link	Sources	References
Tree Node	Age related factors		7	15
Tree Node	Communication issues		10	35
Tree Node	Holding children and consent		5	15
Tree Node	key skills and capabilities		1	2
	Tree Node	ability to judge ones capability		10
	Tree Node	communication skills		8
	Tree Node	Ethical and legal framework, working with minors, gaining consent		1
	Tree Node	Evidence		4
	Tree Node	interprofessional dialogue		9
	Tree Node	knowledge areas		1
	Tree Node	medical differential diagnosis		10
	Tree Node	monitoring outcomes		8
	Tree Node	observation		3
	Tree Node	osteopathic technical ability		9
	Tree Node	parental issues		6
	Tree Node	patient perspectives		1
	Tree Node	practitioner attitude		3
	Tree Node	preparedness by pre-entry level training		8
	Tree Node	willingness to seek help and advice		8
Tree Node	multiple people in the consultation		4	7
Tree Node	Need for other management		6	14
Tree Node	new graduate versus experienced		10	16
Tree Node	Osteopathic professional fears		7	9
Tree Node	Patient demographics		8	9
Tree Node	patient reactions		5	9
Tree Node	Presenting problems		5	8
Tree Node	Treatment aims		9	19

The tree node 'knowledge areas' had some children, which are as follows:

Tree Node	knowledge areas		1	2
	Tree Node	case history taking		6
	Tree Node	developmental progression		5
	Tree Node	osteopathic perspectives		9
	Tree Node	other healthcare services		4
	Tree Node	pathologies and conditions		4
	Tree Node	physical examination strategies		5
	Tree Node	pregnancy and birth		2
	Tree Node	rate of change and rapid clinical progression		5
	Tree Node	reflexes		2

The tree node 'medical differential diagnosis' also had children which are:

Tree Node	medical differential diagnosis		10
	Tree Node	need for other input	
	Tree Node	Risk benefit equation	

Other data coded

There are many data that go beyond the main themes of the original research questions, and so have not been discussed here.

It is anticipated that these interviews will prove a rich source of background data for further exploration, and could be used to support focus groups to explore a number of issues relating to paediatric practice.

4.3 Survey

Introduction to this section.

The survey yielded a large array of data, and analysing this has been most interesting but it is impossible for reasons of space to draw out all of the potential themes, findings and report them here, as the variety of data is rich and the ways of cross comparing and questioning the data are wide.

That said, the aim of the survey, to create a view into current paediatric practice in New Zealand has been successful, and much useful data has emerged in this regard.

The survey also aimed at gathering data on how osteopaths dealt with their patients (and what their perspectives on management were) and the data here is again rich and complex. Certainly much data can be reported, but as its language and expression is very profession specific, it might not always be understandable to others.

However, the data on the treatment types give and treatment frequency is much easier to review, and this data gives a good picture of what paediatric patients might be exposed to if they consult an osteopath, information which will be helpful to third parties and other stakeholders.

Because of the range of data, it is hoped that many future research threads will emerge for consideration as it continues to be analysed.

Note: At times, some of the reporting elements have a degree of overlap making categorisation of the analysis outcomes in isolation more difficult.

4.3.1 Factors noted in the use of the surveys

Use of the likert scale – not well complied with – by including partly successful, satisfactory, and very successful left many participants to use 'successful' – which was interpreted throughout as 'satisfactory'. This mixing of word choices seemed to be confusing and therefore producing data that may not be reliable.

Use of the codes

Near the end of the finalisation of the survey tool it was felt that it would be too much work for the participants to transcribe the presenting condition codes from the summary sheet onto each individual patient data sheet themselves as it was crowing the form, and might lead to transcription error. So, this item was left off. It did increase the transcribing burden on the researcher, who did all the transcribing from the original data sheets to the software in use, and didn't seem to awkward an process.

Order of the items on the form

Future surveys might have their items located in a different order to help logical and easy flow of transcription following data collection.

Understanding of the term 'co-existing condition'

No matter how many choices you give to people they seem to want to add more terms – limiting the data by creating constraint by limiting the additional items that could be put down might ease data transcribing, but would result in data loss. In the context of an exploratory study such as this, gathering as diverse a set of data as possible is seen as advantageous to future research considerations.

Space

Although there were initial concerns about the space for the open ended sections of the form it seems that the osteopaths had sufficient room to put their responses – no one was trying to write off the page / go into adjacent areas too much. Only a few people wrote 'same' across all 5 entries seemingly in an attempt to save time (or they did in fact do the same thing), but most people wrote individualised responses to each item for each visit, thereby giving the impression that the data does reflect the ebb and flow of natural consultation development through a care period.

4.3.2 Survey returns

384 registrants – postal survey sent to all registrants of the OCNZ.

81 returns – 22% of the sample - 2 reminder emails were sent to achieve this return rate.

15 people said they didn't treat children - 18.5% of returns.

66 osteopaths reported on paediatric patient management - 66% of returns

From these 66 osteopath's descriptions:

Data was provided on 289 individual children ranging from less than one week old to 18 years old.

Of the 289, 144 were female children, 144 were male, and one child's gender was not reported.

389 treatments on males and

367 treatments on females were reported.

The child with no gender described received one treatment / session.

The 289 children each received between one and 5 treatments in the study period.

The total number of treatments recorded was 757.

Further analysis of data will be given below.

4.3.3 Profile of the paediatric osteopaths, including their educational biographies

4.3.3.1 Location

The location of the osteopaths was not requested, only patient location, as the study was not directed at reviewing the geographical spread and density of osteopaths seeing paediatric patients.

4.3.3.2 Culture and ethnic considerations

These data were not gathered.

4.3.3.3 Gender

61 osteopaths who saw paediatric patients declared their gender, and there were

5 osteopaths who saw paediatric patients did not declare their gender (6%).

Of the remainder,

29 were female osteopaths (36%), and

32 were male osteopaths (40%).

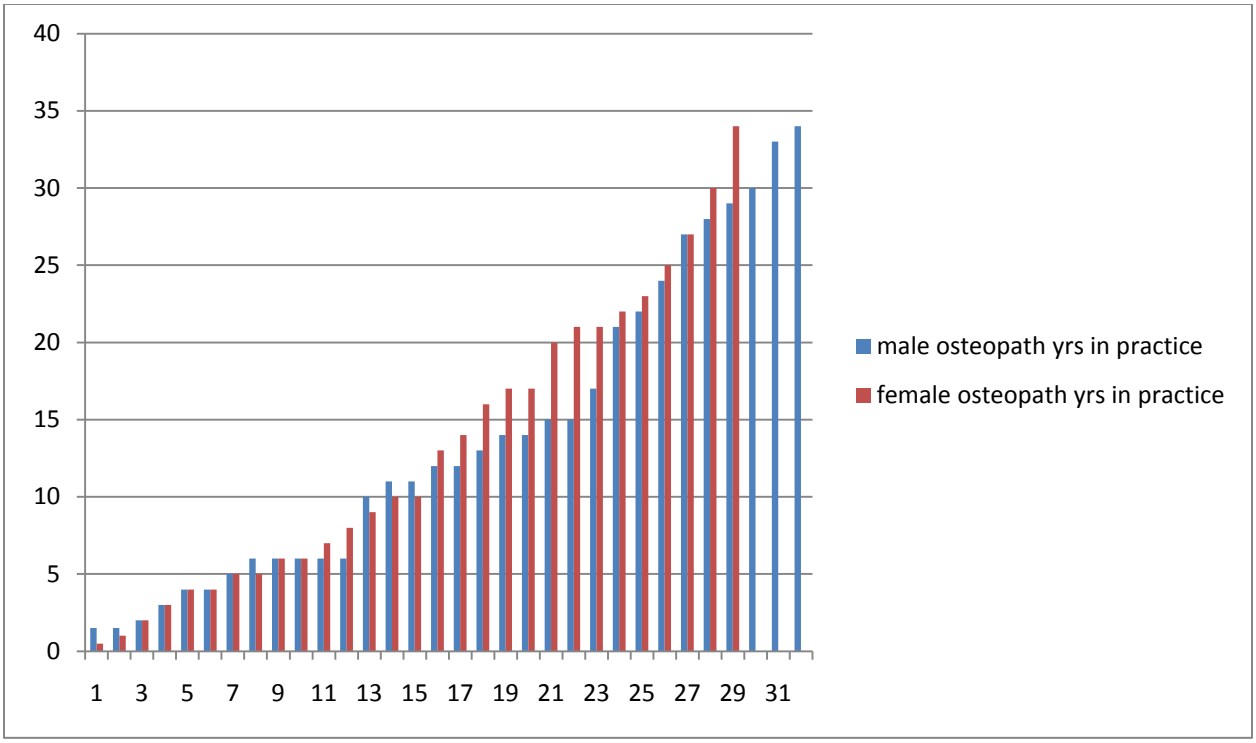
4.3.3.4 Length of time in practice

The overall length of time in practice was requested, but not how long that individual had been seeing paediatric patients. Exploring that perspective might be better placed in a study designed to consider an osteopaths capability regarding paediatric practice, as length of time seeing paediatric patients per sae is not likely to correlate with more effective practice (i.e. long term paediatric osteopaths are not by default going to be better practitioners, and vice versa). Similarly age was not requested, as differences in practice and learning styles between different age groups was not a focus of this study, although age of person in relation to seeing ages of patients might make a useful inclusion if a similar study was repeated. However, looking at age is possibly most fruitful when correlating it in some way with length of time in practice, and because this study was focusing on paediatric practice the question of when did you start your paediatric practice would have arisen, which may have been quite difficult to respond to (as 'when I saw my first paediatric patient 'would be different to 'when I decided to really focus on paediatric patients', for example).

The spread of time in practice between male and female osteopaths was reviewed, and a similar spread between the two was observed, see Figure 5 Length of time in practice.

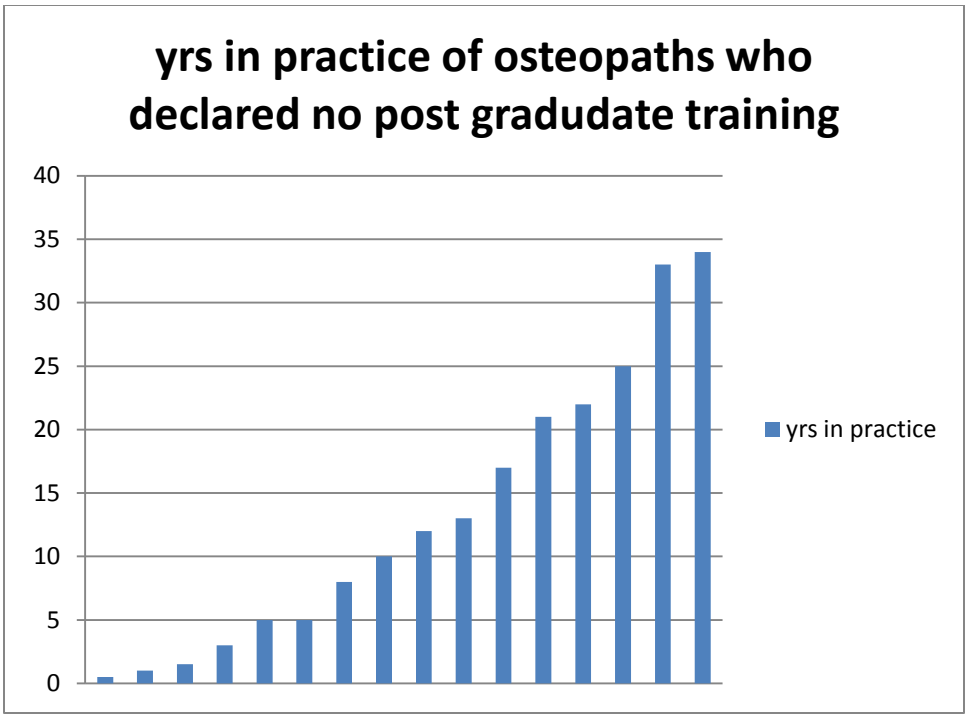
The youngest osteopath to reply had been in practice for 6 months and the oldest for 34 years. Hence paediatrics patients included in this study were seen by osteopaths who had been practising for a large range of time.

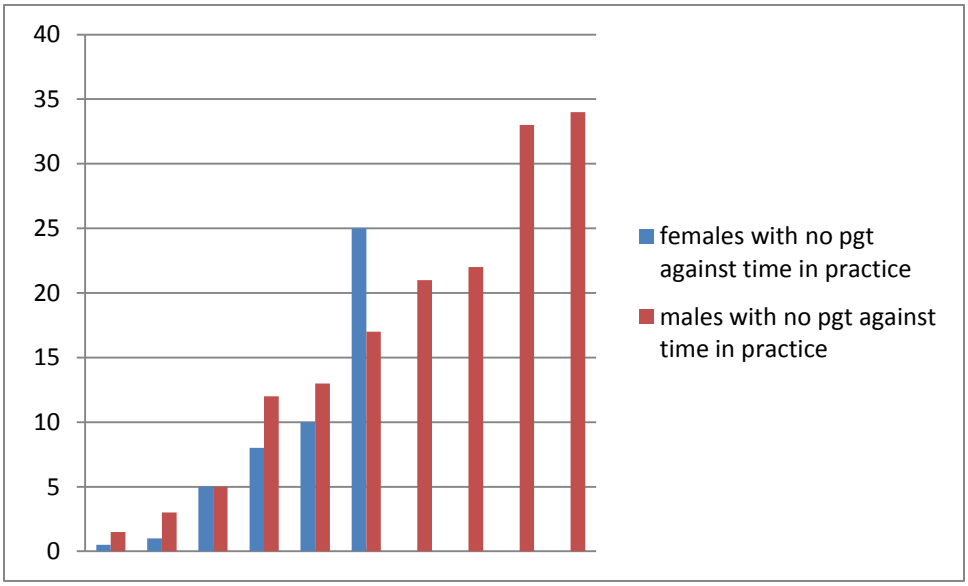
Figure 5 Length of time in practice



4.3.3.5 Education biographies and post graduate training

No data was collected on the person's original qualification or place of training. It has long been recognised that these issues alone are not directly related to performance in the workplace, and the study was concerned more with how people had seemingly prepared themselves for paediatric practice, as many osteopaths seem to do a variety of self directed learning or voluntary attendance at a variety of courses and seminars, which will alter their learning experiences beyond that provided by their undergraduate or pre-entry level education. The length of these courses doubtless varied considerably, but that in itself was not the focus of this study.





16 out of 61 osteopaths declared they had done no post graduate training in response to the relevant 'yes / no' question, and had not filled in anything in the 'post graduate training' box, however this is not a complete picture as all but 6 of them had in fact written something in the 'how else did you prepare

yourself for paediatrics training' box (1 woman and 5 men). In other words, 55 osteopaths had done something in terms of furthering their paediatric knowledge to support their paediatric practice (83%).

This would imply that most osteopaths are prepared to educate themselves and explore learning options to support their paediatric practice in the absence of formal requirements to do so.

4.3.4 Profile of the patients

4.3.4.1 Age and gender

There are a general spread of ages of paediatric patients consulting osteopaths in the study period, with an approximate 50:50 split between the under 5s and over 5s attending. The gender split of the patients in each age bracket is roughly equal. These age brackets were chosen as they correspond to generally accepted divisions of paediatric age groups, and corresponded to those discussed by the interviewees, in their chosen age brackets.

Age of patients	Number of patients (number in brackets if some osteopaths didn't declare their gender)	Male to female ratio of these children
Less than 6 weeks old	59	30 f : 29 m
6 weeks to 11 months*	48 (53)	26 f : 26 m
1 year to 4 years	29	15 f : 14 m
5 years to 12 years	67 (71)	32 f : 39 m
13 years and over	69 (77)	41 f : 36 m

*Only one patient didn't report their gender – in the 6 weeks to 11 months age bracket.

4.3.4.2 Culture and ethnic considerations

Cultural and race details were deliberately not included in the data collected. There are several reasons for this. One is that there are no general population statistics relating to the nature, style, frequency or outcomes of osteopathic care given to any general population, or any specific culture, to compare with any other given culture's care.

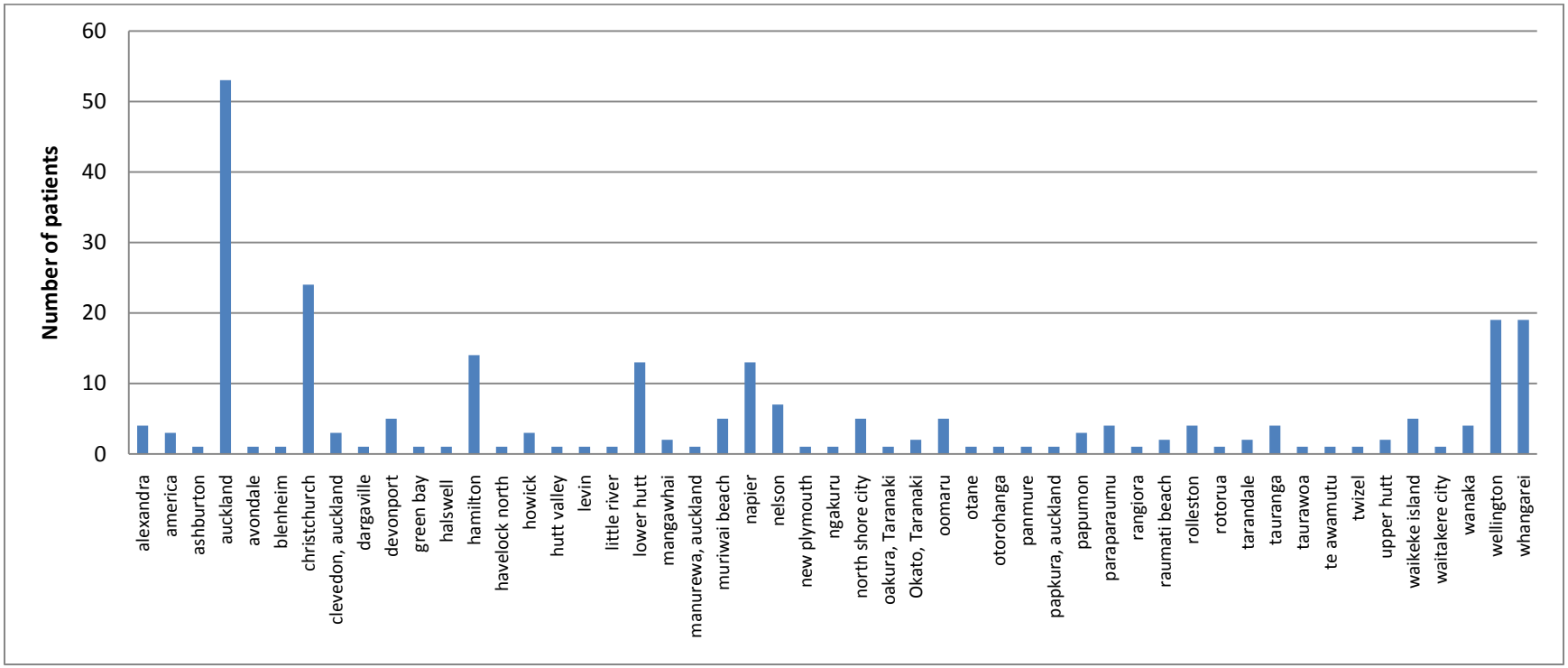
Another reason was that the retrospective nature of the bulk of the data collection meant that no accurate definition of race or cultural background could be guaranteed. Would the osteopaths be reporting what they recalled or imagined the ethnicity or culture of the patient was, or if they had recorded something the patient had said, would they be have been using a uniform scale against which the patients themselves could report their culture? The answers to these types of questions could not be identified, and so any culture or ethnicity data would not be accurate and could therefore not be included.

4.3.4.3 Location

34 out of 289 patient locations were not given, the rest of the patient locations were identified by the osteopaths describing the village, town or city that the patient had come from. The following represents the geographical spread of patients seeking osteopathic care during the survey: see Figure 6. These locations of course represent the patients who were seen by those osteopaths who chose to respond to the postal survey, and so do not represent the full geographical spread of paediatric patients seeing osteopaths in New Zealand. Virtually all of the patients seen were from New Zealand, however 3 patients were reported to come from America and it is possible that one or more families were holidaying in NZ at the time of the survey. These patients all saw the same osteopath. It is not known if the patients were related.

Note the spelling of the places were as recorded in the data, and some may be suburbs of a larger city, such as Auckland, for example, meaning that the actual number from each place may vary slightly. However, this data serves to illustrate that osteopaths in diverse geographical locations across New Zealand are seeing paediatric patients.

Figure 6 Location of patients seeing the osteopaths who responded to the survey



4.3.4.4 Presenting symptoms

A variety of presenting symptoms were reported for the children, and these tended to vary according to the age of the patient.

4.3.4.4.1 Frequency across all ages

An initial count of items for the first visit was undertaken, and these are reported in two figures, Figure 7 The range and frequency of presentations A and Figure 8 The range and frequency of presentations B.

From these figures it can be seen that many presentations were reported only once across these initial visits / sessions, such as conjunctivitis, cleft palate, eye discharge etcetera. Osteopaths don't have standard codes to use to identify presenting symptoms or conditions, and there is a tendency to use very individualistic terms that others might arguably place all under the same umbrella. Hence 'conjunctivitis' and 'eye discharge' might be usefully grouped under a heading of 'eye problems', or clicking knees and sprained ankle might be collected together under the term lower limb problems'. However, because the list is not too large this type of grouping has not been carried out to help reduce data cluttering, as this was not felt to be too problematic, and the data have been left ungrouped.

