

Bangor University

MASTERS BY RESEARCH

**An evaluation of the Seren Programme for prospective medical school applicants:
Mapping impact, sustainability and growth.**

Wong, Yong-Shun

Award date:
2020

Awarding institution:
Bangor University

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Bangor University

MASTERS BY RESEARCH

**An evaluation of the Seren Programme for prospective medical school applicants:
Mapping impact, sustainability and growth.**

Wong, Yong-Shun

Award date:
2020

Awarding institution:
Bangor University

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

SUMMARY – TWO PAPER MODEL

Background: Widening access initiatives to medical school have had mixed success. One reason may be the competing interests of different stakeholder groups involved. The Seren (Star) Programme at Glan Clwyd Hospital is part of a Welsh Assembly Government (WAG) initiative to help support high-performing state school children (post-GCSE) intending to apply to study medicine at university.

Aim: To explore stakeholder perspectives of widening access initiatives to medical school in the UK and using the scoping review as a basis to evaluate the Seren Programme in North Wales and to assess its impact on its stakeholders.

Design: Scoping review (Paper 1) followed by Single case study (Paper 2).

Data sources: Published literature from 1998 to 2018, CINAHL, Applied Social Sciences Index and Abstracts, ProQuest Education Collection, PsychINFO, PubMed, key journals and citation tracking.

Participant surveys with 34 of the stakeholders as well as interviews with as subset of 15 of the stakeholders. Direct non-participant observation was conducted for the Seren Sessions.

Results: The scoping review focused on the 12 papers which comprise 11 studies can be categorised into; 8 studies on Widening Access initiatives done in the UK, 2 studies on stakeholder perspectives only and 1 generic review on “best practices” in WA to healthcare. The 4 main areas targeted by the Widening Access initiatives in this review include; outreach, selection, transition, retention and completion. They also display several key features which could have contributed to their success and sustainability, namely: committed personnel and resources, selection of suitable Widening Access applicants, focused sessions based on needs of students, led and delivered by a combination of staff and medical students, utilisation of technology and social media and data collection and feedback. The stakeholders identified are as follows: students, parents, school teachers, medical schools’ admissions deans, Widening Access facilitators, policy makers, hospital management and the public. Their interests and perspectives have been tabulated.

Following the scoping review, an evaluation of the Seren Programme was carried out. The results obtained were presented into the five distinct themes of: *Personal Motivations*, *Relationships: Coalescence and conflict*, *Parental role and 'not knowing'*, *Student learning and engagement*, and *Growth and resilience*. The results provided a powerful narrative of the experiences of the stakeholders within the Seren Programme. The students, their parents and schoolteachers have found the programme to be extremely helpful in their application to medical school. However, the Seren Programme is not a “cure all” for Widening Access (WA) to medicine in North Wales. It addresses but one of the many layers of embedded barriers that students from disadvantaged backgrounds need to overcome in order to get into medical school.

Conclusion: Widening Access programmes to medicine in the UK have come a long way since their inception, but much remains to be done in achieving their desired results more broadly. As more resources are being allocated to Widening Access programmes around the country, a more thorough exploration of stakeholder perspectives and interests may better clarify how these programmes work.

This single case study provides an in-depth understanding of the Seren Programme at Glan Clwyd Hospital. Despite being specific to the local WA to medicine initiative in North Wales, the Seren Programme had a lot in common with other successful WA programmes to medicine tried elsewhere, and has been shown in this study that it can be successful in the long run if it continues to adopt ‘best practices’ in WA to medicine as well as adapting to the local culture, ensuring that the interests of the various local stakeholders are managed successfully.

Keywords

Widening access, medical school, stakeholder groups, scoping review

TITLE

An evaluation of the Seren Programme for prospective medical school applicants:
Mapping impact, sustainability and growth.

Name: Dr Yong-Shun Ernest Wong

July 2019

Bangor University

CONTENTS

Summary.....	i
Declaration and Consent.....	iii
Title.....	iv
Contents.....	v
Index of Figures.....	vi
Index of Tables.....	vii
Acknowledgements.....	viii
Reflexive Account.....	9
Chapter 1: Introduction and Policy Background.....	11
Chapter 2: Scoping Review.....	17
Chapter 3: Methods and Results.....	48
Chapter 4: Discussion and Recommendations.....	108
References	116
Appendices	121