Figure 7 The range and frequency of presentations A

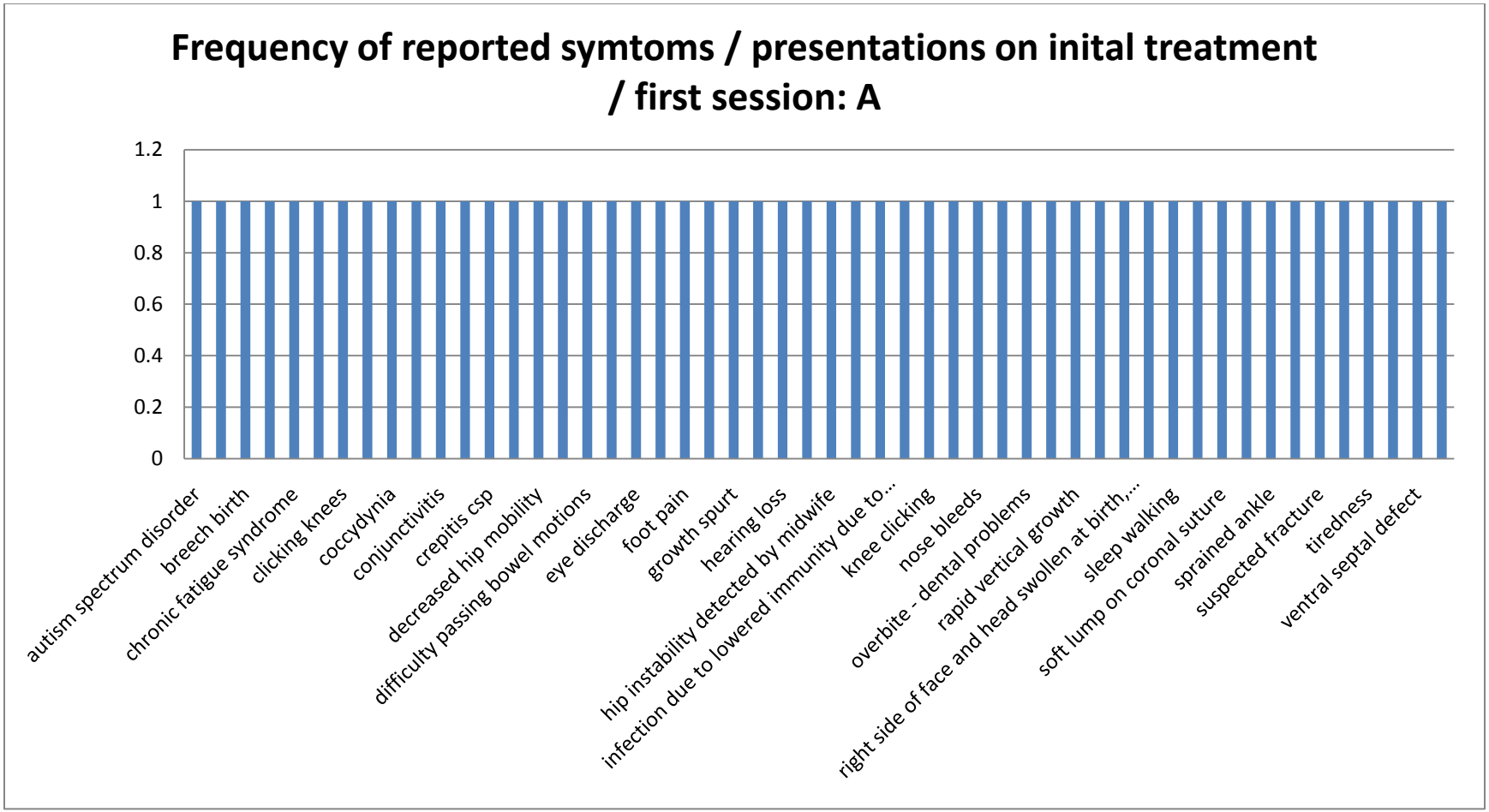
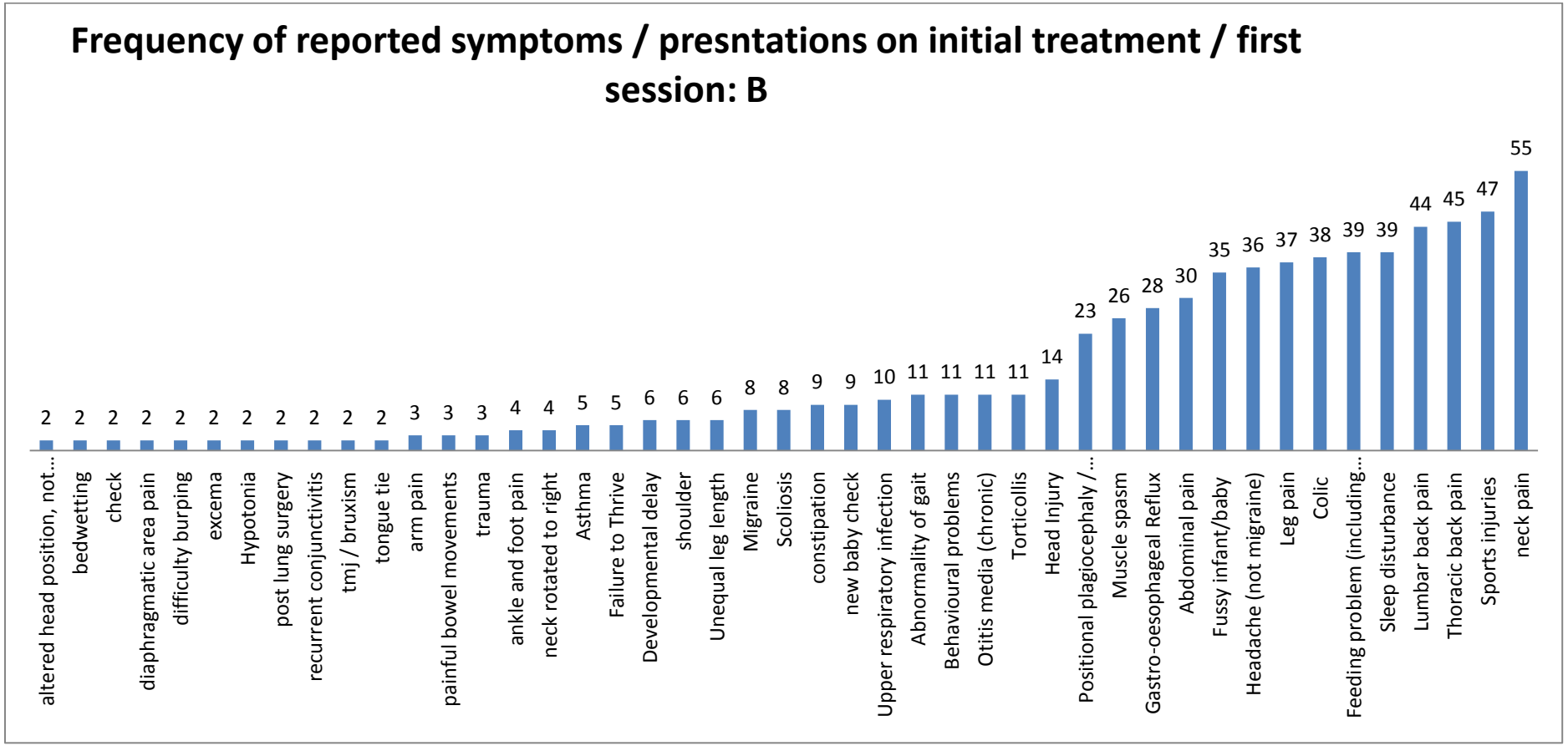


Figure 8 The range and frequency of presentations B



Looking just at the top 20 most frequently occurring presenting symptoms reported on the initial visit, it can be seen that neck pain is the most common paediatric reported presentation, across all age groups, with sports related presentations the next most frequent, followed by thoracic back pain. These most frequently occurring presentations are outlined in Table 1 Most frequent presentations on initial visit, across all patient ages.

Table 1 Most frequent presentations on initial visit, across all patient ages

Presentation	Total times items reported on 289 children	% (rounded out)
neck pain	55	19
Sports injuries	47	16
Thoracic back pain	45	15.5
Lumbar back pain	44	15
Feeding problem	39	13
Sleep disturbance	39	13
Colic	38	13
Leg pain	37	13
Headache (not migraine)	36	12
Fussy infant/baby	35	12
Abdominal pain	30	10
Gastro-oesophageal Reflux	28	10
Muscle spasm	26	9
Positional plagiocephaly / Skull or face deformity	23	8
Head Injury	14	5
Abnormality of gait	11	4
Behavioural problems	11	4
Otitis media (chronic)	11	4
Torticolis	11	4
Upper respiratory infection	10	3

Greater breakdown of this data is given in a later section, to enable more generalised age related issues to be highlighted first. Please see the section: 'Presentations across ages (age at initial presentation)' to see the full breakdown of what are the most frequently occurring conditions and presentation types per age bracket for the children in the study.

4.3.4.4.2 Frequency versus Clusters of presenting symptoms / conditions

The interpretation of this data on presentations does need careful consideration, as very few patients presented with only one item, symptom or condition on the initial visit. Patients mostly came with clusters of problems, which were variable in description. Also, some patient reported that their symptoms changed over time, and new, different or changed presentation profiles were relatively common during the study period (to be precise, over a period of up to 5 sessions of treatment / care).

Patients who changed their presentation in some way	New symptoms introduced
25 (8.65%)	29

Table 2 Number of patients whose presentation changed during the study period

Note: it is not known why symptoms changed – it might be because of treatment effect, new trauma, a coincidental development, or some other reason. This would have to be explored in a differently designed study.

The concept of clustering though became a very important theme as data analysis continued, and consequently it has been give a separate section later, to help illustrate the way people are presenting to osteopaths, and how osteopaths might manage these situations.

Further comments in this regard are found in the section on

Descriptive terms used by osteopaths, and approaches to types of conditions.

4.3.4.4.3 Gender bias in frequency of presentations reported

FURTHER REPORTING ON GENDER RELATED RESULTS CAN ALSO BE FOUND IN A SEPARATE SECTION BELOW.

Before considering a breakdown of presentation types per age of child, it is useful to consider if male and female patients present with a similar range of issues, and from that one can also consider if male and female osteopaths are being exposed to similar clusters or frequencies of presenting issues per child, as these issues might have an impact on the nature of care given, and the skills required to determine the appropriate type of care to give.

Question 1:

Are the numbers of presentations statistically different between male and female patients?

Both child genders across all osteopaths:

Symptom numbers	Both child genders	Male patients	Female patients
Average number of symptoms on initial presentation	2.57	2.58	2.55
Mode number of symptoms on initial presentation	2	2	2

Looking at the averages and the modes, they are very similar and it would seem that there is likely to be little significant difference in the numbers of initial presenting symptoms amongst male patients compared to female patients. This question was not further explored sing statistical analysis. Consideration of the second question yielded a slightly different view.

Question 2:

Are male and female osteopaths dealing with statistically different groups (with respect to numbers of initial clinical presentations to consider?)

Symptom numbers	Dealt with by male osteopaths	Dealt with by female patients
Average number of symptoms on initial presentation	2.54	2.60
Mode number of symptoms on initial presentation	1	2

One initial reflection, the mode is different between the two groups, and it might be that female osteopaths and male osteopaths are being exposed to slightly different patient presentations in terms of numbers of initial presentation types.

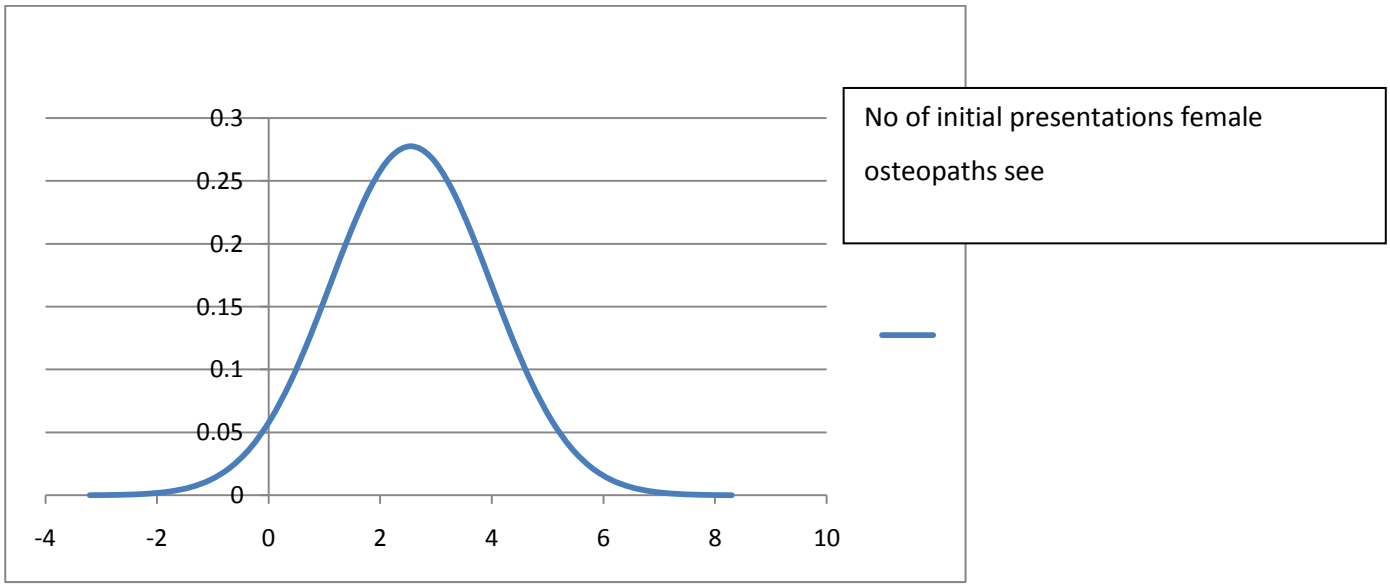
Statistical significance can be explored in a number of ways, but the following process was used in this case (and throughout this data analysis).

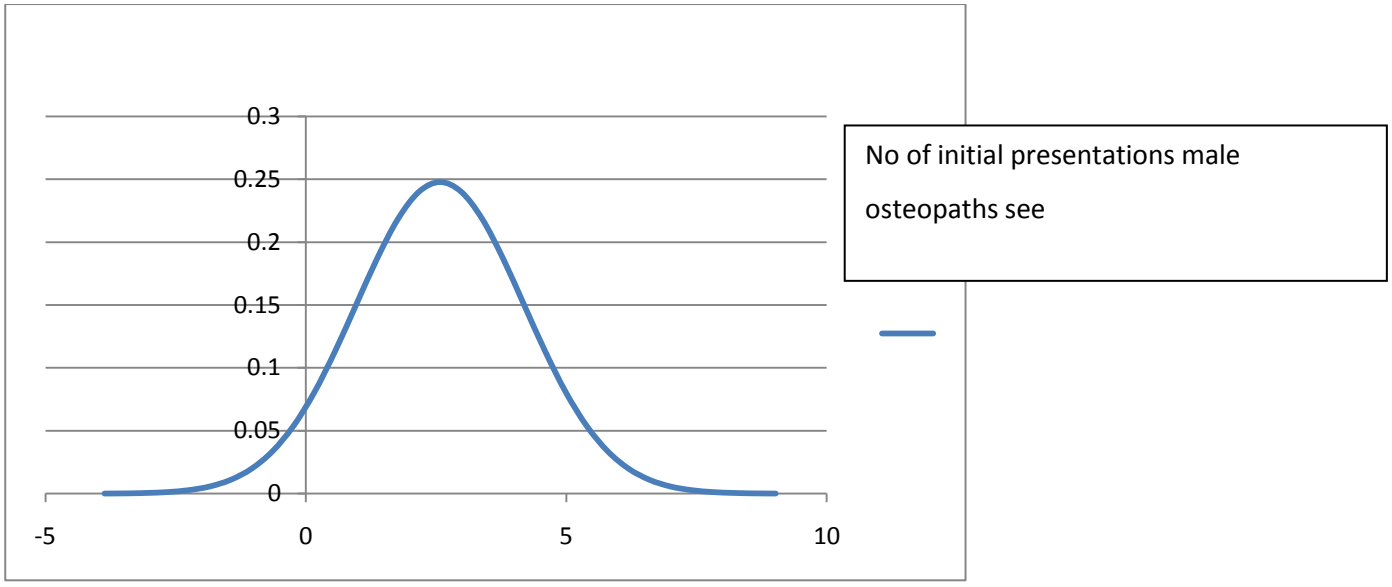
Initially one can prepare a bell curve to visually explore the distribution of values. This was done using Microsoft Excel 2007 software, which produced the following data, and graphs:

number of initial symptoms of male patients			number of initial symptoms of female patients		
-4	-3.86786	8.30695E-05	-4	-3.20298	9.31E-05
-3.75	-3.4651	0.000218859	-3.75	-2.84351	0.000245
-3.5	-3.06233	0.000541681	-3.5	-2.48403	0.000607
-3.25	-2.65956	0.001259447	-3.25	-2.12456	0.001411
-3	-2.2568	0.002750885	-3	-1.76508	0.003082
-2.75	-1.85403	0.00564445	-2.75	-1.40561	0.006324
-2.5	-1.45127	0.010879963	-2.5	-1.04613	0.01219
-2.25	-1.0485	0.019701067	-2.25	-0.68666	0.022074
-2	-0.64574	0.033512645	-2	-0.32718	0.037549
-1.75	-0.24297	0.053553054	-1.75	0.03229	0.060002
-1.5	0.159795	0.080392655	-1.5	0.391764	0.090074
-1.25	0.562561	0.113371815	-1.25	0.751239	0.127025
-1	0.965326	0.150193253	-1	1.110713	0.168281
-0.75	1.368092	0.186918523	-0.75	1.470188	0.209429
-0.5	1.770858	0.218529893	-0.5	1.829662	0.244847
-0.25	2.173623	0.240008135	-0.25	2.189137	0.268912
0	2.576389	0.247626811	0	2.548611	0.277448
0.25	2.979155	0.240008135	0.25	2.908086	0.268912
0.5	3.38192	0.218529893	0.5	3.26756	0.244847
0.75	3.784686	0.186918523	0.75	3.627035	0.209429

1	4.187451	0.150193253	1	3.986509	0.168281
1.25	4.590217	0.113371815	1.25	4.345984	0.127025
1.5	4.992983	0.080392655	1.5	4.705458	0.090074
1.75	5.395748	0.053553054	1.75	5.064933	0.060002
2	5.798514	0.033512645	2	5.424407	0.037549
2.25	6.20128	0.019701067	2.25	5.783881	0.022074
2.5	6.604045	0.010879963	2.5	6.143356	0.01219
2.75	7.006811	0.00564445	2.75	6.50283	0.006324
3	7.409577	0.002750885	3	6.862305	0.003082
3.25	7.812342	0.001259447	3.25	7.221779	0.001411
3.5	8.215108	0.000541681	3.5	7.581254	0.000607
3.75	8.617873	0.000218859	3.75	7.940728	0.000245
4	9.020639	8.30695E-05	4	8.300203	9.31E-05

This data can then be converted into a graph, to look at its shape, to see if it is normally distributed or not.





Although these graphs look very similar, implying there is likely to be little statistically significant differences between the groups, it was decided to test this hyporesearch portfolio with a statistical analysis, as they are the right sort of shape to allow this.

One statistical test commonly used to test this type of difference between groups is a student t-test, between independent groups. The results of this for the data identified above, are given below, and indicate that there is no significant difference, based on that calculation. No accurate inference can be drawn from this, as the study design might not support such a calculation, but it is a potential area for future consideration.

There is a useful tool which does t-test calculations for you using a cut and paste methods, which is located at: http://www.physics.csbsju.edu/stats/t-test_bulk_form.html, accessed 04/02/11

That tool was used to give the following calculations on the raw data pertaining to the above graphs:

Student's t-Test: Results

The results of an unpaired t-test performed

t=-0.154

sdev= 1.53

degrees of freedom =286 The probability of this result, assuming the null hyporesearch portfolio, is 0.88

Group A: Number of items= 144

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 6.00 6.00 6.00 6.00 7.00

Mean = 2.55

95% confidence interval for Mean: 2.298 thru 2.799

Standard Deviation = 1.44

Hi = 7.00 Low = 1.00

Median = 2.00

Average Absolute Deviation from Median = 1.10

Group B: Number of items= 144

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 6.00 6.00 7.00 7.00 8.00 8.00 9.00

Mean = 2.58

95% confidence interval for Mean: 2.326 thru 2.827

Standard Deviation = 1.61

Hi = 9.00 Low = 1.00

Median = 2.00

Average Absolute Deviation from Median = 1.16

From this it seems that there is no statistically significant different in the numbers of initial presentations that female or male osteopaths are exposed to, implying that they have similar clinical complexity conundrums to deal with in respect to number of initial presenting symptoms.

4.3.4.5 Presentations across ages (age at initial presentation)

It is now time to return to the number and nature of presenting conditions or symptoms seen across the various age groups of the children.

All the data on the numbers of times a particular presentation or symptom or condition was mentioned on the first visit that a child had, across the different age brackets are shown in

Appendix Five.

As many of them were only reported once in only one age group, the data analysis here will focus on the most frequently occurring presentations for each age group.

For this data analysis, one research paper was most useful for reflective purposes (which was mentioned in the survey design section). This was the paper on 'Characteristics of Pediatric Patients Seen in Medical School–Based Osteopathic Manipulative Medicine Clinics' (Lund & Carreiro, 2010) who described the numbers of visits to an osteopathic clinic in America, for various types of presentations, across various paediatric age brackets. Although it must be noted that American osteopaths must also qualify as medical doctors (and hence their patient profile may be different), these were patients presenting to a clinic specifically for the OMT (osteopathic manipulative treatment) that it offered. The ways their study was constructed highlights some useful differences between the American and New Zealand osteopathic practice environment, which may aid communication to New Zealand medical practitioners and other stakeholders (which will be discussed through the analysis). This paper is included in full in Appendix Six and the layout of this data analysis mirrors their format for ease of comparison. One departure is the inclusion here of an age bracket for those less than 6 weeks, as it was felt initially that these children might present differently to the rest of the under one year olds.

One further point to note is that Lund and Carreiro used visit counts – that is, the number of times the billing code was used in the study period. They state that their figures do not identify if this was repeated sessions for the same presentation, or multiple new presentations of the same condition type.

This study has taken a different approach. It is already known that the study period does not cover the full number of treatments given per child for any given presentation, so visit counts might be misleading AND ALSO, osteopaths do not record their notes in the same way. They do not have to enter a billing code per presentation type per treatment session, as they do not have the same reporting constraints as the American Osteopaths (who are also medical practitioners). Hence retrieving this type of data would not be possible or accurate in New Zealand.

One other point that is extremely important to note is that osteopaths in Europe and Australasia are all non medical practitioners (with regards to their original osteopathic training). They treat each person and their collection and cluster of conditions / presentations as a unit – therefore each person who has say 4 out of 5 conditions is treated supposedly differently than a different similarly matched patient who has say 5 out of 5 of those same conditions. So, what is being treated per session is not able to be broken down as osteopaths don't give 5 parts of treatment if there are 5 symptoms or 3 parts if the person only has 3 conditions. This point is illustrated graphically in: In relation to initial numbers of presenting conditions.

4.3.4.5.1 Patients who are less than 6 weeks

Top 10 conditions for these patients (n=59 patients) – musculo-skeletal and non-musculo-skeletal presentations combined.

Colic	19
Feeding problem	18
Fussy infant/baby	17
Sleep disturbance	16
Gastro-oesophageal Reflux	13
Abdominal pain	12
new baby check	9
Positional plagiocephaly / Skull or face deformity	9
Torticollis	4
constipated	3

Top 10 non musculo-skeletal conditions for these patients (n=59)

Colic	19
Feeding problem	18
Fussy infant/baby	17
Sleep disturbance	16
Gastro-oesophageal Reflux	13
Abdominal pain	12
constipated	3
Behavioural problems	1
cleft palate	1
Developmental delay	1

Top 10 musculo-skeletal conditions for these patients (n=59)

new baby check	9
Positional plagiocephaly / Skull or face deformity	9
Torticollis	4
neck turn / side preference	3
Head Injury	2
Muscle spasm	2
Scoliosis	2
breech birth issues	1
infant hip instability	1
post birth localised facial / head swelling	1

4.3.4.5.2 Patients who are between 6 weeks and 11 months at initial presentation

Top 10 conditions for these patients (n=53 patients) – musculo-skeletal and non-musculo-skeletal presentations combined.

Colic	17
Feeding problem	17
Fussy infant/baby	17
Sleep disturbance	16
Gastro-oesophageal Reflux	14
Positional plagiocephaly / Skull or face deformity	11
Abdominal pain	10
Torticollis	6
conjunctivitis / eye discharge	3
constipation	3

Top 10 non musculo-skeletal conditions for these patients (n=53)

Colic	17
Feeding problem	17
Fussy infant/baby	17
Sleep disturbance	16
Gastro-oesophageal Reflux	14
Abdominal pain	10
conjunctivitis / eye discharge	3
constipated	3
Developmental delay	2
Failure to Thrive	2

Top 10 musculo-skeletal conditions for these patients (n=53)

Positional plagiocephaly / Skull or face deformity	11
Torticollis	6
head turn (not Torticolis / tight muscle)	3
Muscle spasm	2
new baby check	2
Thoracic back pain	2
arm pain	1
Neck pain	1
neck turn / side preference	1
jumpy baby' / caesarian issues	1

4.3.4.5.3 Patients who are between 1 and 4 years at initial presentation

Top 10 conditions for these patients (n=29 patients) – musculo-skeletal and non-musculo-skeletal presentations combined.

Otitis media (chronic)	8
Behavioural problems	4
Feeding problem	4
Upper respiratory infection	4
Neck pain	3
Sleep disturbance	3
Abnormality of gait	2
Colic	2
Failure to Thrive	2
Headache (not migraine)	2

Top 10 non musculo-skeletal conditions for these patients (n=29)

Otitis media (chronic)	8
Behavioural problems	4
Feeding problem	4
Upper respiratory infection	4
Sleep disturbance	3
Colic	2
Failure to Thrive	2
painful bowel motions	2
Abdominal pain	1
Asthma	1

Top 10 musculo-skeletal conditions for these patients (n=29)

Neck pain	3
Abnormality of gait	2
Headache (not migraine)	2
Positional plagiocephaly / Skull or face deformity	2
clumsy	1
Leg pain	1
Lumbar back pain	1
Muscle spasm	1
Sports injuries	1
Thoracic back pain	1

4.3.4.5.4 Patients who are between 5 and 12 years at initial presentation

Top 10 conditions for these patients (n=71 patients) – musculo-skeletal and non-musculo-skeletal presentations combined.

Neck pain	21
Leg pain	18
Headache (not migraine)	16
Lumbar back pain	16
Thoracic back pain	16
Sports injuries	14
Muscle spasm	8
Behavioural problems	6
Abnormality of gait	5
Head Injury	5

Top 10 non musculo-skeletal conditions for these patients (n=71)

Behavioural problems	6
Migraine	4
Sleep disturbance	4
Abdominal pain	3
Asthma	3
bedwetting	2
constipation	2
Developmental delay	2
Otitis media (chronic)	2
complex regional pain syndrome	1

Top 10 musculo-skeletal conditions for these patients (n=71)

Neck pain	21
Leg pain	18
Headache (not migraine)	16
Lumbar back pain	16
Thoracic back pain	16
Sports injuries	14
Muscle spasm	8
Abnormality of gait	5
Head Injury	5

4.3.4.5.5 Patients who are 13 years and over (but less than 19 years) at initial presentation

Top 10 conditions for these patients (n=59 patients) – musculo-skeletal and non-musculo-skeletal presentations combined.

Neck pain	31
Sports injuries	31
Lumbar back pain	27
Thoracic back pain	26
Headache (not migraine)	18
Leg pain	18
Muscle spasm	13
Head Injury	5
uncomfortable defecation	5
Abdominal pain	4

Top 8 non musculo-skeletal conditions for these patients (n=59) – there were not 10 types reported

uncomfortable defecation	5
Abdominal pain	4
Migraine	4
gynaecological problems	2
Asthma	1
chronic fatigue	1
Sleep disturbance	1
infection due to lowered immunity	1

Top 10 musculo-skeletal conditions for these patients (n=59)

Neck pain	31
Sports injuries	31
Lumbar back pain	27
Thoracic back pain	26
Headache (not migraine)	18
Leg pain	18
Muscle spasm	13
Head Injury	5
Abnormality of gait	4
Shoulder	4

4.3.5 Types of care given to paediatric patients

This section has been one of the most complex to consider, as the shear variety of findings and data means that few patterns are as yet emerging – which might in fact therefore be the conclusion.

Understanding what treatment-types osteopaths give to patients gives some insight, for example are new born babies given soft tissue massage or manipulation, or are older children given exercises or stretching? Knowing this is useful to consider what stresses and strains might be being put onto a child's body during treatment, as well as considering if the osteopath delivers a different mode of treatment to other similar professions such as physiotherapy or chiropractic, for example.

However, it doesn't explain why these things are being done, to what parts of the body, and to children with what types of problems. All these issues are important for risk benefit equations to be considered regarding the advisability or potential benefit of osteopathic care for these children.

Because of the complexity of this data, the analysis is split into two parts – this first section deals with treatment types (as well as numbers) and a latter section will deal with the osteopathic concepts and perspectives, under the heading

Descriptive terms used by osteopaths.

4.3.5.1 Treatment types used by osteopaths

For the 289 patients, on their first session, they collectively received 1173 types of care given by the osteopaths, making an average of 4.05 types of care given per patient on that first visit.

What constitutes a type of care needs discussing, to understand what activities are being performed by the osteopath in their patient management. The list to choose from on the survey contained a number of hands on and also hands off procedures, which included patient referral, advice give, the concept of giving parental support as a therapeutic aim, and so on. The aim of this was very clear – to identify the proportion of care given by osteopaths that is not confined to hands on techniques. It was also to see if osteopaths demonstrated a number of good practice approaches, such as referral when things were beyond their expertise, or discussion of self help approaches, or discussion of lifestyle and home issues, or inclusion of dietary influences and so on. Including all these types of items are 'treatment types' enabled the survey to identify a better overview of what constitutes an osteopathic consultation rather than a list of techniques alone.

So, much information can be got from the data about care given to patients across different ages without evening asking questions about what types of treatment are given to what types of conditions or in what situations.

A break-down of these types of issues will follow, but it must be understood that this is ony an overview, as the data is large and cannot be fully illustrated in this research portfolio.

Firstly though, a basic count of all the treatment types given in the initial visit by all osteopaths to all ages of patients is shown in Table 3 Treatment types given to all patients on the first session.

A very brief discussion of some of these treatments is given in the glossary, as the aim of the research portfolio is not to discuss the meaning and nature of each type of technique approach used. However, in the following list those items marked with an asterisk are very gentle techniques, using extremely gentle contacts for the most part, with limited amplitude and forces applied to the tissues and they are applied within anatomical and physiological limits of the tissues. They are not forceful, quick, direct, sharp or vigorous in application, and are usually applied very slowly, very cautiously and in non-threatening or violent manners.

Further discussion of the nature of osteopathic techniques and their nomenclature is deliberately avoided within this research portfolio as it is something that most osteopaths cannot agree on and it causes great angst and debate within the profession. The above will suffice to indicate the potential harm or lack of it done by the actual physical application of the techniques (regardless of other considerations, which are not being forgotten).

Table 3 Treatment types given to all patients on the first session

Osteopathy in the cranial field (OCF) 1 (applied to head) *	136
Osteopathy in the cranial field (OCF) 2 (applied to rest of body) *	122
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body) *	95
Soft tissue massage	95
Articulation	94
Joint mobilisation (not including HVT)	76
Balanced ligamentous tension approach (BLT) *	74
Biodynamic treatment approach *	61
Manipulation (high velocity thrust techniques - HVT)	53
Prescription of exercises	53
Discussion of dietary advice and other complementary and alternative medicine approaches (CAM) e.g. homeopathy, acupuncture, herbal products	50
Visceral manipulation	42
Parental support was a therapeutic approach given in the care of the child	41
Discussion of parenting approaches / family relationships / social relationships	40
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	32
Discussion about need for further investigations from a medical practitioner / healthcare service provider (not including CAM practitioners)	23
Referral to medical practitioner / healthcare service provider	17
Tick this box for each session if your diagnosis or management of the patient is pending results or feedback from orthodox medical practitioners or investigations, leave blank if not	7
Harmonics	5
Precise ergonomics advice	5
Upledger-style cranio-sacral therapy	5
Neuro-link neural integration therapy	5
Referral to another osteopath	4
Rule of the artery osteopathy	4
Muscle energy technique	4

4.3.5.2 In relation to numbers of treatments given across the age groups

	male and female osteopaths - number of treatments given session 1 - less than 6 weeks	female osteopaths - number of treatments given session 1 - less than 6 weeks	male osteopaths - number of treatments given session 1 - less than 6 weeks	male and female osteopaths - number of treatments given session 1 - 6 weeks to 11 months	male osteopaths - number of treatments given session 1 - 6 weeks to 11 months	female osteopaths - number of treatments given session 1 - 6 weeks to 11 months	male and female osteopaths - number of treatments given session 1 - 1 to 4 yrs	female osteopaths - number of treatments given session 1 - 1 to 4 yrs	male osteopaths - number of treatments given session 1 - 1 to 4 yrs	male and female osteopaths - number of treatments given session 1 - 5 to 12 yrs	female osteopaths - number of treatments given session 1 - 5 to 12 yrs	male osteopaths - number of treatments given session 1 - 5 to 12 yrs	male and female osteopaths - number of treatments given session 1 - 13 and over	female osteopaths - number of treatments given session 1 - 13 and over	male osteopaths - number of treatments given session 1 - 13 and over
Average	3.54	3.48	3.68	3.92	3.63	4.06	4.31	4.33	4.27	5.50	3.96	4.30	4.67	4.75	4.71
Mode	3	3	4	5	3	5	6	6	4	5	4	3	5	5	5

Student's t-Test: Results comparing numbers of treatments given to those less than 6 weeks to those between 6 weeks and 11 months:

The results of an unpaired t-test performed (using same method as above)

t= -1.65

sdev= 2.05

degrees of freedom = 86 The probability of this result, assuming the null hyporesearch portfolio, is 0.10

This means that despite the modes being different, there is no significant difference in the numbers of treatments given on the initial visit, across the ages.

4.3.5.3 In relation to initial numbers of presenting conditions

Looking at presentation numbers and types gives us some more insight into the numbers of initial presenting symptoms across the ages.

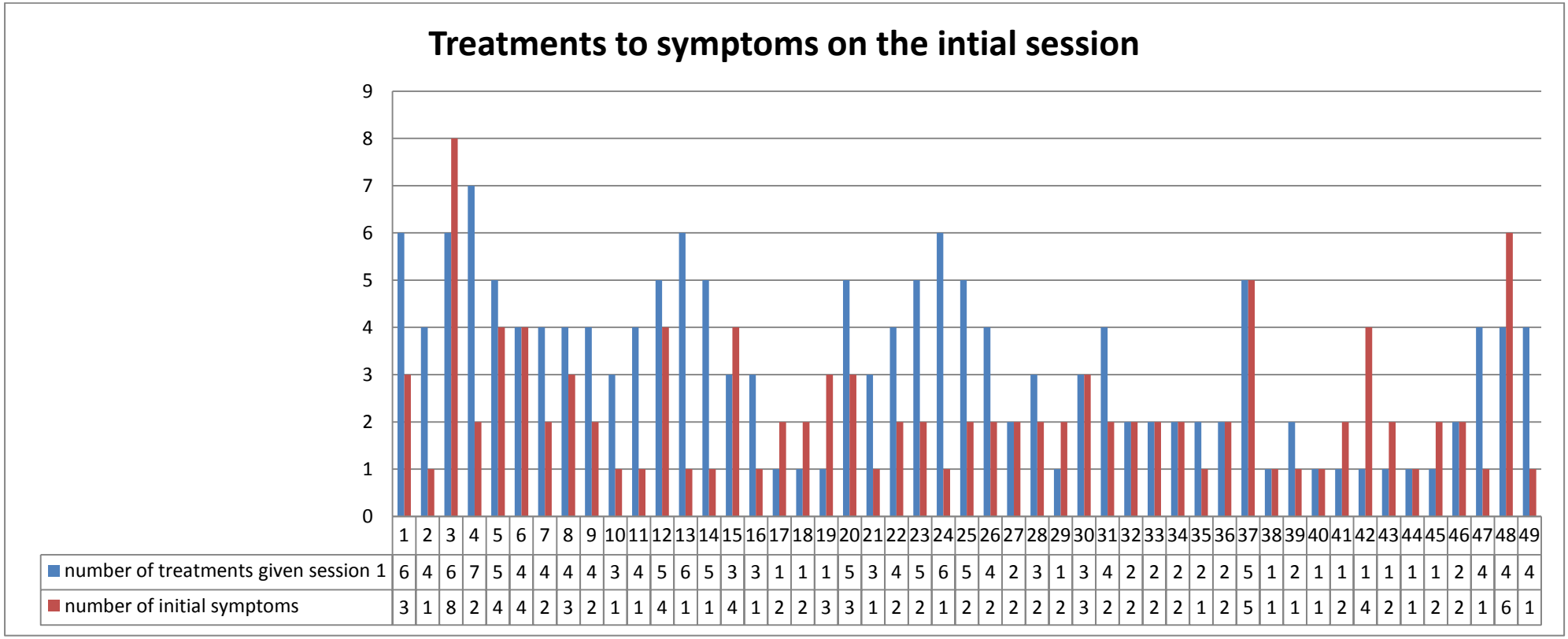
	male and female osteopaths - number of treatments given session 1 - less than 6 weeks	number of initial symptoms	male and female osteopaths - number of treatments given session 1 - 6 weeks to 11 months	number of initial symptoms	male and female osteopaths - number of treatments given session 1 - 1 to 4 yrs	number of initial symptoms	male and female osteopaths - number of treatments given session 1 - 5 to 12 yrs	number of initial symptoms	male and female osteopaths - number of treatments given session 1 - 13 and over	number of initial symptoms
Average	3.54	2.49	3.92	2.71	4.31	2.24	5.50	2.45	4.67	2.76
Mode	3	1	5	1	6	2	5	2	5	2

Looking at the averages only, it appears that there is no difference in the numbers of initial symptoms presenting across the age groups, although there do appear to be more types of treatment given per initial presenting symptom in the 6 weeks – 11 months and the 1 to 4 years age brackets than in the others.

The reasons for this are not clear, but could relate to the nature of the presenting conditions or symptoms, which in those ages might be different, and therefore require a different number of style of treatment / management options.

One other analysis to note (which relates back to the section on presentations across the ages, and the numbers of treatments given), can be highlighted by another graph. This graph illustrates that the number of treatments given in the initial session does not match the number of presenting conditions or symptoms on that visit. This was an issue noted when discussing the Lund and Careirro paper in the section on Presentations across ages (age at initial presentation).

The graph below covers 50 patients only, for ease of display, but the rest follow a similar pattern of dis-relation between numbers of treatment types give on a first session, and the number of presentations noted at that session.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
number of treatments given session 1	6	4	6	7	5	4	4	4	4	3	4	5	6	5	3	3	1	1	1	5	3	4	5	6	5	4	2	3	1	3	4	2	2	2	2	2	5	1	2	1	1	1	1	1	1	2	4	4	4
number of initial symptoms	3	1	8	2	4	4	2	3	2	1	1	4	1	1	4	1	2	2	3	3	1	2	2	1	2	2	2	2	2	3	2	2	2	2	1	2	5	1	1	1	2	4	2	1	2	2	1	6	1

4.3.5.4 In relation to ages of patient

Although age related data emerges in the other section, the main elements are summarised here.

Table 4 General data on division of ages and presentation frequencies across age brackets

Age of patients	Number of patients (number in brackets if some osteopaths didn't declare their gender)	Male to female ratio of these children	Average number of presenting complaints (both sexes combined)	Average number of treatments given in first session (both sexes combined)	Male to female osteopath ratio seeing these children	Average number of years in practice seeing these children
Less than 6 weeks old	59	30 f : 29 m	2.49	3.54	35 – 22 m	12.64
6 weeks to 11 months*	48 (53)	26 f : 26 m	2.71	3.92	29 – 19 m	13.90
1 year to 4 years	29	15 f : 14 m	2.24	4.31	18 – 11 m	13.79
5 years to 12 years	67 (71)	32 f : 39 m	2.45	5.50	30 – 37 m	11.52
13 years and over	69 (77)	41 f : 36 m	2.76	4.67	16 – 53 m	13.68

*Only one patient didn't report their gender – in the 6 weeks to 11 months age bracket.

The split between patients seen who under 5 and those over 5 is virtually 50:50

However, 61% of the under 5s are seen by female osteopaths compared to 39% seen by male osteopaths

Whereas only 33% of the over 5s are seen by female osteopaths compared to 67% being seen by male osteopaths.

Note: this fact is illustrated in the section on gender related differences, below.

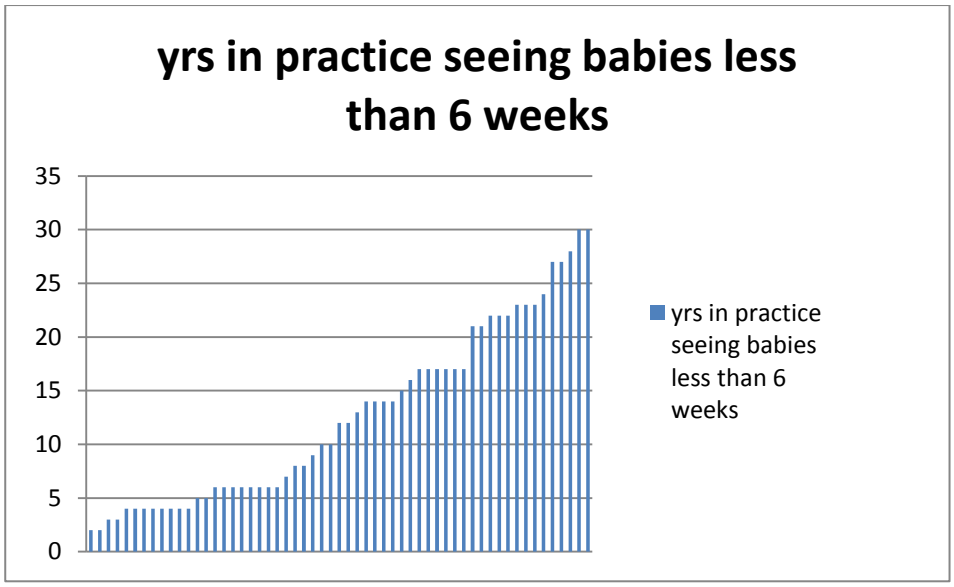
4.3.5.4.1 Relative experience of the osteopaths

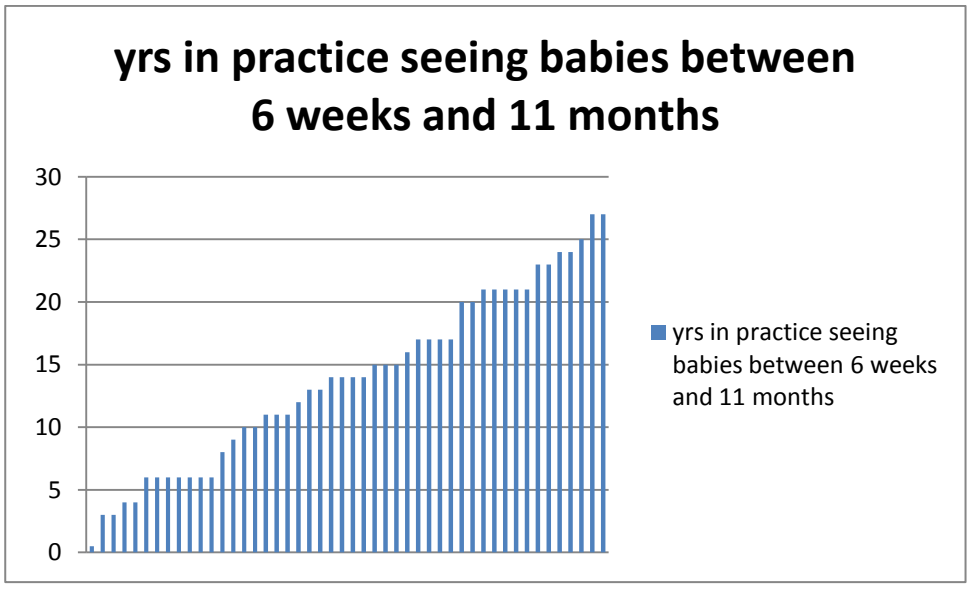
Informally in the profession there have been concerns expressed that as there are proportionally more recent graduates than more long-time serving osteopaths in New Zealand, that many children, and especially the

young babies (being considered more vulnerable), are being seen by younger, and therefore by inference less experienced osteopaths. Looking at the spread of ages of osteopaths dealing with the different age brackets, we can see that there appears an equal spread of time in practice across the different age groups, which would seem to dispel this particular concern.

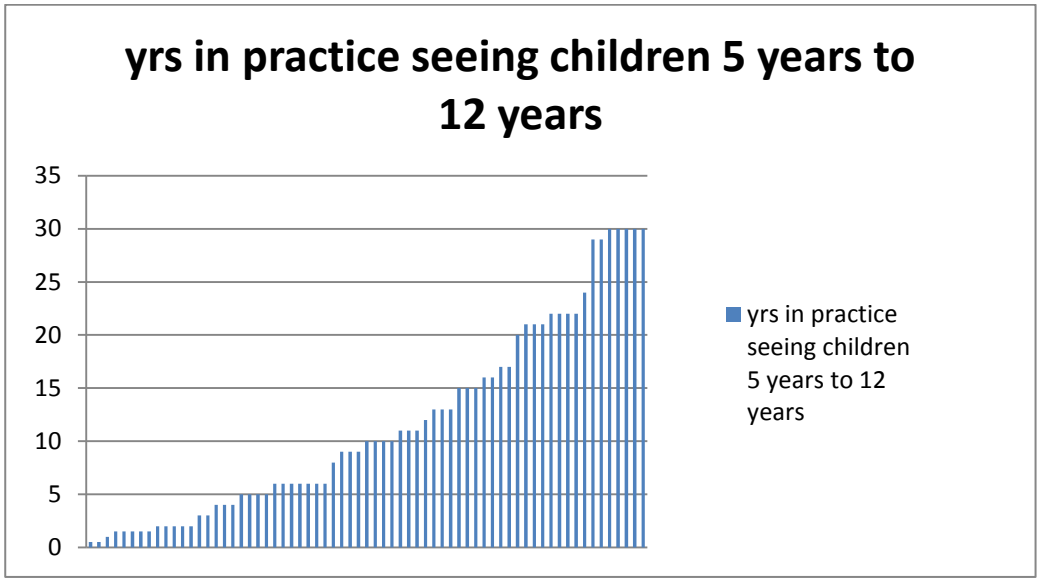
These age spreads are shown in the tables below.

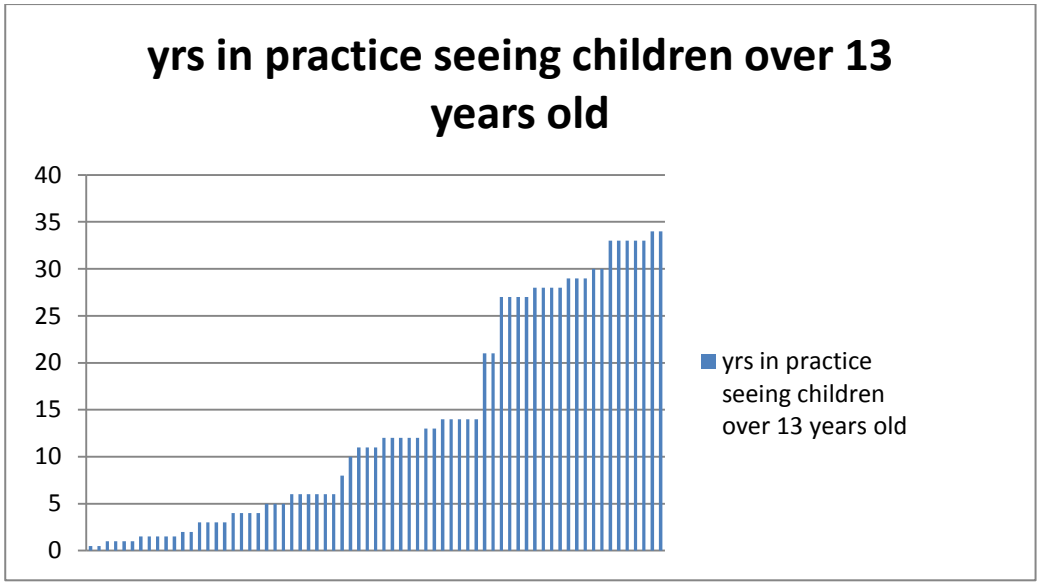
Table 5 Years in practice of osteopaths seeing age brackets of children






yrs in practice seeing children 1 year to 4 years
35
30
25
20
15
10
5
0
yrs in practice seeing children 1 year to 4 years

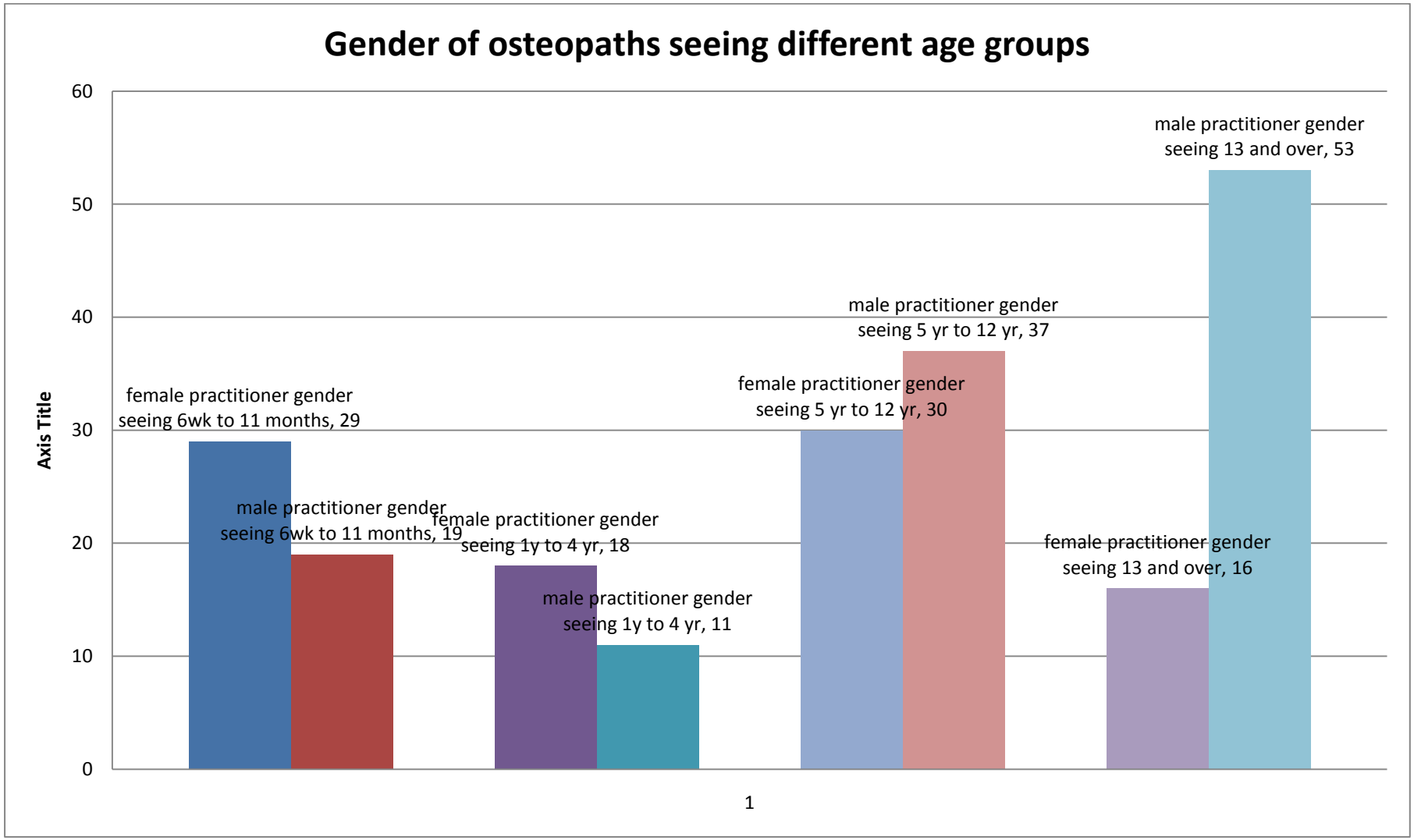

yrs in practice seeing children 5 years to 12 years
35
30
25
20
15
10
5
0
yrs in practice seeing children 5 years to 12 years



4.3.6 Gender related differences in osteopathic care given to children

As indicated above, most of the under 5s are seen by women and most of the over 5s are seen by men.

Figure 9 Gender of osteopaths seeing different age groups of patients



4.3.6.1 In relation to patient gender type

Gender related issues can continue to be explored.

Do osteopaths see the same spread of each gender?

Female osteopaths saw	67 female patients versus	62 male patients,
whereas male osteopaths saw	73 male patients versus	69 female patients.

These numbers look similar, but there would need to be another study done to explore local population demographics and the like in order to see what might lie behind any apparent differences if any were found by a larger or more powerful study.

4.3.6.2 Gender bias in frequency of treatments given

Do male and female osteopaths see patient for a similar amount of times?

On observation, there are some superficial differences in care given in relation to osteopath gender and patient gender, but it is not possible to draw definite conclusions from the data in this study as there has not been any controlling for potential important confounders that may be operating. This has not been possible due to the nature of the data collected – which would need to be more specific and over a larger sample. However the current data suggests that gender related data collection and analysis may give valuable insights into osteopathic care profiles.

The superficial potential differences noted are discussed below.

Female osteopaths reported data on 128 patients (covering 370 treatments / sessions), and male osteopaths reported data on 143 patients (348 treatments / sessions).

	Given by female osteopaths to all patients	Given by male osteopaths to all patients
Average number of sessions given to patients in study period	2.890625	2.450704225
Mode number	3	1

Student's t-Test: Results

The results of an unpaired t-test performed

t= 2.65

sdev= 1.36

degrees of freedom =268 The probability of this result, assuming the null hyporesearch portfolio, is 0.0084

This would appear to be a significant difference between the number of times male and female patients saw patients in the study period.

Why? The male osteopaths either didn't see their patients as often in the study period because of the dates the patients first attended perhaps, or they were simply seeing them fewer times by choice (from the osteopaths not getting the patient to come back, or the patient not coming back). The reason for not returning again could vary from being much better, to not being better and not wanting to return. Another reason could be in relation to the type of presentation that male and female patients express, and perhaps conditions affecting male and female patients naturally need more or less treatment (this is not just in relation to disease epidemiology, but also in relation to whether male and female patients respond differently to treatment, in particular to treatment given by osteopaths). Answers to these questions are not possible from this data set, or study, but would make interesting points for future consideration.

So, as we don't know why the children are getting the number of sessions they are, further data analysis on what types of treatment to what conditions are given may be better conducted on the first session, which everyone received, and that should make comparisons more representative.

But, as men and women are often reported to deal with patients differently*, it was felt interesting to explore the gender differences a bit more, so the next step was to look at the number of treatments male osteopaths give to male children or female children, or female osteopaths give to male or female children.

* In some studies it has been reported that gender related differences between physician and patients mean that female doctors are more likely to see female patients (Franks & Bertakis, 2003).

Do different gender osteopaths treat different genders differently?

Looking at all the sessions delivered or given to children, regardless of why, and reviewing both osteopath and child genders, we get the following information:

Number of treatment session given to children	Male osteopaths seeing male patients	Male osteopaths seeing female patients	Female osteopaths seeing male patients	Female osteopaths seeing female patients
Average per child	2.48	2.42	3.05	2.74
Mode per child	1	1	3	2

Student's t-Test: Results of male osteopaths treating either male or female patients

The results of an unpaired t-test performed

t= 0.251

sdev= 1.40

degrees of freedom =140 The probability of this result, assuming the null hyporesearch portfolio, is 0.80

This means that male osteopaths give similar numbers of sessions overall to male and female patients

Student's t-Test: Results of female osteopaths treating either male or female patients

The results of an unpaired t-test performed

t= 1.32

sdev= 1.31

degrees of freedom =126 The probability of this result, assuming the null hyporesearch portfolio, is 0.19

This means that female osteopaths give similar numbers of sessions overall to male and female patients

Student's t-Test: Results of comparing the number of sessions given by female osteopaths to male patients to the number given by male osteopaths to male patients

The results of an unpaired t-test performed

t= 2.43

sdev= 1.36

degrees of freedom =133 The probability of this result, assuming the null hyporesearch portfolio, is 0.017

This means that female osteopaths give statistically different number of sessions to male patients than male osteopaths give to male patients.

Student's t-Test: Results

The results of an unpaired t-test performed

t= 1.37

sdev= 1.36

degrees of freedom =133 The probability of this result, assuming the null hyporesearch portfolio, is 0.17

This means that female osteopaths do not give statistically different number of sessions to female patients than male osteopaths give to female patients.

Overall conclusion: male and female osteopaths treat male patients differently in the number of sessions given during the study period – female osteopaths give statistically greater numbers of treatments.

Caution – as it is not possible to tell if the number of sessions reported in the study period represent the total number of sessions a male or female osteopaths would give a male child over the course of a complete treatment series (total number of session give for a presentation) this difference might not be reflected in the overall picture, but it does highlight an interesting area for further research. Again, to repeat it is not known why this difference is apparent in the study period.

From the above tables, it can be seen that female patients give more sessions of treatments per patient than do male osteopaths, and female osteopaths are more likely to give male patients more sessions than they do to female patients. The finding that female osteopaths seemingly give male patients greater numbers of treatment sessions seems to be at odds with the trend noted in the work earlier reporting on female doctors managing female patients (Franks & Bertakis, 2003) as they found that female doctors gave more types of care and different types of care to female patients, not males (albeit on adult populations not paediatric ones).

4.3.6.3 Number of treatment types given in relation to genders of osteopath

As it is not known why the children are getting the number of sessions they are, further data analysis on what range or number of treatments are given may be better conducted on the first session only, which everyone received, and that should make comparisons more representative.

Exploring the gender related theme a bit more, drawing out the number of treatment types given in session one given by male or female osteopaths to male or female patients, the following emerges:

Number of treatment types given to children in session 1	Male osteopaths seeing male patients	Male osteopaths seeing female patients	Female osteopaths seeing male patients	Female osteopaths seeing female patients
Average per child	4.19	4.34	4.09	3.92
Mode per child	4	5	5	3

Do osteopaths give the same number of treatments to patients on the first session – are the patient genders being dealt with in similar ways by each gender osteopath?

When child genders are mixed together:

Number of treatments on the first / initial session[2]:

	Given by female osteopaths	Given by male osteopaths
Average per child	4.0078125	4.269503546
mode per child	3	4

Student's t-Test: Results

Using the same tool as previously: the results of an unpaired t-test performed are:

t= -1.10

sdev= 1.94

degrees of freedom =267 The probability of this result, assuming the null hyporesearch portfolio, is 0.27

[2] Note: Osteopaths who did not declare their gender reported on 39 treatments / sessions, so the numbers here do not include those 39 sessions, which might affect the true picture.

So, this means there seems to be no statistical difference in the numbers of treatment given on the first session by either male or female osteopaths, when both patient genders are mixed.

But are male or female osteopaths treating male or female patients differently?

This can again be explored in similar ways.

Student's t-Test: Results on the number of treatment types given in session one by either male or female osteopaths to male patients

The results of an unpaired t-test performed t=-0.289

sdev= 1.95

degrees of freedom =132 The probability of this result, assuming the null hyporesearch portfolio, is 0.77

Here there appears to be no difference in the number of treatment types given to male patients on the first session by either male or female osteopaths.

Student's t-Test: Results on the number of treatment types in session one given by either female or male osteopaths to female patients

The results of an unpaired t-test performed

t= -1.26

sdev= 1.95

degrees of freedom =133 The probability of this result, assuming the null hyporesearch portfolio, is 0.21

Here there appears to be no difference in the number of treatment types given to female patients on the first session by either male or female osteopaths.

Student's t-Test: Results Females seeing male or female children

The results of an unpaired t-test performed

t=-0.537

sdev= 1.82

degrees of freedom =126 The probability of this result, assuming the null hyporesearch portfolio, is 0.59

No statistical difference in female osteopaths seeing male or female children

Student's t-Test: Results Males seeing male or female children

The results of an unpaired t-test performed

t= 0.442

sdev= 2.06

degrees of freedom =139 The probability of this result, assuming the null hyporesearch portfolio, is 0.66

No statistical difference in male osteopaths seeing male or female children

Student's t-Test: Results Males seeing males compared to females seeing females

The results of an unpaired t-test performed

t= 0.772

sdev= 2.05

degrees of freedom =136 The probability of this result, assuming the null hyporesearch portfolio, is 0.44

No statistical difference in male osteopaths seeing male children compared to female osteopaths seeing female children

So overall, in terms of the number of treatment types given on the first session there appears to be no gender bias in the way osteopaths deal with male or female patients.

4.3.6.4 Gender differences relating to presenting conditions or symptoms

As reported earlier, patients presenting to female osteopaths have slightly more initial symptoms – the mode being 2, compared to patients seeing male osteopaths - who have fewer symptoms on presentation – the mode being 1. This was shown not to be statistically significant using a basic student t-test. It was also noted elsewhere that female osteopaths tend to give male patients more treatments than they do female patients, and the reasons for this are not clear.

On reviewing gender differences in numbers of presenting symptoms, male patients presenting to female osteopaths have similar numbers of initial presenting symptoms compared to female patients presenting to female osteopaths, so, it is seemingly not the patient that accounts for the differences in the higher number of

sessions given by female osteopaths to male patients. Some other factors may be at work. It is assumed that if the initial numbers of presenting conditions or symptoms is similar that female and male osteopaths are seeing patients with similar levels of clinical complexity, and similar clusters of presenting conditions and problems. However this cannot be accurately determined from the data in this survey, and so the findings are observational only and would make a good investigatory point for future studies.

number of initial symptoms of male patients seen by female osteopaths	number of initial symptoms of female patients seen by female osteopaths	number of initial symptoms of female patients seen by male osteopaths	number of initial symptoms of male patients seen by male osteopaths	number of initial symptoms seen by male osteopaths	number of initial symptoms seen by female osteopaths
2.74	2.46	2.55	2.53	2.54	2.60
2	2	1	1	1	2

4.3.6.5 Gender and other differences relating to referral patterns

Referral patterns – female osteopaths referred on in 17 treatments, and male osteopaths referred on in 15 treatments, so on the face of it, female osteopaths are not more likely to refer (whereas for example some authors have noted that females doctors have a tendency to ask for more tests and so on).

Because of the small numbers it is difficult to analyse this data much more with respect to patient age, condition type, experience of the osteopath and so on, and therefore understanding the appropriateness of referral patterns of osteopaths dealing with paediatric patients cannot be determined from this data.

4.3.7 Descriptive terms used by osteopaths, and approaches to types of conditions

As stated elsewhere osteopaths aim to give different types of treatments to individuals and strongly resit concepts of treatment protocols which would mean giving the same types of things to each patient. What exactly osteopaths mean by this can be difficult to determine, and the study sought to identify what types of patterns or lack of them emerged from the data.

This moves the data analysis away from just counts to now include the opportunity for interpretive work or reflections. (This actually proved very difficult to do, but the data alone should still be able to provide interesting stories for future research).

4.3.7.1 Treatment types applied across the ages, and by gender of osteopath

Top 10 treatments given to those less than 6 weeks (n=48)

Osteopathy in the cranial field (OCF) 1 (applied to head)	31
Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	28
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	19
Biodynamic treatment approach	14
Balanced ligamentous tension approach (BLT)	12
Parental support was a therapeutic approach given in the care of the child	10
Discussion of parenting approaches / family relationships / social relationships	10
Visceral manipulation	7
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	6
Soft tissue massage	5

Top 10 treatments given to those between 6 weeks and 11 months (n=64)

Osteopathy in the cranial field (OCF) 1 (applied to head)	47
Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	44
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	26
Biodynamic treatment approach	18
Balanced ligamentous tension approach (BLT)	17
Discussion of dietary advice and other complementary and alternative medicine approaches (CAM) e.g. homeopathy, acupuncture, herbal products	17
Discussion of parenting approaches / family relationships / social relationships	14
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	10
Visceral manipulation	8
Articulation	8

Top 10 treatments given to those 1-4 years (n=30)

Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	19
Osteopathy in the cranial field (OCF) 1 (applied to head)	17
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	13
Biodynamic treatment approach	12
Discussion of dietary advice and other complementary and alternative medicine approaches (CAM) e.g. homeopathy, acupuncture, herbal products	12
Balanced ligamentous tension approach (BLT)	8
Visceral manipulation	6
Discussion of parenting approaches / family relationships / social relationships	5
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	4
Articulation	4

Top 10 treatments given to those 5-12 years (n=71)

Soft tissue massage	36
Articulation	33
Osteopathy in the cranial field (OCF) 1 (applied to head)	27
Joint mobilisation (not including HVT)	26
Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	22
Balanced ligamentous tension approach (BLT)	22
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	20
Prescription of exercises	16
Manipulation (high velocity thrust techniques - HVT)	13
Biodynamic treatment approach	11

Top 10 treatments given to those 13 and over (n=78)

Soft tissue massage	60
Articulation	44
Joint mobilisation (not including HVT)	44
Manipulation (high velocity thrust techniques - HVT)	39
Prescription of exercises	35
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	17
Balanced ligamentous tension approach (BLT)	15
Osteopathy in the cranial field (OCF) 1 (applied to head)	14
Visceral manipulation	11
Parental support was a therapeutic approach given in the care of the child	10

These have been put together for ease of comparison:

To everyone	To those less than 6 weeks	To those between 6 weeks and 11 months	To those between 1 and 4 years	To those between 5 and 12 years	To those over 13 and under 19 years
Osteopathy in the cranial field (OCF) 1 (applied to head)	Osteopathy in the cranial field (OCF) 1 (applied to head)	Osteopathy in the cranial field (OCF) 1 (applied to head)	Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	Soft tissue massage	Soft tissue massage
Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	Osteopathy in the cranial field (OCF) 1 (applied to head)	Articulation	Articulation
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	Osteopathy in the cranial field (OCF) 1 (applied to head)	Joint mobilisation (not including HVT)
Soft tissue massage	Biodynamic treatment approach	Biodynamic treatment approach	Biodynamic treatment approach	Joint mobilisation (not including HVT)	Manipulation (high velocity thrust techniques - HVT)
Articulation	Balanced ligamentous tension approach (BLT)	Balanced ligamentous tension approach (BLT)	Discussion of dietary advice and other complementary and alternative medicine approaches (CAM) e.g. homeopathy, acupuncture, herbal products	Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	Prescription of exercises
Joint mobilisation (not including HVT)	Parental support was a therapeutic approach given in the care of the child	Discussion of dietary advice and other complementary and alternative medicine approaches (CAM) e.g. homeopathy, acupuncture, herbal products	Balanced ligamentous tension approach (BLT)	Balanced ligamentous tension approach (BLT)	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)
Balanced ligamentous tension approach (BLT)	Discussion of parenting approaches / family relationships / social relationships	Discussion of parenting approaches / family relationships / social relationships	Visceral manipulation	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	Balanced ligamentous tension approach (BLT)
Biodynamic treatment approach	Visceral manipulation	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	Discussion of parenting approaches / family relationships / social relationships	Prescription of exercises	Osteopathy in the cranial field (OCF) 1 (applied to head)
Manipulation (high velocity thrust techniques - HVT)	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	Visceral manipulation	Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	Manipulation (high velocity thrust techniques - HVT)	Visceral manipulation
Prescription of exercises	Soft tissue massage	Articulation	Articulation	Biodynamic treatment approach	Parental support was a therapeutic approach given in the care of the child

From this it seems that there is quite a difference in treatment type that the under 5s received compared to the over 5s.

This is no doubt appropriate in some way because of tissue differences, vulnerabilities, types of conditions and ability of the child to participate in treatment, for example. However, it is also interesting, as elsewhere it was noted that there is a gender difference in who is giving the treatment to these children, with a marked change at the 5 year split – females giving most of the treatment to the under 5s and males giving most of the treatment to the over 5s.

There may or may not be any correlation with gender osteopath and the type of treatment mode they prefer, but this would make a fruitful area for further research.

Parental support also features in the top 10 treatments given in 2 age groups – it features most prominently at the under 6 weeks age group,. And it is probably understandable that parents with new born babies need support for themselves as part of the overall care of the child. Interestingly the other place where parental support comes in within the top 10 is in the over 13 years bracket – so perhaps those teenage years require the parents to have some therapeutic support themselves whilst caring for the child.

Other issues to note in terms of treatment styles are that no high velocity thrusts were given to the under 5s – the youngest patient to receive one was an 8 year old. Most of the reported use of this technique is in the over 13 years age bracket.

4.3.7.2 Clustering of symptoms to help understand osteopathic perspectives

As stated elsewhere, patients frequently present with more than one symptom or complaint, making analysis (and understanding of treatment choices) more complex. This may be one way of understanding the range of treatments that are given across the age groups, and why they might vary. Although comparing modes of treatment give to various different presenting conditions might be an interesting point for future studies, the aim of this study is to give insight into osteopathic approaches, and this means more than counting technique styles used. Hence no further analysis of treatment choices in terms of numbers given will be done, and instead the focus will be on why things might be being done. To understand this it i necessary to look at the descriptive terms, for a variety of presentations.

To get a good impression of what this might mean, understanding the clusters of presentations first should give insight into management approaches for typical paediatric patients seen by osteopaths.

The tables given earlier in this chapter gave indications of the basic frequency of complaint across the different age groups, and here the aim is to show how symptoms may be clustered, to give a more realistic impression of what children come to see osteopaths about. This will then be used as a basis for reviewing the descriptive terms that the osteopaths use to discuss their diagnostic ideas and management aims.

4.3.7.3 Clusters of conditions in the less than 6 week old bracket

A review of the presenting conditions per age group was undertaken, and is shown in full in Appendix Five.

There could be myriad ways of trying to understand osteopathy through combining and analysing the data in this section, and it is likely that many, many views through different lenses will be needed to get an illustration that is useful to the wider community. What is outlined here serves as an illustration only, and the hope is that it will provoke further ideas for future study. In the interests of space, this will be done for only certain conditions affecting the under 5s, and not for the other ages.

Taking two common presenting complaints in this age group (researcher personal choice) – feeding problems and gastro-oesophageal reflux - a review can be made of all the items / presentations that accompanied these 2 main conditions. In other words what was the range of things clustered together around these 2 conditions as themes?

These clusters can then be represented as tag clouds to make visualisation easier. Two clouds are shown, one focusing around gastro-oesophageal reflux as a theme, and the other with feeding as a theme. So, all the under 6 weeks old that had 'reflux' ticked as a presenting symptom had all their other presentations added up and put into a cloud. The same with babies who had feeding ticked on their initial presentation. These clouds only show items listed on the initial presentation.

Cloud one illustrates the clusters around feeding as a theme, and cloud 2 illustrates the clusters around gastro-oesophageal reflux as a theme. These clouds were produced using the tool at http://www.wordle.net/create

So, every one of the patients identified in the reflux theme would have had a different combination of other associated symptoms, and so would have required a slightly different emphasis in treatment, as with the

patients identified in the feeding theme. Thus the treatment descriptors which will be illustrated later on will have to be read against the background of these clusters, and the implications this has for osteopathic care.

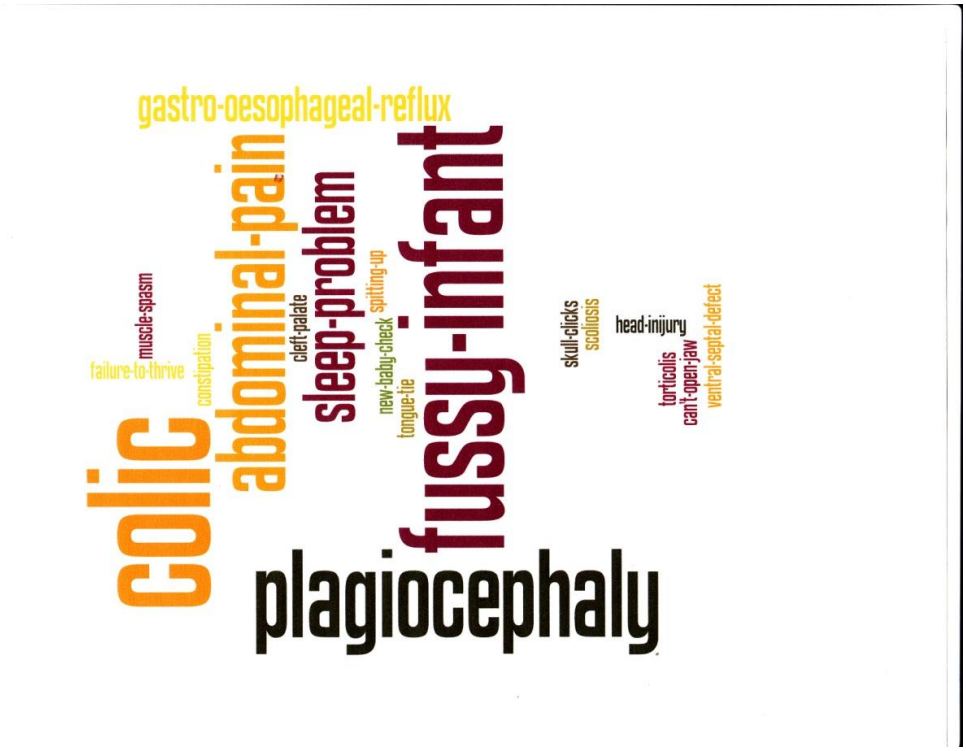


Figure 10 Cloud One - feeding problems theme in the under 6 week olds

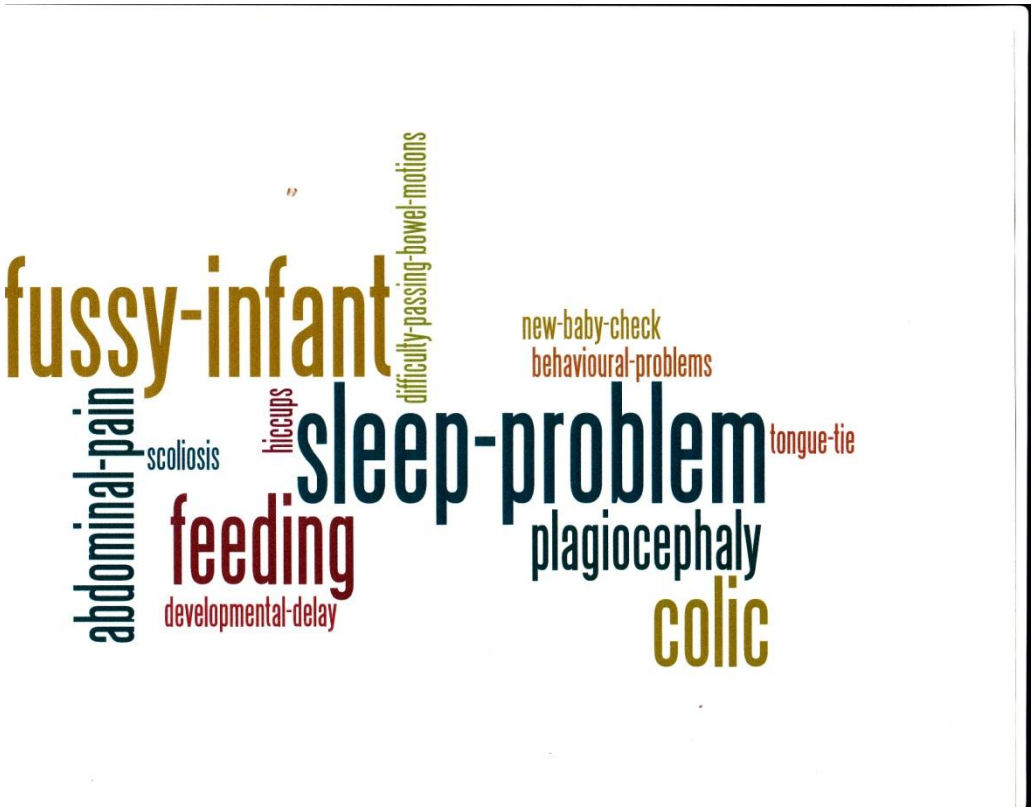
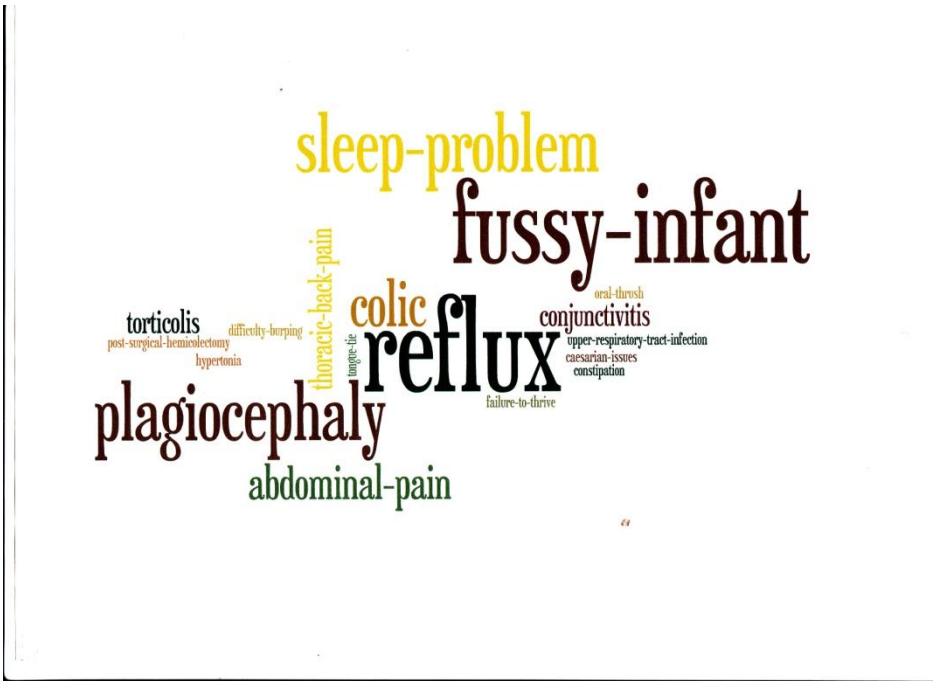


Figure 11 Cloud 2 - Reflux theme in the under 6 week olds

4.3.7.4 Clusters of conditions in the 6 week to 11 month old bracket

Here two more cluster themes were chosen from the previously displayed most commonly occurring conditions in this age group. The themes were feeding and plagiocephaly. Two more clouds are given to show the clusters of other presentations around this theme. Cloud 3 shows clusters around feeding and cloud 4 shows clusters around plagiocephaly. See Figure 12 Cloud 3 - clusters around feeding theme in 6w - 11m children, and Figure 13.

Figure 12 Cloud 3 - clusters around feeding theme in 6w - 11m children



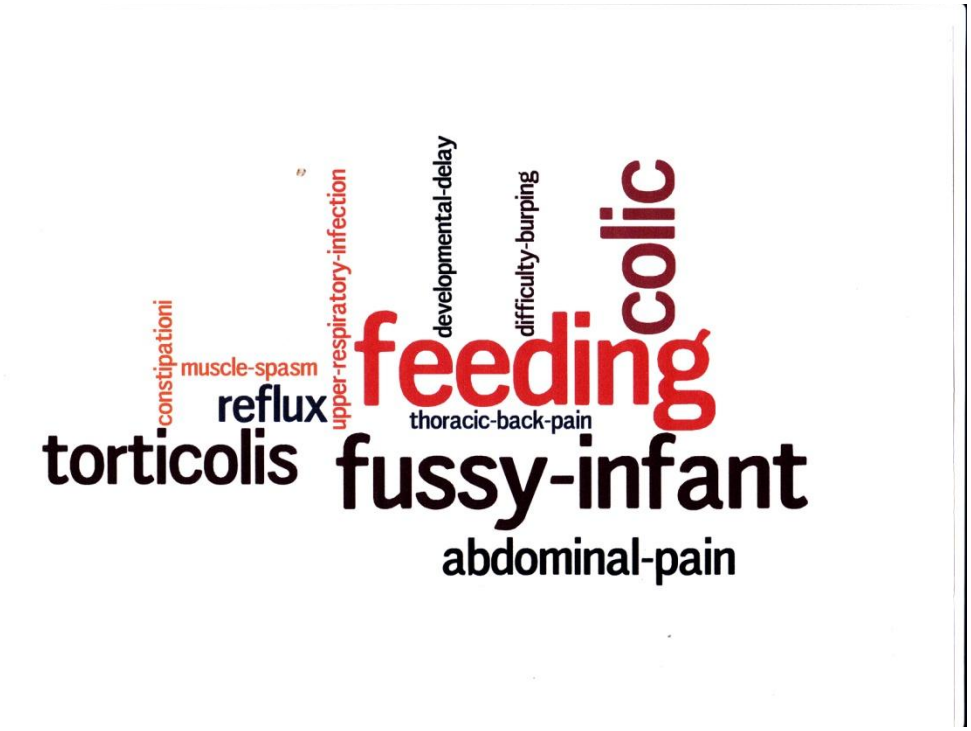


Figure 13 Cloud 4 - plagiocephaly theme cluster in 6w – 11m children

4.3.7.5 Clusters to illustrate diagnosis and management across ages and conditions

To analyse the presenting condition count in a slightly different way, from the original count a note was made of the most commonly occurring conditions in each age group, and the top 4 were picked out for further comparison. Patients who had clusters these 4 (regardless of other presentations being present) were identified. This is shown in the table below.

Table 6 Presenting clusters in those less than 6 weeks

	In patients less than 6 weeks			
patients	colic	feeding	sleep	fussy
4b				
4e				
5a	y	y		
5e	y			
8a		y		
8b				y
9e				y
10c			y	
11c				
12d	y			
12e	y		y	y
13b		y		
13d			y	
13e			y	
15a			y	
16b				
16e		y		
17a	y			
17d		y		y
18a	y		y	
18b				
18c				
18d	y	y	y	y
18e				
19d		y		
21c	y		y	y
21d				
24a		y		y
25d	y		y	y
25e				

27d	y	y		y
29a	y			y
29b	y			
29d	y		y	y
30d	y	y		
33c				
34b		y		
41e				
43c		y		
45a	y	y		y
45e			y	y
47c			y	y
48c				
49a			y	
49e		y		
51b				y
51e	y			
52a	y	y	y	y
54a				
55b	y			y
55c			y	
57a				
57b				
57e		y	y	
58a		y		
59a				
59d				
63d				
65d	y	y		

The most common conditions presenting for the under 6 weeks were colic, fussy infant, sleep disturbance and feeding problems. As these are terms that might be difficult to use in isolation, practitioners were able to pick more than one of these terms if the baby expressed a range of symptoms. Thus there is naturally overlap between thee, which can be seen in the table. From there, a review was done looking for patients were had certain combinations (either just one of these presentations, or several) and the data was sorted to collect the patients who fell into one or other of the researchers chosen groupings. This choice was made by reviewing the data, trying to consider what groupings might give insight into alternative approaches, by looking for some cases where there was little overlap and somewhere there were lots.

Then, those patients were picked out, and the descriptions given by the osteopaths about their diagnosis and management aims for that initial visit (all this analysis was undertaken on initial visit data) were identified and collated.

This was reviewed manually for any obvious themes, although as the data set was small this was perhaps too ambitious and the analysis was not pursued beyond making observational comments. If larger amounts of data had emerged it could have been imported into a programme such as Nvivo8, which was used to analyse the interview data, for example.

None the less, reading through the descriptive terms used gives insight into what the osteopaths themselves were thinking as they approached their patients.

No attempt is made in this study to attempt to justify any of these ideas or to provide rationale or evidence for them – which would need to be done in a differently designed study, with other methods in support, such as case studies, and a strong observational component, for example.

Looking at the data in this table one should also note the short hand - this is as the osteopaths wrote the data. Some of this may be understandable to non osteopaths, but other aspects may not be. On reflection, the most useful way to use this data would be as a basis for focus group discussions with osteopaths in a future study, as the data should be more meaningful to that group, who might be able to explore ways of better communicating it to others outside the community of osteopaths. In terms of cause and effect relationships and physiological relationships it may also be difficult for non osteopaths to understand how these types of ideas relate to the symptom presentation or cluster, and this remains a significant challenge to interprofessional communication and requires much work to clarify.

As an osteopath the researcher is unable to identify clear patterns – but this is in one way reassuring to the basic osteopathic premise that all patients are treated individually. However it is felt that this collection of comparative treatment data, which is a very rare event in osteopathy, will prove very interesting to fellow osteopaths who are often reluctant to share their concepts and approaches.

Table 7 Colic clusters in the under 6 weeks

colic + feeding, less than 6 weeks		**colic + sleep / feeding, less than 6 weeks**		**colic + sleep / feeding / fussy / abdo, less than 6 weeks**		**colic on its own, less than 6 weeks**	
osteopaths diagnosis 1st session	*osteopathic aim 1st session*	*osteopaths diagnosis 1st session*	*osteopathic aim 1st session*	*osteopaths diagnosis 1st session*	*osteopathic aim 1st session*	*osteopaths diagnosis 1st session*	*osteopathic aim 1st session*
membraneous irritability, SBS shear, thoracic breathing restriction	improve membrane quality and thoracic expansion	oa strain, dural membrane constriction, SBS compression	improve symptoms and relieve strain pattern	decreased csp flexion	increase csp rom	oa strain, hip muscle contracted, pelvic compression	free neck and hip movement
inferior vertical strain sbs, compressed c base, r vagus affected,t12-L2, t diaphragm, and sns to gut	improve digestion, ease tight tension in head	RTM taut, v fast birth, CNS wiry, R lexand sho trauma feel (caught at birth), R cervical contracture, SBS sbent RHS	release effects of rapid birth, 2nd stage 6 minutes, and resolve strains to body	colic	increase mobility, decrease tone mesentery and diaphragm	L torticolis involving scm, trapezius, sub-occip muscles with lymphatic congestion (hard nodes L neck), facial compression, exagerated nasal crease	decrease tension L neck, release nasals, frontal, ethmoid areas, plus R occip-parietal area
mild condylar compression, fast milk flow and guzzly baby, mild intracranial membranous tension	release of cranial compression	csp, flexion sidebending to r strain, tsp axial compression, some anterior thorax / mediastinum compression	release csp and tsp			sb / rot of cranial base, increased compensatory sidebending through spine	release strain and educate about other factors
		cervical and cranial base strain with cranial nerve 10 irritation	release strain and imporve csp rom				

Table 8 Plagiocephaly and other symptoms clusters in the 6 w - 11 month age bracket

Plagiocephaly on its own, 6 weeks to 11 months age bracket		**Plagiocephaly clustered with colic and feeding, 6 weeks to 11 months age bracket**		**Feeding and sleep cluster, no plagiocephaly or colic presentation, 6 weeks to 11 months age bracket**		**Colic on its own, 6 weeks to 11 months age bracket**	
osteopaths diagnosis 1st session	*osteopathic aim 1st session*	*osteopaths diagnosis 1st session*	*osteopathic aim 1st session*	*osteopaths diagnosis 1st session*	*osteopathic aim 1st session*	*osteopaths diagnosis 1st session*	*osteopathic aim 1st session*
complex charge syndrome - effects of medications and anaesthetics and increased mucous secretions, CNS sensitivity	balance work towards midline	structural intrauterine molding of membranes, lack of first breath	to support body to position of ease, integration around physiological fulcrum	complex emotional and traumatic birth, stressful mother with psychological issues, child overtired and not recovered from birth, diaphragm in state of inspiration	to encourage mum to connect with baby, aid with correct feeding techniques, advise about baby's room, help to de-stress the baby	glabella compression and flexed occiput, affecting CN X	balancing membrane, decreasing head compression
oa - cervical spine strain due to intrauterine trauma	correct head shape and position	restriction through diaphragm influencing sphincters, compression l om condyle	release fascial restrictions of diaphragm, release occiput	r lateral sbs strain, RTM strain including cranial attachments	resolution of cranial base and RTM strains	very poor fluid body function, long fluid flux not present	establish function for fluid body and long fluid flux
poor fluid function	acheive fluid body function			condylar compression, general extension pattern, hypertonic diaphragm	condylar decompression	colic	release tension, advice to parents
sleeping baby on back only, pronounced flat head, poor ability to rotate	get easy rotation into neck, aim to reshape head					condylar and occipitomastoid compression bilateral, ces tension, l.	release of restrictions and mm tension

5 Chapter Five: Discussion

5.1 Answers to initial research questions

The first item to discuss is whether the data and subsequent analysis have provided answers or relevant commentary against the research questions originally posed.

Specific research questions

1. How widespread is the practice of paediatric osteopathic practice in New Zealand, and what types of paediatric patients and presentations do osteopaths encounter?

2. What do osteopaths do in terms of working with children? What knowledge, skills and attitudes (KSA) are required of osteopaths managing these paediatric patients?

3. Is there a gap between graduate KSAs and what is required for a paediatric osteopathic practitioner? If so, what KSA's are required to bridge it?

4. Where are these skills attained if not at undergraduate level and what is required to support maintenance of professional standards in paediatric osteopathy?

5. How are paediatric osteopathy skills assessed or how might they be assessed in a New Zealand context?

A brief summary of the answers identified within the data to these questions is given below. These points will then be further discussed in later parts of this chapter.

5.1.1 Spread of paediatric osteopathic practice

There are osteopaths seeing paediatric patients across all of New Zealand. Paediatric osteopathic practice would appear to be widespread amongst the study population.

5.1.2 What types of paediatric patients are seen

All ages and a variety of conditions, mostly musculoskeletal and sports related in nature but including some non musculoskeletal conditions such as colic, feeding difficulties, otitis media, constipation asthma and gynaecological issues.

5.1.3 What do osteopaths do when treating paediatric patients

They use a variety of techniques and approaches including parental support, discussion of exercises, self help and lifestyle factors, as well as engagement with some other health professionals.

They see a range of generally simple conditions such as sports injuries, muscle aches and pains, and colic type syndromes which are to some degree self limiting. However the efficacy and benefit of osteopathic intervention has not been explored in this study, and it was evident that some osteopaths are engaging with people in quite demanding situations and with patients who are potentially very sick or compromised.

5.1.4 What knowledge skills and attitudes are required

The key items are (in no set order):

Developmental progressions

Medical differential diagnosis

Understanding of the social and lifestyle factors in relation to family networks and paediatric presentations

Osteopathic technical ability

Understanding of children's anatomy and tissue types

Osteopathic perspectives in paediatric management

Communication issues

It is likely that different standards will ultimately need to apply to those osteopaths who wish to advertise themselves as 'specialist' in some way, or as having a 'special interest of experience' in paediatric care, compared to those who just wish to see some simple paediatric cases in the progress of their general work.

5.1.5 Is there a gap between extant and desired KSA and capabilities

This question has not been addressed and would be a key area to focus on in future studies. Although there are clear indications as to the types of KSA's required the standard and performance indicators were not well described by the expert interviews. What was clear is that different people have differing views as to what is a desirable standard f practice, and what might constitute a minimum standard of practice.

It would appear that there is suitable appreciation in some areas (the interviewees for example) about what good paediatric practice should involve, and there is evidence in the survey data that people are following these types of trends as they carry out their paediatric care. However,

5.1.6 Where are these skills attained

Most osteopaths attained their skills in part from their undergraduate / pre-entry level education, and then from their r own self directed learning and 'experience'; then a significant proportion had joined a paedaitrically focused practice in their early career, and gained much supervised practice in that manner. Others who could not do that undertook a variety of peer discussions and self directed learning. Most osteopaths had done some variety of further informal training courses to support their paediatric practice. There were very few who seemingly relied only on their original training and then 'experience'.

So in summary most of the skills are learned 'on the job' and 'in the field' but these are considered as not being the only way or sometimes the best ways if done in isolation, to learn. There seems support for some sort of formal structure to at least identify areas of learning that are relevant to paediatrics, and to support people through their attainments of these capabilities that does NOT require a formal qualification to be attained.

5.1.7 What might be required to support the maintenance of required KSA's

This needs to be determined, but if there was a cost effective and simple way to allow everyone to have supervised and supported time in a dedicated paediatric clinic post registration no one would apparently object and all would no doubt welcome its addition. The need for this to be compulsory was less well agreed upon, and it is likely that apart from the fact that resources would not allow this at the current time osteopaths would naturally resist its compulsory nature. A balance must be struck, and this needs further work.

5.1.8 How might paediatric osteopathic capabilities be assessed in New Zealand

This was not able to be determined.

A distance based mentored solution with web2 connectivity seems a useful way forwards.

5.2 Capabilities frameworks

Using the capabilities document already developed would seem advantageous and the data for the interviewees in particular picks out themes that can be closely correlated to the capabilities framework identified by Gardener:

Table 1 Analytical framework

Attributes of capability				
Knows how to learn	Works well with others	Is creative	Has a high degree of self-efficacy	Applies competencies to both novel and familiar situations

(A. Gardner, Hase, Gardner, Dunn, & Carryer, 2008)

These types of attributes are also well identified in existing osteopathic Masters level work – osteopaths already qualify with masters degrees, and adding subject areas into an established attribute framework such as this would require less formal instruction that might originally have been envisaged. The capabilities frameworks already in place for osteopaths, and explored with the participants in this study, show alignment here, and that should be supportive of the general drive in osteopathic professional development taking place in New zealand.

5.3 Paediatric Osteopathic Capabilities

In addition to the above discussion, the data analysis concluded that the content of the current set of Capabilities are mostly capable of capturing all relevant capabilities for paediatric osteopathic practice, and that the following are suggestions to address the small points emerging from the data that need amendment or revision.

No changes at the domain level.

No changes at the descriptor level.

Some minor changes at an element level.

Occasional changes at the criteria level.

This means that these capabilities can continue to be used as a framework for further exploring the KSA's, and learning and assessment strategies to support ongoing paediatric osteopathic practice in New Zealand.

5.4 Learning and assessment structures

A key focus of those learning strategies must be the centrality of student directed and flexible learning models. This has been noted elsewhere in the professions literature and should have resonance with osteopaths and osteopathic practice models. Osteopaths are naturally comfortable with self direction and self-determinism, and as with other medical and healthcare practices have to be skilled at self maintaining and evaluating their capability and ongoing preparedness for managing clinical uncertainty and risk in a constantly changing work and developing-evidence-based dynamic.

This approach is well supported by the literature on capability (G. Gardner, Dunn, Carryer, & Gardner, 2006), and reflects the shift in learning and assessment approaches that have a heutagogical framework(Hase & Kenyon, 2000).

This shift can be illustrated by the following perspectives

- **study of self-determined learning replaces 'knowledge hoarding' with 'knowledge sharing'.**
- **looks to the knowledge-based future**
- **knowing how to learn as a fundamental competence, given the pace of innovation and the changing structure of communities and workplaces.**

These structures are well embedded in the capabilities framework for osteopathy in New Zealand and it is now necessary to research what further learning support mechanisms might be provided to ensure that pedagogy does not creep in from a misguided attempt to ensure osteopaths are 'up-skilled'.

5.5 Regulatory framework

'The sole practitioner or the general dabbler' versus someone having a prescribed qualification

Many osteopaths practising paediatric care in New Zealand are self taught, and work as individuals and have to create their own learning opportunities and networks or teams that might support their work.

There is much support for the general dabbler in the data. It is how most osteopaths who work in paediatric practice have developed. It suits in fact the heutagogical framework that underpins many approaches to adult learning and work place based learning. Providing one can ensure appropriate capability in regards to heutagogy, ones approach to formal paediatric training or regulation could be less formalised.

At this stage a formal extended scope of practice for paediatric osteopathic practice, as a requirement for ALL osteopaths wishing to see ANY paediatric patient is not supported in the data as there were strong calls for the current status quo NOT to be so drastically altered.

The data does reveal that a number of good practice actions and processes, as described within the capabilities document, are being carried out by the sample that responded to the study, and so there is some evidence that the current nature of paediatric osteopathic practice might be at or near a sufficient standard.

Such practices involve:

- the review of diagnosis over time
- reflection on personal professional scope and capability
- referral when beyond the scope of personal or professional capability
- willingness to engage with other healthcare professionals
- person-oriented dialogue to ensure patient / carer education and identification of self-help strategies
- adaptation of treatment choice according to nature of presentation
- a natural reluctance to practice outside ones capability
- a respect for the challenging nature of paediatric practice
- recognition of the need for peer appraisal and observation of some description to aid learning

Such data is in support of a vocational scope of practice which means that the paediatric scope resides WITHIN the current scope. The data revealed a strong identification with the idea that if one wishes to identify ones self as a specialist or having a special interest in paediatrics, that demonstration of a higher or more complex set of standards would be advisable or necessary.

5.6 Communities of practice and social identity

From the data it is clear that there are divergent communities of practice amongst osteopaths practising paediatric care, which have the potential to create tension [3].

Divergent groups appear to consist of

- Undergrads with lots of paediatric training, and those with very little.
- Grads who have learned how to self-learn and self-appraise, not that have a lot of context specific knowledge but no ability to use it
- Grads who have one view of osteopathy, and those of another – that have to be 'converted' to work in various practices (which may or may not be beneficial!)
- Up-skilling e.g. with technical expertise, is not the same a establishing one's own professional capability
- Osteopaths who practice 'cranial' and those who don't
- Those who think they can teach themselves and those that don't
- 'Me' as an osteopath and 'me' as a paediatric osteopath

This latter point is very interesting, as there was strong data on the individual nature of osteopathic practice amongst the experts interviewed, and many people declared that they worked 'differently' to other osteopaths, and also to other paediatric osteopaths. This is clear evidence of tension between views of self and views of self within a group. These tensions have been highlighted in the literature (Hogg, Terry, & White, 1995; John), and it appears that osteopaths do become exposed to the same considerations as others. This should make an extremely interesting area for future study, especially if it is framed alongside enquiry into the approaches different osteopaths have in patient care.

[3] http://ultibase.eu.rmit.edu.au/Articles/march03/eijkman1.htm accessed 26 feb 2011. Reframing the First Year Experience: The critical role of 'recognition work' in achieving curricular justice Author: Henk Eijkman pdf version Division of Communication and Education, University of Canberra.

5.7 The nature of osteopathic paediatric practice

It is varied and complex and not easily communicable. Osteopaths appear to be doing gentle things to children, and to be engaging in patient centered care approaches, with reference to medical differential diagnosis, and the need for multi-disciplinary care networks. It is possible that more osteopaths may benefit from a wider understanding of pathology and evidence, and it is possible that many paediatric patients may not 'need' their treatment to the same extent that osteopaths hope they do. Also it is equally possible that osteopaths are contributing something valuable, but this is not currently well demonstrated.

5.7.1 Gender bias.

3 conclusions were noted from the results exploring gender differences:

1) There would appear to be a significant difference between the number of times male and female patients saw patients in the study period.

2) It appears female osteopaths give statistically higher number of sessions to male patients than male osteopaths give to male patients.

3) In terms of the number of treatment types given on the first session there appears to be no gender bias in the way osteopaths deal with male or female patients.

Treatment types appear similar, but are female osteopaths over-servicing male patients, or are male osteopaths under servicing them?

This point is of interest because of remarks made in the expert interviews at the beginning of the study.

One of the interviews provided the following quote:

> "Often the biggest query is 'how can we explain that to the patients, and how do you talk to the patients about that, what is the explanation. Sometimes with guys, they find that difficult to give a good idea about the need to return, sometimes they leave it too much up to the patient, they don't give as much information about prognosis and how that should be managed. Women as more verbose and its not much of an issue. And the guys don't build up a practice as a result of it. Can everyone all do that, I don't know."

Putting these data together indicates that there might be a gender bias in patient management - a difference perhaps in the way that female and male osteopaths mange their practices that impacts on the way that

patients are being treated or serviced, in particular male patients. This could be usefully further explored in future research.

6 Chapter Six: Conclusion and future areas for study or research

6.1 Outcomes of the study

1. Most osteopaths are prepared to educate themselves and explore learning options to support their paediatric practice in the absence of formal requirements to do so.
2. Clear outlines of required KSAs have emerged which can be used in future research and development.
3. Key data on osteopathic paediatric practice has emerged:
   - 3.1. Osteopaths in diverse geographical locations across New Zealand are seeing paediatric patients.
   - 3.2. In terms of the number of treatment types given on the first session there appears to be no gender bias in the way osteopaths deal with male or female patients.
   - 3.3. There would appear to be a significant difference between the number of times male and female patients saw males patients in the study period.
   - 3.4. This means that female osteopaths give statistically different number of sessions to male patients than male osteopaths give to male patients.
   - 3.5. Most of the under 5s are seen by women and most of the over 5s are seen by men.
   - 3.6. The most commonly delivered technique style is 'osteopathy in the cranial field'.
   - 3.7. Osteopathic perspectives on management may not be easily communicable because of language issues
   - 3.8. The community of paediatric osteopaths is diverse and not generally cohesive and this will be a definite limiter to the ongoing development of paediatric practice in New Zealand

6.2 Further research

Several areas for further research are apparent.

6.2.1 Identifying the knowledge, skills and attitudes required for practice

Gaining consensus on the KSA's indentified in this study will be a useful start, and this might be effectively done using a Delphi methodology. The Delphi rounds should include osteopathic paediatric experts as well as two or three other expert individuals whom are not osteopaths, but who have a professional interest in paediatric healthcare delivery. These (non osteopath) experts will be identified through literature reviews and document searches and exploration with other healthcare providers of paediatric care. Recruitment of all of these experts could be by direct approach from the researcher, in a purposive sampling approach. The Delphi is a consensus building method without the need to assemble groups in one location, and seems suitable for the research questions. It also alleviates domination of the group by strong members, and allows anonymity from panel

members regarding their responses, which may promote more fulsome or accurate data (Mullen, 2003)((Mullen, 2003)). A Delphi panel of around 6-10 people seems appropriate and 2-4 rounds seems the average to achieve consensus (Rowe and Wright, 1999),

6.2.2 Patient survey

To identify why parents and carers bring their children to osteopaths for treatment.

6.2.3 Gender related data collection

To further the insights gained from the superficial analysis of the current data, though a more carefully controlled and detailed survey as to osteopathic gender and patient gender influences on osteopathic care types, frequency and diagnostic or management concepts. That may give valuable insights into osteopathic care profiles.

6.2.4 Exploring the osteopathic perspectives on diagnosis and aims of management

This is a very rich are for future work and would complement research into evidence building for osteopathic practice, as well as for interprofessional dialogue and integrated healthcare practice. A multi-methods study would be required to approach this type of issue.

6.2.5 What should osteopaths be doing with paediatric patients and what evidence is lacking

This is perhaps the biggest question of all, and this study has not provided any conclusions but it is hoped that it makes a small contribution to the eventual aim of providing responses to this query.

6.2.6 Conclusion

This has been an extremely interesting and rewarding study, from which the author has gained much valuable insight.

It is a small step to ongoing work, but as the first work of its kind in New Zealand and possibly throughout the osteopathic community worldwide it is a significant contribution.

7 Appendices

7.1 Appendix One

New Zealand Osteopathic Scope of Practice Reform

July 2010

OCNZ
OSTEOPATHIC COUNCIL NEW ZEALAND

Click to review, or locate at: http://www.osteopathiccouncil.org.nz/clear-skies-report.html

7.2 Appendix Two

Department Name
Department address
Department phone no
The University of Auckland
Private Bag 92019
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET

Project title: Osteopathic Paediatric Capabilities Study.

Name(s) of Researcher(s): Principal Investigator Assoc Professor Jennifer Weller; Student researcher Caroline Dean, programme of study: Masters of Clinical Education, CMHSE, University of Auckland.

Researcher introduction
Caroline Dean is a student in the Masters of Clinical Education programme at the Faculty of Health Sciences, Auckland University. She is also known within her profession (of Osteopathy) as Caroline Stone.

Project description and invitation
The rationale and aims of the project are concerned with the fact that there is no identified set of capabilities required for paediatric practice in osteopathy in New Zealand, and it is recognised by the researcher and the professional Register (Osteopathic Council of New Zealand, OCNZ) that this omission needs addressing. The aim of the project is to gather data on what osteopaths and other stakeholders consider are an appropriate set of capabilities for paediatric osteopathic practice in New Zealand. Consideration will be made as to whether these are already contained within the competencies for practice currently identified by the OCNZ or not. A draft set of capabilities for paediatric osteopathic practice will be proposed, based on these initial interviews, and in a later stage of the project this draft will be circulated for comment. The outcome of the full project will be utilised by the OCNZ to inform their policy discussions and may be published in journals and other professional literature.

I would like to invite you as a potential participant to be involved in the first part of this research. You are known within osteopathic fields as having an interest in paediatric osteopathy and to have a certain expertise in this area (with respect to professional reputation and / or qualification, where relevant). This project will not focus on one particular type of paediatric presentation, nor on any particular form of osteopathic examination or treatment, but will focus on a general osteopathic approach to paediatric patients and what osteopaths need to be able to understand, do and consider when managing this patient group. The first part of the project involves interviews on a one to one basis between the participant and the researcher, Caroline Dean, followed by an email based Delphi consensus process, which is explained below. The interviews are expected to take around 1-2 hours, and you will be provided with some questions around which the interview will be based, and also a set of capabilities for paediatric osteopathic practice which will be discussed within the interview. Data from this project will later inform development of questionnaires for wider consultation to osteopaths within New Zealand.

Project Procedures
This part of the project involves interviews on a one to one basis between the participant and the researcher, Caroline Dean. The researcher will visit the location of each participant in turn at a convenient time to be identified between the participant and researcher, and the interview will be recorded and written notes may be made. You will be provided in advance with a list of capabilities for osteopathic practice which will be referred to within the interview. You have the right not to have your interview recorded, in which case indicate this in the consent form where requested. It is anticipated that around 10 individual interviews will be undertaken, and the data will then be transcribed, pooled and analysed. The analysis will involve looking for common themes, trends and suggestions for capabilities, and once summarised a draft set of capabilities for paediatric practice will be developed by the researcher. This will then be emailed around to the individual participants, for further comment and discussion. Email addresses will be kept blinded, and no personal identifiers will be apparent on the data to be emailed – all suggestions for capabilities will be anonymised and grouped all together. Emailed participants will be asked to comment on the draft list of capabilities, and to list their agreement or otherwise of any particular item in the list, and to rank them in order of importance / relevance. Emailing like this aims to gather consensus – trying to get the group to agree on the relative importance or otherwise (of the data) to produce a final set of capabilities which can then be used in a later stage of the project for wider consultation to other osteopaths in New Zealand. This method of email based consultation is called a Delphi. No compensation or financial inducements are offered. This project is being funded by the OCNZ.

Data storage/retention/destruction/future use
Your interviews will be taped if you agree to this, and written notes may also be taken. Data will be stored according to standard University of Auckland procedures. It will be stored on a CD ROM in a secure place by

the researcher and destroyed after 6 years. You can request a copy of the outcomes of the full project by contacting the researcher at the end of the project, which is anticipated to be before January 2011.

Right to Withdraw from Participation
Participants have the right to withdraw from participation at any time. You also have the right to withdraw their data from the research up to a specified date or period of time. This time period would be within 2 months of your individual interview date.

Anonymity and Confidentiality
All data will be anonymised, and the researcher will be the transcriber of any tapes or written notes. As the research involves interviews with small numbers of individuals and interviews with well-known members of the community confidentiality with respect to the participant's identity cannot be guaranteed. However, every effort will be undertaken to preserve confidentiality of identity where possible. For example, no names will be used, no individual's style of treatment will be identified and treatment will only be discussed generically and no geographical identification references will be made in any report or publication. Emphasis in any report or publication will be made that participants were sought from a range of osteopathic approaches, across a wide geographical representation of New Zealand, and that opinions and comments were sought from other parties, associations and stakeholders.

Contact Details and Approval Wording
Caroline Dean: caroline@yourosteopath.com.au + 61 8 9247 5003
Assoc Prof Jennifer Weller:
HOD:
Chair contact details: "For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Office of the Vice Chancellor, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 extn. 83711."
APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 12 May 2010 for 3 years, Reference Number **2010 / 186**

Department name
Department address
Department phone no
The University of Auckland
Private Bag 92019
Auckland, New Zealand

CONSENT FORM

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title: Osteopathic Paediatric Capabilities Study

Name(s) of Researcher(s): Principal Investigator Assoc Professor Jennifer Weller; Student researcher Caroline Dean.

I have read the Participant Information Sheet, have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I understand that I am free to withdraw participation at any time, and to withdraw any data traceable to me up to a specified date (up to 2 months from your individual interview date).
- I understand that this project is being funded by the Osteopathic Council of New Zealand.
- I agree / do not agree to be audiotaped.
- I wish / do not wish to have my tapes returned to me.
- I wish / do not wish to receive the summary of findings.
- I agree to not disclose anything discussed in the interview.
- I understand that data will be kept for 6 years, after which they will be destroyed.
- I understand I can contact the researcher for a copy of the outcomes of the project after January 2011.

Name _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 12 May 2010 for 3 years, Reference Number **2010 / 186**

Interview Questions

Please note these will form the basis of the interview but free ranging conversation within the context of the study is welcome, and the interviewee may make additional comments and reflections where desired.

1. Please describe your own paediatric osteopathic practice (including types of patients, types of presentations, ranges of treatments used, aims of objectives within your management, outcomes you expect, relationships with other healthcare providers).
2. Do you feel that your own osteopathic undergraduate / entry level education prepared you adequately for paediatric osteopathic practice?
3. What did you feel was important to change with respect to your learning and education – what key factors were important as you developed your experience in paediatric osteopathic practice?
4. How do you feel these are best developed or achieved (for example by other osteopaths who wish to start treating paediatric patients)?
5. In general terms what knowledge and attitudes do you feel are important for paediatric osteopathic practice?
6. Are any of these different from those required for adult patients?
7. Looking at the capabilities document you have been supplied with, do these encompass the knowledge skills and attitudes required for paediatric practice?
8. Are there any capabilities that you would change, add to or remove?
9. Can you specifically list knowledge and skills that are required for paediatric osteopathic practice?
10. Do you feel the knowledge skills and attitudes change depending on the age of the paediatric patient (is dealing with newborns different to toddlers, for example) and can you identify differences?
11. How do you feel capability in osteopathic paediatric practice should be assessed or measured?
12. What additional training or assessment if any do you think is required to ensure appropriate practice?
13. Any other comments that you wish to make about paediatric osteopathic practice?

Capabilities for Osteopathic Practice.

Authors:

UTS Project Team.

Prof David Boud

Prof Paul Hager

Caroline Stone.

January, 2009

Copies and other information can be found on the New South Wales Osteopaths Registration Board pages using the links below:

http://www.osteoreg.health.nsw.gov.au/hprb/osteo_web/osteo_educate.htm

http://www.osteoreg.health.nsw.gov.au/hprb/osteo_web/pdf/osteo_capabilities.pdf

Preamble

Although osteopathy is a practice commonly associated with musculo-skeletal medicine such as management of biomechanical back and neck pain, sports and work-place injuries, and muscular and articular trauma and dysfunction, people consult osteopaths for many other reasons.

The scope of osteopathic practice is identified through its place as a healthcare system for helping people maintain and restore health and well being. This includes many who are suffering a variety of problems and others for example who seek health education and support. This typically includes those with medical pathologies, general health problems, wellness, rehabilitation, injury management, and dysfunction and dis-ease throughout all ages, for all types of people. This wide scope of practice arises through a professional philosophy that places treatment emphasis on the person not their disease, dysfunction or disorder. Within this emphasis patient conditions remain key to osteopathic clinical analysis, including medical differential diagnostic reasoning and determining a plan of care within an integrated healthcare system involving many different healthcare practitioners and providers.

A primary component of osteopathic evaluation and care is the use of palpation and interpretation of tissue states through the medium of touch, and the delivery of treatment options by various manual manoeuvres and actions. A highly developed skill in interpreting palpatory findings informs many clinical analytical processes in the course of osteopathic practice and delivery of care to the person.

Osteopathic philosophy places strong emphasis on relating palpatory findings and tissue states to an analysis of underlying physiological processes, pathological states, responses to injury and the adaptations the body makes in response to a variety of bio-psycho-social stressors*. Changes to the physical structure of the body's tissues and biomechanics are interpreted with reference to their impact on circulation, neural activity, general physiological processes and homeostatic mechanisms of the body. Osteopaths acknowledge the relevance these changes have for the body's overall function and susceptibility to disease and injury and for its self-healing mechanisms.

Osteopathic philosophy in relation to treatment incorporates the concept that addressing changes to tissue state, mobility and efficient function throughout the body will improve biomechanical, hydraulic, circulatory and respiratory function, thus improving health and the body's ability to recover from injury and disease, reduce the impact of pathology and contribute to the restoration of general well-being. Osteopathic philosophy acknowledges that there are many ways of helping an individual through the application of osteopathic principles in practice, enabling individual osteopathic practitioners to each focus on varied components of a patient's presentation and situation and to each utilise an element of personal professional choice in their patient management.

The capabilities required for osteopathic practice in the light of the above approaches to patient care and health management as part of an integrated healthcare delivery system are complex and varied. Many skills, competencies and attributes are required at many different stages of interaction with a patient and the wider healthcare community and are never used in isolation. As such the capabilities outlined in this document should be reviewed accordingly.

*Engel's definition (1997) : A bio-psychosocial model of healthcare means that symptoms should be conceptualised as the result of a dynamic interaction between the psychological, social and pathophysiologic variables.

Framework

The capabilities for osteopathic practice have been arranged within 6 domains. These reflect the model that professional capability is an expression of integrated skills, knowledge and attributes. The domains are not listed hierarchically or linearly, but are designed to be reviewed as an integrated whole.

Domains

Clinical Analysis

Person Oriented Care and Communication

Osteopathic Care and Scope of Practice

Primary Healthcare Responsibilities

Interprofessional Relationships and Behaviour

Professional and Business Activities

Each capability is illustrated by a more detailed description and a list of elements indicating some of the key features of the area concerned. These elements are further illustrated by a number of criteria.

1. Clinical Analysis

Descriptor

This capability incorporates an osteopath's ability to gather information about a patient's health from a bio-psychosocial perspective. This should inform examination and screening, diagnosis, prognosis, condition and health management from a patient-oriented context. This diagnosis and care plan should reflect the complex bio-psychosocial nature of the presentation and include ongoing review. It incorporates an understanding of clinical complexity and uncertainties and the professional commitment to manage these components within patient care

Elements

1.1. Gathers organises and records a focused personal health record
1.2. Synthesizes information into a suitable working diagnosis and an understanding of general health status
1.3. Devises and instigates a plan of care addressing the person's presenting disorder and their general health, in consultation with that person (or their representative or carer)
1.4. Establishes a prognosis, appropriate outcome measures, reviews patient progress and modifies plan of care as required
1.5. Recognises when further information is required
1.6. Critically reflects on clinical challenges and uncertainties

Element	Criteria
1.1. Gathers, organises and records a focused personal health record	1.1.1 Critically uses a variety of information retrieval mechanisms 1.1.2 Compiles a health care record that is personal to the individual 1.1.3 Incorporates bio-psychosocial components within the health record 1.1.4 Ensures patient-centred orientation of case analysis 1.1.5 Ensures full recording of osteopathic physical examination and palpation findings as part of a personal health record

Element	Criteria
1.2. Synthesizes information into a suitable working diagnosis and an understanding of general health status	1.2.1 Working hypotheses are compared and contrasted, using information retrieved, to identify a suitable working diagnosis (including concepts of cause and maintaining factors and current stressors) 1.2.2 Uses a systematic osteopathic and medical differential diagnostic process 1.2.3 Makes appropriate arrangements to receive additional information as required, such as referring patient for imaging, or corresponding with healthcare practitioners for test results and other relevant details 1.2.4 Where diagnosis and patient evaluation are not able to be completed, plan of care is adapted appropriately 1.2.5 Critically selects and adapts appropriate clinical examination techniques during their patient evaluation, relevant to the patient's condition and tissue responses, including cultural, religious, social and personal constraints
1.3. Devises and instigates a plan of care addressing the person's presenting disorder and their general health, in consultation with that person (or their representative or carer)	1.3.1 Plan of care is negotiated with, relevant and appropriate to person's presenting complaint 1.3.2 Plan of care is within the context of the person's general health 1.3.3 Plan of care evolves as required throughout a person's life according to their changing needs and mindful of their changing mental and physical attributes as they age 1.3.4 Changes to a patients physical or mental health are reviewed over time, whether related to their presenting complaint or not, and any relevant action taken accordingly 1.3.5 Plan of care and supporting evidence is appropriately noted in patients records

Element	Criteria
1.4. Establishes a prognosis, appropriate outcome measures, reviews patient progress and modifies plan of care as required	1.4.1 Prognoses are developed, and appropriate care is determined on that basis 1.4.2 Appropriate outcome measures are utilised to monitor progress which is either a negotiated patient centered outcome, or by the use of an appropriate valid and reliable outcome instrument 1.4.3 Practitioner reviews progress and elicits feedback on an ongoing basis 1.4.4 Practitioner recognises when outcomes differ from those expected, can identify why and acts accordingly 1.4.5 Maintains a commitment to delivering well integrated and coordinated care for all patients, including those with multiple, ongoing and complex conditions
1.5. Recognises when further information is required and acts appropriately on all information received	1.5.1 Case review is capable of identifying if information is lacking or needs investigation 1.5.2 Practitioner responds accordingly to cues emerging from case review 1.5.3 Recognises when to withdraw or modify plan of care
1.6. Critically reflects on clinical challenges and uncertainties	1.6.1 Recognises and remains open to clinical challenges and uncertainty 1.6.2 Adjusts plan of care and professional behaviour on an ongoing basis in response to such challenges

2. Person Oriented Care and Communication

Descriptor

This capability incorporates an osteopath's ability to adapt the consultation process to the individual. This involves being sensitive to their needs and goals, recognising their central place in ongoing decision making, whilst displaying cultural awareness. This encompasses the osteopath orienting their communication to best aid the individual in decision making. It also includes education about the diagnosis, prognosis, proposed management plan, self-management and other options of care that may become appropriate over time.

Elements

2.1. Considers socio-cultural factors in communication and management strategies
2.2. Uses appropriate questioning strategies
2.3. Ensures patient comprehension
2.4. Ensures patients goals and concerns are identified and integrated into the clinical analysis
2.5. Obtains consent having discussed risks and benefits
2.6. Communicates clearly with respect to diagnosis, prognosis, possible management plans, self management and other options of care
2.7. Takes account of previous patient experiences of health care of medical and allied health systems
2.8. Understands the complexity of therapeutic relationships and has the professionalism to engage in appropriate levels of interaction and care
2.9. Ensures a professional commitment towards patient trust, confidentiality, safety and patient oriented care
2.10. Understands when a representative, carer or family member communicates on behalf on, or in conjunction with the patient is required, and acts accordingly

Element	Criteria
2.1. Considers socio-cultural factors in communication and management strategies	2.1.1 Understands cultural and social factors relevant to communication and management of the individual 2.1.2 Communication is sensitive to and respectful of these factors
2.2. Uses appropriate questioning strategies	2.2.1 A variety of questioning strategies are used, which are appropriate to the person and their cultural and psychosocial needs

Element	Criteria
2.3. Ensures patient comprehension	2.3.1 Communication is adapted to individual needs, such as in paediatric care, care of those with mental health issues, intellectual disability or language difficulties 2.3.2 Where communication barriers exist, efforts are made to communicate in the most effective way possible 2.3.3 Deploys a variety of communication modes as appropriate 2.3.4 Verbal and non verbal communication is adapted to the needs and profile of the individual 2.3.5 Practitioner can employ and respond to non verbal cues as appropriate
2.4. Ensures patients goals and concerns are identified and integrated into the clinical analysis	2.4.1 Uses appropriate information gathering techniques to enable the patient to communicate their concerns, needs and goals 2.4.2 Recognises the impact of patient concerns for clinical analysis and plan of care 2.4.3 Employs counselling skills appropriate for osteopathic practice in the context of the osteopathic plan of care
2.5. Obtains consent having discussed risks and benefits	2.5.1 Risks and benefits for management are identified and appropriately recorded 2.5.2 Appropriate informed consent is obtained in the light of risks and benefits being explained to and understood by patient (or their representative or carer)
2.6. Communicates clearly with respect to diagnosis, prognosis, possible management plans, self management and other options of care	2.6.1 The goals, nature, purpose and expected outcomes of osteopathic intervention are discussed and agreed 2.6.2 Appropriate warnings regarding possible adverse effects are identified for the person and discussed 2.6.3 Options for the person's self care are identified and discussed, such as exercise, diet, lifestyle and workplace ergonomics 2.6.4 Prepares the patient for 'follow up' where appropriate

Element	Criteria
2.7. Takes account of previous patient experiences of health care in medical or allied health systems	2.7.1 Gathers information regarding the person's previous health care experiences of medical and allied health services 2.7.2 Recognises where this creates particular concerns for the person regarding their ongoing care, and acts accordingly
2.8. Understands the complexity of therapeutic relationships and has the professionalism to engage in appropriate levels of interaction and care	2.8.1 Acts appropriately in situations involving personal incompatibility with the patient 2.8.2 Manages clinical challenges and uncertainty within therapeutic relationships appropriately
2.9. Ensures a professional commitment towards patient trust, confidentiality, safety and patient oriented care	2.9.1 Recognises if patient trust or safety is undermined and acts accordingly 2.9.2 Ensures appropriate levels of patient confidentiality throughout the osteopathic management of the patient 2.9.3 Continuously reflects on the respectful patient-centeredness of the osteopathic management of the patient 2.9.4 Builds an effective patient rapport, treatment agreement and therapeutic alliance
2.10. Understands when a representative, carer or family member communicates on behalf on, or in conjunction with the patient is required, and acts accordingly	2.10.1 Communicates effectively through, or with, a patient's representative, carer, or family member as required 2.10.2 Ensures appropriate consent is gathered on behalf of the patient and that effective review of communication is undertaken 2.1.0.3 Understands when a representative, carer or family member is required to communicate on behalf of, or in conjunction with, the patient , and acts accordingly

3. Osteopathic Care and Scope of Practice

Descriptor

Osteopathic philosophy encompasses the ability of practitioners to adopt an individualised approach to patient care, within general osteopathic approaches to patient care. This capability addresses the way that the general and individual approaches to patient care are related to and integrated into general healthcare care concepts and practices. In so doing, practitioners must be cognisant of general and personal limitations of practice. This capability includes reflection and revision of healthcare delivery based upon an evidence informed rationale.

Elements

3.1. Implements an appropriate management plan that reflects the application of osteopathic philosophy
3.2. Understands and can appropriately employ a variety of osteopathic examination and treatment techniques and approaches
3.3. Recognises and acts within scope of osteopathic practice
3.4. Where the patient has a condition that requires other medical assessments and / or interventions the osteopath indentifies how any ongoing osteopathic care of the person should be adapted
3.5. Adapts ongoing care of a patient to their general health and wellbeing needs and to their changing circumstances
3.6. Identifies how their personal professional approach to patients is placed within general osteopathic healthcare philosophy and practice
3.7. Recognises and acts within scope of personal osteopathic capabilities
3.8. Modifies and adapts management in accordance with osteopathic practice

Element	Criteria
3.1. Implements an appropriate management plan that reflects the application of osteopathic philosophy	3.1.1. Understands and utilises an osteopathic philosophy in their examination, treatment and overall care of a person 3.1.2. Arrives at an appropriate management plan reflecting these osteopathic philosophies 3.1.3 Can identify the components of a plan of care that are in addition to (or instead of) osteopathic manual treatment, and acts accordingly 3.1.4 Ensures osteopathic manual skills are appropriate to meet professional requirements

Element	Criteria
3.2. Understands and can appropriately employ a variety of osteopathic examination and treatment techniques and approaches	3.2.1 Understands how manual osteopathic techniques as employed by osteopaths can interact with the body's physiological, circulatory, neuro-endocrine-immune, homeostatic and emotional environments and uses this knowledge within their osteopathic plan of care 3.2.2 Selects and adapts appropriate osteopathic techniques during their patient evaluation and treatment, relevant to the patient's condition and tissue responses, including cultural, religious, social and personal constraints 3.2.3 Recognises that factors being or requiring treatment can develop and change over time, and acts accordingly
3.3. Recognises and acts within scope of osteopathic practice	3.3.1 Conditions or situations that are not amenable to osteopathic intervention are identified, and appropriate action taken 3.3.2 Conditions or situations that require adaptation of manual techniques and manoeuvres employed during a plan of care are identified, and appropriate action taken
3.4. Where the patient has a condition that requires other medical assessments and / or interventions the osteopath identifies how any ongoing osteopathic care of the person should be adapted	3.4.1 Where ongoing care of these types of patient (as in 3.3.1) is given, the management plan is adjusted accordingly
3.5. Adapts ongoing care of a patient to their general health and wellbeing needs and to their changing circumstances	3.5.1 Obtains information and advice from suitable sources (osteopathic or other) as appropriate 3.5.2 Continuously gathers evidence to monitor for changes in a patient's circumstance, mental or physical condition that might require changes to their ongoing care 3.5.3 Adapts ongoing care appropriately
3.6. Identifies how their personal professional approach to patients is placed within general osteopathic healthcare philosophy and practice	3.6.1 Recognises any potential conflicts that their personal professional approach may have for the patients plan of care, and modifies it appropriately

Element	Criteria
3.7. Recognises and acts within scope of personal osteopathic capabilities, whilst seeking always to improve and enlarge on those capabilities	3.7.1 Conditions or situations where the knowledge and management skills of the practitioner are insufficient are identified and appropriate alternative action is organised and taken 3.7.2 Seeks out opportunities to enlarge personal professional capabilities
3.8. Modifies and adapts management in accordance with osteopathic practice	3.8.1 Uses ongoing education, professional reading, discussion with peers, and reflection on treatment and management outcomes to continuously improve skills and efficacy 3.8.2 Critically evaluates evidence by applying a knowledge of research methodologies and statistical analysis 3.8.3 Incorporates an understanding of the strengths and limitations of an 'evidence-based' approach to treatment 3.8.4Eengages in quality assurance practices

4. Primary Healthcare Responsibilities

Descriptor

This capability incorporates an osteopath's role in the delivery of primary health care, both as a primary contact practitioner and as a member of the healthcare community. This capability requires the osteopath to be knowledgeable about health, disease, disease management and prevention and health promotion. It incorporates an osteopath utilising healthcare networks and community services and referral as necessary.

Elements

4.1. Accepts responsibility for an individual's welfare
4.2. Recognises and responds to professional capabilities and limitations, as a primary healthcare provider
4.3. Relates effectively and knowledgeably with other health and community services or providers
4.4. Facilitates an individuals access to appropriate health and community services
4.5. Accepts responsibilities as a primary health care practitioner in relation to guidelines and ethical standards, as issued by appropriate bodies and authorities
4.6. Ensures awareness of costs associated with healthcare, and the principles of efficient and equitable allocation and use of finite resources
4.7. Maintains commitment to principles of health education, disease prevention, rehabilitation and amelioration of pain and suffering
4.8. Ensures ability to carry out basic first aid and life-saving procedures as required

Element	Criteria
4.1. Accepts responsibility for an individual's welfare	4.1.1 Identifies and acts upon those factors which are the practitioner's responsibility towards the person's welfare 4.1.2 The 'gate-keeper' and 'health-screening' roles of an osteopath as a primary healthcare practitioner are performed appropriately 4.1.3 Considers issues relating to patient's family and / or carers if appropriate
4.2. Recognises and responds to professional capabilities and limitations, as a primary healthcare provider	4.2.1 Identifies situations where other healthcare professionals may be required to perform these roles, in whole or part and acts accordingly

Element	Criteria
4.3. Relates effectively and knowledgeably with other health and community services providers	4.3.1 Effective and informed working relationships are established and maintained with other health and community services or providers 4.3.2 Written and verbal communication with other health and community services follows accepted protocols and procedures
4.4. Facilitates an individuals access to appropriate health and community services, including family and carer support	4.4.1 Practitioner identifies suitable health and community services from which the person may benefit 4.4.2 Practitioner facilitates where appropriate the person's access to these services
4.5. Accepts responsibilities as a primary health care practitioner in relation to guidelines and ethical standards, as issued by appropriate bodies and authorities	4.5.1 Practitioner maintains awareness of appropriate guidelines, ethical standards and other publications as issued by appropriate bodies and authorities 4.5.2 Practitioner ensures compliance, where required, with guidelines and ethical standards 4.5.3 Practitioner issues advice within these guidelines and ethical standards
4.6. Ensures awareness of costs associated with healthcare, and the principles of efficient and equitable allocation and use of finite resources	4.6.1 Costs associated with healthcare for the patient, osteopath and healthcare system are continuously monitored and analysed 4.6.2 Maintains a commitment to efficient and equitable allocation and use of resources

Element	Criteria
4.7. Maintains commitment to principles of health education, public and occupational health, disease prevention, rehabilitation and amelioration of pain and suffering	4.7.1 Indentifies appropriate strategies concerning health education, public and occupational health, disease prevention for patient, or refers appropriately 4.7.2 Ensures plan of care reflects commitment to rehabilitation and amelioration of pain and suffering 4.7.3 Ensures emphasis in patient education and involvement in plan of care conception and delivery 4.7.4 A commitment to improving the health literacy of the patient is maintained 4.7.5 Maintains a commitment to preventative care strategies
4.8. Ensures ability to carry out basic first aid and life-saving procedures as required	4.8.1 Able to perform basic life-saving and first aid 4.8.2 Where regulatory authorities require first aid certification that this is maintained appropriately

5. Professional Relationships and Behaviour

Descriptor

This capability incorporates an osteopath's actions in appreciating, respecting and operating in an educated, sensitive and informed manner with other healthcare providers. This includes how an osteopath acknowledges the values and procedures of those other individuals and groups and how the osteopath can best facilitate the most appropriate care.

Elements

5.1. Demonstrates the ability to is able to work as part of a network of osteopaths, and other disciplines and providers via respectful effective and efficient communication
5.2. Recognises how to implement a multidisciplinary approach through referral and co-management, and intra and interprofessional education
5.3. Implements the appropriate multidisciplinary care for the individual
5.4. Maintains effective lines of communication with other parties
5.5. Maintains a strong understanding and critical review of osteopathic philosophy and professional ethos and its place in general healthcare systems
5.6. Maintains understanding of other approaches to healthcare, and their contribution to patient management

Element	Criteria
5.1. Demonstrates the ability to is able to work as part of a network of osteopaths, and other disciplines and providers via respectful, effective and efficient communication	5.1.1 Effective network relationships are established and maintained 5.1.2 Accepted protocols for written and other media records are followed to ensure information is relayed accurately and effectively. 5.1.3 Recognises the value of a team-based approach within professional life
5.2. Recognises how to implement a multidisciplinary approach through referral and co-management, and intra and interprofessional education	5.2.1 Barriers to communication are identified and addressed where possible, or alternative strategies employed as required 5.2.2 Engages in intra and interprofessional education 5.2.3 Is committed to promotion to other health professionals and the general public of the (critically appraised) osteopathic contribution to healthcare

Element	Criteria
5.3. Implements the appropriate multidisciplinary care for the individual	5.3.1 Appropriate practitioners and providers are identified for co-management or referral for the patient 5.3.2 Appropriate protocols, are followed when co-managing a patient in any given situation, to the benefit of the patient 5.3.3 Collaborative working arrangements with others are reviewed to ensure an efficient team-based approach to care of the individual 5.3.4 Appropriate referrals are made to other practitioners, including osteopaths, based on knowledge of presenting condition and management options and own skill levels 5.3.4 A commitment to ensuring continuity of care for the patient is maintained
5.4. Maintains effective lines of communication with other parties	5.4.1 Where the osteopath continues to be one of the patient's carers, communication within the care network is maintained at an effective level to ensure patient care is optimised 5.4.2 Fosters and supports clinical training opportunities that support interdisciplinary learning
5.5. Maintains a strong understanding and critical review of osteopathic philosophy and professional ethos and its place in general healthcare systems	5.5.1 Undertakes appropriate continuing lifelong learning to ensure currency of understanding of osteopathic philosophy and professional ethos 5.5.2 Critically reflects on the relationship between osteopathic practice and other healthcare systems, and the impact this has for overall patient care 5.5.3 A commitment to contribute to the guiding and mentoring of fellow and future osteopaths as they become guardians and custodians of the profession's philosophies, knowledge and skills
5.6. Maintains understanding of other approaches to healthcare, and their contribution to patient management	5.6.1 Undertakes appropriate continuing lifelong learning to ensure awareness of other healthcare practices and approaches to healthcare and patient management, including mental health issues 5.6.2 Critically reflects on the impact this awareness has to delivery of overall patient care

6. Professional and Business Activities

Descriptor

This capability incorporates an osteopath's actions and responsibility relating to the development of themselves and their practice. It also incorporates their actions and accountability in managing the healthcare, regulatory and business systems of practice life.

Elements

6.1. Ensures ethical conduct of self and others in provision of care and services
6.2. provides for continuing professional learning for self and of employees
6.3. Ensures care of self
6.4. Maintains an appropriate physical environment for privacy, comfort, and confidentiality
6.5. Manages all aspects of practice to comply with legal and regulatory requirements (as a sole operator or as an employer of others)
6.6. Manages risk effectively and responsibly in such as way that minimises impact on all concerned.
6.7. Maintains currency of knowledge and skills according to changes in regulatory and other ethico-legal requirements and practice environments over time

Element	Criteria
6.1. Ensures ethical conduct of self and others in provision of care and services	6.1.1 Strategies to ensure ethical conduct of self and others are identified and utilised where appropriate
6.2. Provides for continuing professional learning for self and of employees	6.2.1. The need for improved skills and knowledge to maintain effective and appropriate care of the individual are identified 6.2.2. Where the practitioner has employees, they are provided with opportunities and understanding to maintain and improve relevant skills and knowledge

Element	Criteria
6.3. Ensures care of self	6.3.1. Time management strategies are implemented 6.3.2. Practitioner recognises when performance and care is not optimal and takes appropriate action 6.3.3. Ensures own personal health is appropriate to professional life 6.3.4 Maintains appropriate professional boundaries 6.3.5 Maintains appropriate balance between needs of practitioner, patient, community and healthcare services 6.3.6 Encourages a good work / life balance, individually and within professional teams and networks
6.4. Maintains an appropriate physical environment for privacy, comfort, and confidentiality of patients and others, as appropriate	6.4.1 Opportunities to improve and maintain physical environment for care and employment (where required) are identified and taken
6.5. Manages all aspects of practice to comply with legal and regulatory requirements (as a sole operator or as an employer of others)	6.5.1 Maintains awareness of legal and regulatory requirements and operates within them 6.5.2 Ensures all record keeping is in accordance with current best practice 6.5.3 Critically appraises effectiveness and appropriateness of all types of communication and record keeping
6.6. Manages risk effectively and responsibly in such as way that minimises impact on all concerned.	6.6.1 Risk factors are identified and appropriately managed 6.6.2 'Health and Safety' and waste disposal procedures follow acceptable protocols, including environmentally sensitive practices
6.7. Maintains currency of knowledge, skills and capabilities according to changes in regulatory and other ethico-legal requirements and practice environments over time	6.7.1 Maintains ongoing access to (and ability to use) relevant professional resources such as journals, books, web-sites, various electronic media, and intra- and inter-professional networks, and peer review 6.7.2. Understands major ongoing trends and developments in osteopathy 6.7.3 Understands major ongoing trends and developments in the broad health care field

7.3 Appendix Three

Draft Paediatric Osteopathy Data Collection Tool – response form.

Thank you for reviewing the questionnaire. Please answer the points below, and feel free to give whatever comments you feel would be helpful in its ongoing design. Remember to fax this back if you want your responses to be reviewed anonymously (+ 61 8 9247 5053). Otherwise scan and email back to me on caroline@yourosteopath.com.au **PLEASE RETURN BY MONDAY 23 AUGUST, 2010.**

Note: you were given a copy of the summary page, and one of the 5 individual patient sheets only. Participants will be sent an instruction page, a first page asking whether they treat paediatric patients or not (this is the only page they return if they see no paeds patients), and they will be sent the summary page to itemise diagnoses or presenting symptoms, and then 5 individual patient sheets. They will also be sent a general 'participant information sheet, and a consent form, similar to the ones you were sent. People who participate who see paeds patients will send back the first page, the summary page and all 5 individual patient sheets. Paediatric patient ages are defined as anyone less than 19 years of age at presentation, with the following sub-groups:

Infant 0-11 months; preschool 1-4 years; school age 5-12 years; adolescent >12 years (this information will be included on the front page for participants).

Feedback:

	Question	Please circle your response (or fill in as directed)				
1	Did you understand the purpose of the questionnaire?	NOT AT ALL	A LITTLE UNCLEAR	REASONABLY UNDERSTOOD	MOSTLY UNDERSTOOD	WELL UNDERSTOOD
2	Do you think the design of the questionnaire would achieve the aims of getting an overview of a group of paediatric patients and their osteopathic care?	NOT AT ALL	ONLY SLIGHTLY ACHIEVE	BASICALLY ACHIEVE	MOSTLY ACHIEVE	ACHIEVE VERY WELL
3	The print is small to try to keep one data sheet contained on one page of A4. Is the type too small?	TOO SMALL	COULD BE A BIT BIGGER	OK AS IT IS	VERY HAPPY WITH THIS SIZE	ALTHOUGH ITS TOO SMALL, ITS BETTER TO HAVE ALL ITEMS ON ONE PAGE
4	The shaded areas are to try to help guide the person to filling out the right boxes – is the shading helpful or unhelpful?	UNHELPFUL	HELPFUL BUT TOO DARK	OK AS IT IS	VERY HAPPY WITH THIS SHADING	NOT SURE I LIKE IT BUT KEEP IT ANYWAY AS NO BETTER SUGGESTION
5	Have you another suggestion for layout (describe if yes)					
6	Are the general instructions contained within the pages satisfactory and clear?	NOT AT ALL	A LITTLE UNCLEAR	REASONABLY CLEAR	MOSTLY VERY CLEAR	EVERYTHING VERY CLEAR
7	What changes would you make to the basic instructions (describe if any).					
8	The list of diagnoses and presenting symptoms on the summary sheet are designed to cover all paediatric patients. Is the list relevant to osteopathic practice and typical presentations that an osteopath would see?	NOT AT ALL	ONLY SLIGHTLY RELEVANT	OK	MOSTLY VERY RELEVANT	HIGHLY RELEVANT
9	Are there any major omissions (list and describe if so)					
10	Are some irrelevant or should not be included (list and describe if so)					
11	The list of osteopathic care approaches are listed under 'treatment'. Is this type of heading suitable? (list alternative if no)	HEADING IS NOT AT ALL SUITABLE	HEADING ONLY SLIGHTLY SUITABLE	HEADING OK	HEADING MOSTLY VERY SUITABLE	HEADING HIGHLY SUITABLE
12	Are the listed treatment items reasonable and relevant to highlight the range of osteopathic care approaches a paediatric patient may experience when seeing an osteopath?	NOT AT ALL	ONLY SLIGHTLY SUITABLE	OK	MOSTLY VERY SUITABLE	HIGHLY SUITABLE
13	Are there any major omissions (list and describe if so)					
14	Are some irrelevant or should not be included (list and describe if so)					
15	Are the other questions helpful in fulfilling the aims of the questionnaire?	NOT AT ALL	ONLY SLIGHTLY HELPFUL	GENERALLY HELPFUL	MOSTLY HELPFUL	VERY HELPFUL
16	Comments on these other questions if unhelpful, or unclear.					
17	Have you any other comments or suggestions about the questionnaire, its layout, its design, items for inclusion and so forth that you would like to share? (list and describe if so)					

Thank you for your time, Kind regards, Caroline Stone.

7.4 Appendix Four

PAEDIATRIC DATA COLLECTION TOOL 2010 -

THIS IS FOR ANY PATIENT WHO IS NEWBORN OR UP TO 18 YEARS OF AGE.

NOTE: This page is instructions only.Page 2 should take less than 5 minutes to fill in.Page 3 will take 5 minutes to read, and approximately 15-20 minutes to fill in Pages 4-8 – these are all the same – there is one page for each patient you pick. Filling out each page will take approximately 5-10 minutes.

1) PLEASE READ THE ACCOMPANYING PARTICIPANT INFORMATION SHEET AND CONSENT FORM.

2) All osteopaths in NZ are being sent this questionnaire. On the first page, below, the first question is:

do you treat paediatric patients: yes or no?

Many people treat children, and there are lots of different osteopathic approaches towards the treatment of children, including the TCM approach if the osteopath holds that endorsed area of practice. So, if you treat children in any way, please tick yes.

3) For those who tick 'no', you are asked to return that top page of the questionnaire only.

4) For those that do treat children in some way, you are invited to fill out the remainder of the questionnaire, which asks you to reflect on your last 5 most recent paediatric new patients.

5) Procedure:

i. Get out the **case histories** for the first **5** patients you had who presented from **1st. August 2010** onwards, regardless of outcome or presentation. It doesn't matter if they had 1 treatment or lots.

ii. ONE SUMMARY SHEET:
We have provided a list of potential 'conditions, symptoms or presentations that the parents report or describe as the presenting problem for the child. If you can't see the right one, there is space to put in another category. Make sure you read right through each list to familiarise yourself with it before filling in the sheet.

a. For each of these patients fill out a summary sheet about the conditions / symptoms the parents brought the child in for (ie **what the parents said the problem was**)
b. There is a space for you to write down (in brief note form) what **YOUR** osteopathic diagnosis was. You can say literally anything here that explains or illustrates your diagnosis. If your diagnosis changed because the child came in with a different presentation, then simply write your new diagnosis in the second column.
c. Whatever code you tick per patient for the parent reported presentation(s), you will need to copy this out onto that patients actual TREATMENT SHEET.

iii. **TREATMENT SHEETS** (ONE FOR EACH PATIENT, UP TO 5 PATIENTS)
There is a whole range of 'treatments' or 'types of care given' to pick from, and you can put more than one. If what you did with / for that patient is not on the list, please put in your own in the space provided. Make sure you read right through each list to familiarise yourself with it before filling in the sheets.

a. for each patient fill out one of these separate 'treatment sheets' outlining the treatments or advice or types of care given by you on that patient's first 5 consultations (put the date in for each consultation).

b. If the patient only had one consultation, only one of these 'treatment columns' needs to be filled in for each patient. But if each of the 5 patients had 5 sessions or consultations, fill out all five columns for each of the 5 patients.
c. Copy the presentation code for that patient from the summary sheet into the relevant column on this treatment sheet (so we can keep things cross-referenced).
d. If you didn't treat them (or referred on) for example, there is a space to put that in, as well as space to write why you referred (e.g. for further advice, or something else).
e. If the parents reported new symptoms, conditions or problems / different ones in the second or subsequent consultations, there is a column to note this.
    i. Simply put a tick against the new code / heading in that second (or subsequent) column (leaving the first (or other) column unchanged.

PAEDIATRIC DATA COLLECTION TOOL 2010 *SPONSORED BY OCNZ*

PLEASE RETURN BY FRIDAY 5 NOVEMBER, 2010

Do you currently treat any paediatric patients (anyone under the age of 18 years) in your osteopathic practice (which can include through the use of TCM if you hold this endorsement?) YES / NO Please circle

If no, please return this sheet and the consent form in the reply paid envelope provided.

If yes, please follow the instructions given on the page above, to complete the items below and the remaining pages of the questionnaire, and return it with the consent form in the reply paid envelope by 25th. October, 2010.

If yes, please complete the following items before turning to the rest of the questionnaire:

Practitioner gender: Male / Female – please circle

Number of years in osteopathic practice: ....

Have you undertaken any post graduate education or training in paediatrics since your initial osteopathic qualification? Yes / No – please circle

If yes, please describe (note, this can include osteopathic courses not leading to a formal qualification, can include non osteopathic courses, and other material or employment opportunities you feel are relevant – please list / describe briefly.

If no, please comment on how you prepared yourself for paediatric practice – please list / describe briefly

(note: this could include statements like 'my undergraduate / other osteopathic training was sufficient to meet my needs' or 'I spent some time in another practice where I got guidance from another osteopath who saw a lot of children / paediatric patients' or something else you feel was important in your preparation and development for paediatric osteopathic practice:

PLEASE RETURN BY FRIDAY 5 NOVEMBER, 2010 SPONSORED BY THE OCNZ

PATIENT SUMMARY SHEET – PAEDIATRIC DATA COLLECTION FORM OCNZ 2010 – fill this in as well as the treatment sheets for each patient

WHAT THE PARENTS (or carer) REPORTED / SAID WAS THE PROBLEM, SYMPTOM OR CONDITION THEY ARE CONSUTING THE OSTEOPATH ABOUT	Code	Pt 1	Only fill this column if pt 1 presentation changed during the 5 sessions (tick)	Pt 2	Only fill this column if pt 2 presentation changed during the 5 sessions (tick)	Pt 3	Only fill this column if pt 3 presentation changed during the 5 sessions (tick)	Pt 4	Only fill this column if pt 4 presentation changed during the 5 sessions (tick)	Pt 5	Only fill this column if pt 5 presentation changed during the 5 sessions (tick)
YOU CAN PUT MORE THAN ONE CATEGORY DOWN FOR THIS REPORTED PRESENTATION – if it really doesn't fit a category, use 'other' at the bottom and fill in your descriptor). For example: a problem might be 'birth injury' – cerebral palsy; or 'genetic disorder' – Downs syndrome.	Code	Tick the code that matches the presentation(s) the parent reported for that child	Tick additional / changed presentation code(s) in this second column	Tick the code that matches the presentation(s) the parent reported for that child	Tick additional / changed presentation code(s) in this second column	Tick the code that matches the presentation(s) the parent reported for that child	Tick additional / changed presentation code(s) in this second column	Tick the code that matches the presentation(s) the parent reported for that child	Tick additional / changed presentation code(s) in this second column	Tick the code that matches the presentation(s) the parent reported for that child	Tick additional / changed presentation code(s) in this second column
Abdominal pain	1										
Abnormality of gait	2										
Asthma	3										
Behavioural problems	4										
Celiac disease	5										
Colic – for this category, please ALSO FILL IN any or all of: abdominal pain; feeding problem; fussy infant or baby that explains what the parents meant by the word 'colic'.	6										
Developmental delay	7										
Failure to Thrive	8										
Feeding problem (including suckling difficulties, excluding reflux)	9										
Fussy infant/baby (including persistent crying, excluding feeding problems and reflux – sleep disturbance has its own category below)	10										
Gastro-oesophageal Reflux	11										
Head Injury	12										
Headache (not migraine)	13										
Hypotonia	14										
Leg pain	15										
Lumbar back pain	16										
Migraine	17										
Muscle spasm	18										
Neck pain	19										
Otitis media (chronic)	20										
Scoliosis	21										
Sports injuries (you can tick this if you also ticked e.g. leg or arm pain), or just tick it on its own if that is relevant	22										
Positional plagiocephaly / Skull or face deformity	23										
Sleep disturbance	24										
Thoracic back pain	25										
Torticollis	26										
Unequal leg length	27										
Upper respiratory infection	28										
Other (please list)	29										
Other (please list)	30										
Other (please list)	31										
Other (please list)	32										

PLEASE RETURN BY FRIDAY 5 NOVEMBER, 2010 SPONSORED BY THE OCNZ

TREATMENT SHEETS: (5 copies of this page wre enclosed) Patient 1-2-3-4-5 Town / city or village of patient (please write in name).....

Age of child at presentation (X Weeks, X months or X years as applicable)				Gender of patient (please circle)	M / F
Is the patient currently receiving treatment and care (when they presented to you) from a general practitioner or paediatrician, or other orthodox healthcare practitioner (including pending surgery or tests, for example)		Y/N	If yes, please list medication / type of care / investigation / procedure		
Is the patient currently receiving treatment and care (when they presented to you) from a Complementary or Alternative Medical (CAM) practitioner, such as a herbalist, homeopath, acupuncturist for example, or another osteopath		Y/N	If yes, please list type of practitioner		
Has the person got a co-existing condition in their general health history		Y / N	If yes, please list it or them		
Who referred this patient – for example: self or parents / immediate family member or guardian; medical practitioner (excluding midwives); midwife; another osteopath; a CAM practitioner such as a herbalist, homeopath, acupuncturist; other (describe); PLEASE WRITE RELEVANT ANSWER (or 'DON'T KNOW)					
What made the person come / their family bring them to an osteopath – for example: waiting for GP or paediatrician appointment, referral from practitioner, not wanting orthodox treatment, live nearby, suggested by friends, through internet searching, other (describe); PLEASE WRITE RELEVANT ANSWER (or 'DON'T KNOW)					

DATE OF CONSULTATION		First consultation	Second consolation (if had one)	Third consultation (if had one)	Fourth consultation (if had one)	Fifth consultation (if had one)
Osteopathic care: 'Treatment': please tick the ones you used in each session for that patient. Put down all the ones you used each time, and use 'other' if another form of treatment was used that was not listed below. There is a category for no hands on treatment given, and for parental support. Less than 5 consultations given? – just fill in 1 column for each consultation actually given. If you mix and match / blend all your treatments try still to tick separately the elements (treatment types) that you combined. **READ ALL THE OPTIONS FIRST, BEFORE FILLING ANY IN**						
Osteopathy in the cranial field (OCF) 1 (applied to head)	A					
Osteopathy in the cranial field (OCF) 2 (applied to rest of body)	B					
Balanced ligamentous tension approach (BLT)	C					
Biodynamic treatment approach						
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 1 (applied to head)	D					
Indirect technique other than OCF / BLT (eg functional and fascial unwinding) 2 (applied to rest of body)	E					
Soft tissue massage	F					
Visceral manipulation	G					
Manipulation (high velocity thrust techniques - HVT)	H					
Joint mobilisation (not including HVT)	I					
Articulation	J					
Discussion of parenting approaches / family relationships / social relationships	K					
Prescription of exercises	L					
Discussion of dietary advice and other complementary and alternative medicine approaches (CAM) e.g. homeopathy, acupuncture, herbal products	M					
Discussion about need for further investigations from a medical practitioner / healthcare service provider (not including CAM practitioners)	N					
Tick this box for each session if your diagnosis or management of the patient is pending results or feedback from orthodox medical practitioners or investigations, leave blank if not	O					
No hands on treatment given	P					
Parental support was a therapeutic approach given in the care of the child	Q					
Referral to medical practitioner / healthcare service provider	R					
If you referred on please write reason (e.g. 'outside my expertise', 'not sure of diagnosis', wanted second opinion' or whatever the reason was for that referral						
Referral to CAM practitioner	S					
If you referred on please write reason (e.g. 'outside my expertise', 'not sure of diagnosis', wanted second opinion' or whatever the reason was for that referral						
Referral to another osteopath	T					
If you referred on please write reason (e.g. 'outside my expertise', 'not sure of diagnosis', wanted second opinion' or whatever the reason was for that referral						
Other treatment type given, if not listed above (please describe very briefly in code column)	U					
Other treatment type given, if not listed above (please describe very briefly in code column)	V					
What was your osteopathic diagnosis for this patient, for each consultation (note: if diagnosis was the same for all consultations, just write 'same' in second and subsequent consultation columns.						
What did you want to achieve with this patient (please briefly describe your main objective per consultation). If the aim was the same each time, write 'same' in second and subsequent consultation columns						
Do you think you are / were successful in this objective (for each consultation fill in: not successful, partly successful, satisfactory, very successful, too early to say)						

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

CONSENT FORM

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title: Osteopathic Paediatric Capabilities Study

Name(s) of Researcher(s): Principal Investigator Assoc Professor Jennifer Weller; Student researcher Caroline Dean.

I have read the Participant Information Sheet, have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I understand that I am free to withdraw participation at any time, and to withdraw any data traceable to me up to a specified date (up to 1 month from advertised return date of your questionnaire).
- I understand that this project is being funded by the Osteopathic Council of New Zealand.
- I agree to participate in a postal survey and to complete the questionnaire as directed
- I understand these can be returned via a reply paid envelope provided to me
- I understand that data will be kept for 6 years, after which they will be destroyed.
- I understand I can contact the researcher for a copy of the outcomes of the project after January 2011.

Name _____

Signature _____ Date _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 6 MAY 2010 FOR (3) YEARS REFERENCE NUMBER 2010/186

FURTHER APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 13 Oct 2010 REF 2010/469

PARTICIPANT INFORMATION SHEET

Project title: Osteopathic Paediatric Capabilities Study.

Name(s) of Researcher(s): Caroline Dean, Assoc Professor Jennifer Weller;

Researcher introduction

Caroline Dean (nee Stone) is a student in the Masters of Clinical Education programme at the Faculty of Health Sciences, Auckland University. Caroline is a practising osteopath based in Perth.

Project description and invitation

There is currently no identified set of capabilities for paediatric practice in osteopathy in New Zealand, and it is recognised by the researcher and the professional Register (Osteopathic Council of New Zealand, OCNZ) that this omission needs addressing. We aim to gather information on what osteopaths and other stakeholders consider are an appropriate set of capabilities for paediatric osteopathic practice in New Zealand. Consideration will be made as to whether these are already contained within the competencies for practice currently identified by the OCNZ or not. A draft set of capabilities for paediatric osteopathic practice will be proposed, based on these initial interviews, and in a later stage of the project this draft will be circulated for comment. The project will also explore the profile of paediatric patients presenting to osteopaths, and the type of care they receive. The outcome of the full project will be utilised by the OCNZ to inform their policy discussions and may be published in journals and other professional literature.

I would like to invite you to be involved in the second part of this research, which is to explore the profile of paediatric patients presenting to osteopaths, and the types of treatments given. This questionnaire is being sent to all osteopaths registered with the Osteopathic Council of New Zealand.

Project Procedures

If you consent to involvement, please fill in this consent form and return it with the completed questionnaire in the reply paid envelope provided. Responses in the questionnaire will be collated and analysed using quantitative and qualitative methods. No compensation or financial inducements are offered. This project is being funded by the OCNZ.

Right to Withdraw from Participation

Participants have the right to withdraw from participation at any time. You also have the right to withdraw your interview data from the research up to a specified date or period of time. This time period would be one month after the advertised questionnaire return date (set out in the instructions).

Anonymity and Confidentiality

All data will be anonymised, and the researcher will be the transcriber of any tapes or written notes. Every effort will be undertaken to preserve confidentiality of identity where possible. For example, no names will be used, no individual's style of treatment will be identified and treatment will only be discussed generically and no geographical identification references will be made in any report or publication.

Contact Details and Approval Wording

Caroline Dean: caroline@yourosteopath.com.au + 61 8 9247 5003

Assoc Prof Jennifer Weller: j.weller@auckland.ac.nz

Chair contact details: "For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Office of the Vice Chancellor, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 extn. 83711."

FIRST APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 6 MAY 2010 for (3) years, Reference Number 2010/186

FURTHER APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 13 Oct 2010 REF

2010/469

7.5 Appendix Five

All presenting conditions or symptoms described in the data, across the various age brackets

presenting condition	<6 weeks	6 w - 11 m	1-4 yr	5-12 yr	13 + yr
Abdominal pain	12	10	1	3	4
Abnormality of gait	0	0	2	5	4
ankle foot problems	0	0	0	3	2
arm pain	0	1	0	2	0
Asthma	0	0	1	3	1
autism spectrum disorder	0	0	1	0	0
bedwetting	0	0	0	2	0
Behavioural problems	1	0	4	6	0
breech birth issues	1	0	0	0	0
c-cection issues for baby	0	0	0	0	0
Celiac disease	0	0	0	0	0
Cervical spine crepitis	0	0	0	1	0
chronic fatigue	0	0	0	0	1
cleft palate	1	0	0	0	0
clumsy	0	0	1	0	0
coccydynia	0	0	0	0	1
Colic	19	17	2	0	0
complex regional pain syndrome	0	0	0	1	0
conjunctivitis / eye discharge	0	3	1	0	0
constipated	3	3	1	2	0
constipation	0	0	0	0	0
crying in various positions of lying	0	1	0	0	0
Developmental delay	1	2	1	2	0
diaphragm area pain	0	0	0	0	1
diaphragmatic hernia	0	0	1	0	0
difficulty winding baby	0	1	0	0	0
excema	0	1	1	0	0
Failure to Thrive	1	2	2	0	0
Feeding problem	18	17	4	0	0
feet internally rotated	0	0	0	0	0
flatulence	0	0	0	0	0
Fussy infant/baby	17	17	0	0	0
Gastro-oesophageal Reflux	13	14	1	0	0
general clicking	0	0	0	0	3
generalised EENT problems	0	0	0	0	0
growth spurt	0	0	0	1	0
gut function / food intolerence	0	0	0	0	0

gynaecological problems	0	0	0	0	2
Head Injury	2	0	0	5	5
Headache (not migraine)	0	0	2	16	18
hearing loss	0	0	0	1	0
heart murmur	0	0	0	0	0
hiccups	1	0	0	0	0
Hypotonia	0	0	0	0	2
infant hip instability	1	0	0	0	0
knee click	0	0	0	0	0
Leg pain	0	0	1	18	18
Lumbar back pain	0	0	1	16	27
lump on ankle	0	0	0	0	0
Migraine	0	0	0	4	4
Muscle spasm	2	2	1	8	13
muscle weakness	0	0	0	0	1
nausea / stomach cramps	0	0	0	1	0
Neck pain	0	1	3	21	31
neck turn / side preference	3	1	0	0	0
new baby check	9	2	0	0	0
oral thrush	0	1	0	0	0
Otitis media (chronic)	0	1	8	2	0
Positional plagiocephaly / Skull or face deformity	9	11	2	1	0
post birth localised facial / head swelling	1	0	0	0	0
post lung surgery	0	0	1	0	0
post road traffic accident check	0	0	0	0	0
post surgical hemicolectomy	0	1	0	0	0
post venteuse check	0	0	0	0	0
Rib cage	0	0	0	0	1
Scoliosis	2	0	0	3	3
scoliosis	0	0	0	0	0
Shoulder	0	0	0	2	4
Sleep disturbance	16	16	3	4	1
snoring	0	0	1	0	0
soft lump on coronal suture	1	0	0	0	0
Sports injuries	1	0	1	14	31
stuttering	0	0	0	0	0
Thoracic back pain	0	2	1	16	26
tiredness	0	0	1	0	0
TMJ / bruxism / opening problems / bite / malalignment	0	0	1	3	2
tongue tie	1	1	0	0	0
Torticollis	4	6	1	0	0
traumatic injuries / falls	0	0	1	1	0
uncomfortable defecation	0	0	0	0	5

Unequal leg length	0	0	1	0	2
Upper respiratory infection	1	2	4	1	0
ventral septal defect	1	0	0	0	0
vertigo	0	0	0	0	0
decreased hip movement	1	0	0	0	0
skulls clicks	1	0	0	0	0
spitting up milk	1	0	0	0	0
difficulty passing bowel motions	1	0	0	0	0
can't open jaw well	1	0	0	0	0
head turn (not torticiolis / tight muscle)	0	3	0	0	0
difficulting burping	0	2	0	0	0
jumpy baby' / caesarian issues	0	1	0	0	0
peelet like stools	0	1	0	0	0
traumatic injuries / falls	0	1	0	0	0
hypertonia	0	1	0	0	0
constant colds	0	0	1	0	0
rapid vertical growth	0	0	1	0	0
painful bowel motions	0	0	2	0	0
williams syndrome	0	0	1	0	0
pulled elbow	0	0	1	0	0
food intolerance	0	0	0	1	0
suspected fracture	0	0	0	1	0
foot pain	0	0	0	1	0
nose bleeds	0	0	0	1	0
infection due to lowered immunity	0	0	0	0	1

7.6 Appendix Six

JAOA ORIGINAL CONTRIBUTION

Characteristics of Pediatric Patients Seen in Medical School–Based Osteopathic Manipulative Medicine Clinics

Gregg Lund, DO, MS
Jane E. Carreiro, DO

Context: Manual medicine—specifically osteopathic manipulative treatment (OMT)—is commonly used in treating patients aged 18 years or younger. However, no published reports have described characteristics of this patient population or the conditions for which OMT is used with these patients. To better counsel parents, train physicians and other healthcare providers, and prioritize research, an improved understanding of the use of OMT in children is needed.

Objective: To characterize pediatric patients and their conditions as seen in a medical school–based osteopathic manipulative medicine clinic.

Study Design: Retrospective analysis of administrative data on the use of OMT.

Setting: Faculty osteopathic manipulative medicine specialty clinics associated with the University of New England College of Osteopathic Medicine.

Patients: Data were analyzed from patients seen in the clinics from January 1, 2007, through December 31, 2007, if they were younger than 19 years at their first visit during that period.

Outcomes Measures: Factors included in the data analysis were patient age at first visit, age at time of visit, number of visits during the study period, types of clinical diagnoses, and visits with nonmusculoskeletal diagnoses.

Results: A total of 407 patients generated 1500 clinic visits. Data showed a mean of 3.7 visits per patient (25th-75th percentiles = 2-5 visits) during the 1-year study period. The mean age at the first clinic visit was 7 years, 3 months, with the 25th-to-75th percentile being 1 year, 9 months, to 12 years, 3 months. Clinic visits by age group (ie, age at time of visit) as percentages of total visits were as follows: 0 to 11 months, 13.7%; 1 to 4 years, 33.3%; 5 to 12 years, 28.9%, older than 12 years, 24.2%. Diagnoses provided in visits covered a wide variety of common pediatric conditions. For the entire study population, 43.5% of visits included nonmusculoskeletal diagnoses. The percentages of visits with nonmusculoskeletal diagnoses for each age group were as follows: 0 to 11 months, 33.7%; 1 to 4 years, 64.0%; 5 to 12 years, 48.8%; older than 12 years, 17.7%.

Conclusion: Pediatric patients seen in the faculty osteopathic manipulative medicine specialty clinic included the entire pediatric age range and a wide range of common pediatric conditions. A substantial number of visits involved treatment for nonmusculoskeletal conditions. Further investigation is needed to determine if the patient sample of the present study is representative of other clinical settings or geographic regions.

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Osteopathic manipulative treatment (OMT) and other manipulative therapies are commonly used with patients in the pediatric age group. However, no previously published studies have described detailed characteristics of the pediatric patient population treated with OMT—or of the conditions for which OMT is used in this group. A description of the clinical reality of OMT use with pediatric patients is needed to provide improved awareness of the indications for OMT, to identify areas for further research, and to ensure that OMT training produces osteopathic physicians who are competent to manage conditions they may encounter in practice.

No previously published data specifically document the frequency of OMT use in children. However, the Centers for Disease Control and Prevention (CDC) and the National Center for Health Statistics (NCHS)[1] of the US Department of Health and Human Services, as well as the National Center for Complementary and Alternative Medicine (NCCAM)[2] of the National Institutes of Health, recently reported on the use of complementary and alternative medicine (CAM). According to the CDC/NCHS study,[1] 2.8% of all children younger than 18 years had been treated with either OMT or chiropractic therapy within the previous 12 months. This percentage

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increased to 5.7% among children of parents who themselves used CAM modalities.[1]

Both the NCCAM[2] and the American Academy of Pediatrics (AAP)[3] have suggested that physicians discuss the use of CAM with their patients. However, the NCCAM program called "Time to Talk" encourages such discussion only with patients aged 50 years and older.[2] The AAP made its recommendation in a clinical report on CAM,[3] which only briefly mentioned OMT while discussing chiropractic and massage therapy in detail. Without healthcare providers having a greater awareness of the use of OMT in children, they are unlikely to mention this treatment option in pediatric patient encounters, thereby limiting OMT consideration to adult clinical care.

Research efforts for OMT in children, as with many other neglected domains of medical research, do not have scientific or political groups to champion this area for study. Although a 2-year multicenter study of OMT as an adjunct in the treatment of patients with otitis media[4] is a welcomed start, more studies of the efficacy of OMT in children are needed. Having an understanding of OMT used in contemporary practice could play a role in identifying and supporting requests for research funding.

Considering these identified deficits in present knowledge, our objective was to characterize the pediatric patient population that is being treated with OMT. We sought to include a description of patient age distribution in our analysis, as well as an identification of conditions for which care was sought, describing both specific diagnoses and the frequency with which nonmusculoskeletal conditions are addressed with OMT.

Methods

We studied data on patients cared for by University of New England College of Osteopathic Medicine (UNECOM) faculty at the clinics of the Department of Osteopathic Manipulative Medicine (OMM)—in Biddeford and Portland, Maine. These are OMM specialty clinics designed specifically for patients to be evaluated and, if appropriate, treated with OMT. We included only patients seen at the faculty clinics. Patients seen in other UNECOM specialty clinics or in the OMM resident or student clinics were not included in the present analysis. Included patients were those seen from January 1, 2007, through December 31, 2007, who were younger than 19 years at the time of their initial visits during the study period.

We analyzed administrative data that had been collected for billing purposes. The billing system database was queried to produce a file that included demographic data on each patient (ie, name, date of birth) and data for each patient clinic visit (ie, date of service, osteopathic physician provider, all diagnoses from that visit). These data were entered into a database created with Microsoft Access 2007 software (Microsoft Corporation, Redmond, Washington). Data were aggregated and de-identified for analysis in accordance with, and with approval of, the University of New England's Institutional Review Board and Health Insurance Portability and Accountability Act compliance officer. Analyses were carried out using Microsoft Excel 2007 software (Microsoft Corporation, Redmond, Washington), with data exported from the de-identified dataset.

Patient characteristics included for analysis were age at initial visit, age at each subsequent visit, and total number of visits in 2007. Diagnoses were classified as being either musculoskeletal or nonmusculoskeletal. The diagnosis classification was determined before other any other analyses were conducted by our agreement based on our clinical experience and expertise. This characterization was intended to represent a clinical characterization rather than to identify etiologic factors. Diagnoses of somatic dysfunction and of visits with only somatic dysfunction diagnoses were not included in our analysis, because such diagnoses are not descriptive of patients' more generalizable clinical conditions—the focus of the present study.

The unit used for analysis of the diagnosis data was the clinic visit rather than the patient. Clinic visit was used for two reasons. One reason was that we could not determine from the available data if the same diagnosis found on two visits of the same patient constituted two separate episodes of

Table 1
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Patient Age at First Visit (N=407)

Patient Age Group	Patients, No. (%)
■ Infant, 0-11 mo	62 (15.2)
■ Preschool, 1-4 y	125 (30.7)
■ School, 5-12 y	127 (31.2)
■ Adolescent, >12 y	93 (22.9)

Table 2
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Patient Age Groups and Visit Counts (N=1500)

Patient Age Group	Visit Count, No. (%)
■ Infant, 0-11 mo	205 (13.7)
■ Preschool, 1-4 y	499 (33.3)
■ School, 5-12 y	433 (28.9)
■ Adolescent, >12 y	363 (24.2)

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that diagnosis or a continuation of the same episode of the initial diagnosis. A more important reason, however, was that a major goal of the present project was to identify clinic visits for nonmusculoskeletal conditions. This could not be determined if all visit diagnoses for a patient were aggregated for the study year.

Results

During the 1-year study period, 407 patients generated 1500 clinic visits. The data represented a mean of 3.7 visits per patient (25th-75th percentiles = 2-5 visits) during the study period. The mean age of patients at the first visit in 2007 was 7 years, 3 months, with the 25th-to-75th percentile being 1 year, 9 months to 12 years, 3 months. The data demonstrated a wide representation of the pediatric age range as seen in the outpatient setting.

The distribution of patients' ages at the time of their first clinic visits during the study period is presented in *Table 1*. The clinic visit count according to patient age group is shown in *Table 2*. The age groups were defined by stages of child development without attempting to equalize the number of months or years in each group. These age groupings were infant (0-11 months), preschool (1-4 years), school age (5-12 years), and adolescent (>12 years). The division of age groups was based on generally accepted pediatric determinations or on agreement of the authors based on their combined clinical experiences.

Of the 1500 clinic visits, 129 involved diagnoses of somatic dysfunction, and the remaining 1371 clinic visits were used to determine frequency of diagnoses. The distribution of diagnoses during clinic visits are presented in *Table 3*, *Table 4*, *Table 5*, and *Table 6* for each age group (at time of visit) as the number of individual visits with specific diagnoses. For each visit, there may be more than one diagnosis. Data are presented in each age group as the top 10 most frequent diagnoses overall, the top 5 nonmusculoskeletal diagnoses, and top 5 musculoskeletal diagnoses. *Table 3* shows results for the 0 to 11-month group, *Table 4* for the 1 to 4-year group, *Table 5* for the 5 to 12-year group, and *Table 6* for the older than 12-year group.

Table 3
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Diagnoses for Patients Aged 0 to 11 Months (n=196)*

Diagnosis	Visit Count, No. (%)
■ **Most Frequent Overall Diagnoses**	
□ Torticollis	74 (37.8)
□ Skull or face deformity	61 (31.1)
□ Otitis media	24 (12.2)
□ Feeding problem	11 (5.6)
□ Muscle spasm	9 (4.6)
□ Gastroesophageal reflux disease	9 (4.6)
□ Fussy infant/baby	7 (3.6)
□ Abdominal pain	5 (2.6)
□ Upper respiratory infection	5 (2.6)
□ Failure to thrive	3 (1.5)
■ **Most Frequent Nonmusculoskeletal Diagnoses**	
□ Otitis media	24 (12.2))
□ Feeding problem	11 (5.6)
□ Gastroesophageal reflux disease	9 (4.6)
□ Fussy infant/baby	7 (3.6)
□ Abdominal pain	5 (2.6)
■ **Most Frequent Musculoskeletal Diagnoses**	
□ Torticollis	74 (37.8)
□ Skull or face deformity	61 (31.1)
□ Muscle spasm	9 (4.6)
□ Abnormality of gait	2 (1.0)
□ Cervicalgia, dislocated elbow, or myalgia	1 (0.5) each

* Data include only clinic visits with diagnoses other than somatic dysfunction.

Table 4
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Diagnoses for Patients Aged 1 to 4 Years (n=433)*

Diagnosis	Visit Count, No. (%)
■ **Most Frequent Overall Diagnoses**	
□ Otitis media	149 (34.4)
□ Skull or face deformity	68 (15.7)
□ Torticollis	33 (7.6)
□ Upper respiratory infection	24 (5.5)
□ Behavioral problems	15 (3.5)
□ Sleep disturbance	14 (3.2)
□ Head injury	11 (2.5)
□ Muscle spasm	11 (2.5)
□ Asthma	9 (2.1)
□ Constipation	8 (1.8)
■ **Most Frequent Nonmusculoskeletal Diagnoses**	
□ Otitis media	149 (34.4)
□ Upper respiratory infection	24 (5.5)
□ Behavioral problems	15 (3.5)
□ Sleep disturbance	14 (3.2)
□ Asthma	9 (2.1)
■ **Most Frequent Musculoskeletal Diagnoses**	
□ Skull or face deformity	68 (15.7)
□ Torticollis	33 (7.6)
□ Head injury	11 (2.5)
□ Muscle spasm	11 (2.5)
□ Abnormality of gait	7 (1.6)

* Data include only clinic visits with diagnoses other than somatic dysfunction.

Table 5
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Diagnoses for Patients Aged 5 to 12 Years (n=391)*

Diagnosis	Visit Count, No. (%)
■ **Most Frequent Overall Diagnoses**	
□ Headache	53 (13.6)
□ Scoliosis	53 (13.6)
□ Otitis media	33 (8.4)
□ Neck pain	32 (8.2)
□ Behavioral problems	30 (7.7)
□ Lumbar back pain	27 (6.9)
□ Thoracic back pain	21 (5.4)
□ Unequal leg length	21 (5.4)
□ Muscle spasm	15 (3.8)
□ Leg pain	12 (3.1)
■ **Most Frequent Nonmusculoskeletal Diagnoses**	
□ Headache	53 (13.6)
□ Otitis media	33 (8.4)
□ Behavioral problems	30 (7.7)
□ Asthma	7 (1.8)
□Celiac disease	6 (1.5)
■ **Most Frequent Musculoskeletal Diagnoses**	
□ Scoliosis	53 (13.6)
□ Neck pain	32 (8.2)
□ Lumbar back pain	27 (6.9)
□ Thoracic back pain	21 (5.4)
□ Unequal leg length	21 (5.4)

* Data include only clinic visits with diagnoses other than somatic dysfunction.

Table 6
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Diagnoses for Patients Older Than 12 Years (n=351)*

Diagnosis	Visit Count, No. (%)
■ **Most Frequent Overall Diagnoses**	
□ Lumbar back pain	64 (18.2)
□ Scoliosis	55 (15.7)
□ Neck Pain	53 (15.1)
□ Headache	53 (15.1)
□ Thoracic back pain	47 (13.4)
□ Otitis media	33 (9.4)
□ Behavioral problems	28 (8.0)
□ Unequal leg length	21 (6.0)
□ Muscle spasm	15 (4.3)
□ Hip Pain	14 (4.0)
■ **Most Frequent Nonmusculoskeletal Diagnoses**	
□ Headache	53 (15.1)
□ Otitis media	33 (9.4)
□ Behavioral problems	28 (8.0)
□ Hypotonia	11 (3.1)
□ Celiac disease	6 (1.7)
■ **Most Frequent Musculoskeletal Diagnoses**	
□ Lumbar back pain	64 (18.2)
□ Scoliosis	55 (15.7)
□ Neck Pain	53 (15.1)
□ Thoracic back pain	47 (13.4)
□ Unequal leg length	21 (6.0)

* Data include only clinic visits with diagnoses other than somatic dysfunction.

Frequency of clinic visits with nonmusculoskeletal diagnoses for each group are presented in *Table 7*. In each age group, a substantial proportion of the patients presented with nonmusculoskeletal diagnoses. The percent of visits with nonmusculoskeletal diagnoses were 33.7% for the 0 to 11-month group, 64.0% for the 1 to 4-year group, 48.8% for the 5 to 12-year group, and 17.7% for the older than 12-year group. For the entire study population, 43.5% of the visits included non-musculoskeletal diagnoses.

Comment

Reports have been published on the use of OMT for a wide variety of clinical conditions. However, we believe the present study is the first to characterize the overall pediatric patient population treated with OMT. Findings of the present study may be useful for informing clinicians (eg, physicans, nurse practitioners, occupational therapists, physical therapists) who care for children but do not perform OMT about potential indications for OMT in the pediatric population. The findings may also help these clinicians recognize which of their patients may be using OMT. Per recommendations of the CDC/NCHS,[1] NCCAM,[2] and AAP,[3] all clinicians should be familiar with all therapies to which their patients are exposed, especially in the primary care setting.

The findings of the present study could also be used by the osteopathic medical profession in developing a research agenda for OMT during childhood. Understanding the use of OMT in common clinical practice—and even in a specialty clinical environment—will not only offer research direction, but also serve to identify clinical settings in which large numbers of pediatric patients might be available for study participation. In addition, the techniques used to conduct the present study could be replicated or expanded to investigate OMT use in other age groups, patient populations, and settings.

Educators may find these data useful in designing curricula for osteopathic medical students, as well as postgraduate and continuing osteopathic medical education. If training programs are to prepare osteopathic physicians to be competent

Table 7
Characteristics of Pediatric Patients Seen in Osteopathic Manipulative Medicine Clinics: Percentage of Clinic Visits With Nonmusculoskeletal Diagnoses For Each Age Group

Patient Age Group	Visit Count, n*	Nonmusculoskeletal Visit Count, No. (%)
■ Infant, 0-11 mo	196	66 (33.7)
■ Preschool, 1-4 y	433	277 (64.0)
■ School, 5-12 y	391	191(48.8)
■ Adolescent, >12 y	351	63 (17.9)
■ All Age Groups	1371	597 (43.5)

* Data include only clinic visits with diagnoses other than somatic dysfunction.

in patient care, the developers of these programs must have a realistic understanding of what trainees may encounter in clinical practice.

As in many retrospective studies, the data in the present report were collected for purposes other than qualitative research. Therefore, strict diagnostic criteria were not prospectively described and adhered to. Nevertheless, the methodology in this study can serve as a first step toward a better understanding of current clinical pediatric care.

The present study was conducted in a specific clinical setting—two medical school–based OMM specialty clinics in Maine. Whether characteristics of pediatric patients seen in other clinical settings or geographic regions would be different from those found in this study will need to be analyzed in future studies.

Conclusion

Pediatric patients seen in the faculty OMM specialty clinic of UNECOM included the entire pediatric age range seen in outpatient settings. A wide spectrum of common pediatric conditions was seen among patients, and a substantial number of clinic visits involved nonmusculoskeletal conditions. Whether the patient sample analyzed in the present study is representative of pediatric patients seen in other clinical settings or geographic regions will need to be determined by further investigation.

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