INDEX OF FIGURES

Figure 1. Data sifting.....	24
Figure 2. Frequency of WA approaches.....	36
Figure 3. Factors shaping WA programmes to medicine.....	45
Figure 4. Case study and stakeholders.....	55
Figure 5. Dimensions of descriptive observation.....	58
Figure 6. Personal motivation theme and sub-themes.....	61
Figure 7. Direct non-participant observer data excerpt 1, November 2018.....	66
Figure 8. Relationships: Coalescence and conflict theme and sub-themes.....	67
Figure 9. Parental role and ‘not knowing’ theme and sub-themes.....	73
Figure 10. Survey to parents – Likert Scale.....	76
Figure 11. Survey to teachers – Likert Scale.....	79
Figure 12. Student learning and engagement theme and sub-themes.....	83
Figure 13. Direct non-participant observer data excerpt 2, November 2018.....	84
Figure 14. Survey to students – Likert Scale.....	86
Figure 15. Direct non-participant observer data excerpt 3, November 2018.....	89
Figure 16. Direct non-participant observer data excerpt 4, January 2019.....	90
Figure 17. Direct non-participant observer data excerpt 5, January 2019.....	91
Figure 18. Growth and resilience theme and sub-themes.....	93
Figure 19. Survey to university representatives – Likert Scale.....	98
Figure 20. Widening access: Compound disadvantages over time	102
Figure 21. The Seren Programme: a complex model	107

INDEX OF TABLES

Table 1. Search terms	23
Table 2. Inclusion criteria.....	24
Table 3. Summary of WA programmes studied.....	26
Table 4. Stakeholder groups to WA and their interests.....	43
Table 5. Study participants	58
Table 6. Seren stakeholders and their interests.....	68
Table 7. Survey to parents – Comments.....	76
Table 8. Surveys to teachers – Comments.....	80
Table 9. Surveys to students – Comments.....	86
Table 10. Survey to university representatives – Comments.....	98

ACKNOWLEDGEMENTS

This project was only possible with guidance from the supervisory team comprising of Dr John Glen, Consultant in Anaesthesia and Intensive Care Medicine at Glan Clwyd Hospital and Dr Sion Williams, Reader in Health Research at the School of Health Sciences, Bangor University.

.

REFLEXIVE ACCOUNT

As an academic foundation doctor, there were three key aspects to my role. First, I had clinical responsibilities to patients on the hospital wards as well as at the GP surgery. Second, on the academic side, I was involved with teaching and mentoring medical students from affiliated medical schools. Finally, in addition to teaching, I had a role as a researcher which led to my involvement with the ‘Seren’ (Star) Programme – the local widening access programme to medical school, which runs in Glan Clwyd Hospital (YGC) and involves preparatory sessions for academically able local year 12 and year 13 students with an interest in applying to medical school.

The aim of the research project was to find out if the Seren Programme was benefiting the stakeholders (e.g. students) involved. Being the second person in my college’s history to enter medical school, this project was of particular interest to me, as I could relate to the challenges in applying to medical school from a disadvantaged background. With no prior experience in qualitative research methods, I found this project to be challenging initially. I had to learn everything from grounded theory, scoping reviews, interview, survey and observational techniques as well as Robert Yin’s (2014) book on case study research, all of which were new to me.

Besides the gaps in my theoretical knowledge, I had to manage various logistical challenges. As part of the study, I had to attend numerous Seren events and meetings with the stakeholders, many of which were during and after working hours, meaning that I had to balance these with my clinical responsibilities as a doctor in the hospital. Other tasks included being available to facilitate the running of the Seren sessions which required (among other things) giving presentations and coordinating clinical skills sessions for the students.

In addition, as the researcher I had to effectively manage the various stakeholders as part of my research, ensuring that their views were recorded and presented accurately. Also, due to the rural geography, many of the participants lived far away from the hospital site and arranging to meet up was difficult and might have ended up restricting some participants’ abilities to meet up for an interview.

As an employee of the hospital where the Seren Programme is run, I was in a unique situation where it was difficult for me to be fully impartial in documenting the sentiments of the stakeholders. My potential bias should be considered when reading this work. As the year progressed, I found myself gaining experiential knowledge of the Seren Programme as well as a deeper understanding of the stakeholders' perspectives. Through the interactions with the various stakeholders, I was able to relate what I have learnt from the literature into practice. For example, from research about "otherness" and lack of role models for students from disadvantaged backgrounds, I was able to better appreciate how minorities and underprivileged students may find it difficult to relate to medicine as a career choice (Greenhalgh et al 2004). This allowed me to better contextualise my research. I also realised that the stakeholders may not always have interests that were aligned, adding to the level of complexity. Overall, this project gave me a taste of qualitative research in the social sciences and provided me with a new lens to view medicine.

CHAPTER ONE

INTRODUCTION AND POLICY BACKGROUND

1. Introduction

The overall study was focused on the Seren Programme, which is a distinct initiative for widening access to pursuing medicine at university for underrepresented students in North Wales. This programme being the initiative of an individual staff member at Glan Clwyd Hospital (YGC) took in its first cohort of students in 2017 and is currently in its second cycle of running. Evidence of its success in widening access to medical school consisted mainly of surveys and anecdotal feedback from participating students. This study examined the Seren Programme and a prospective analysis of the programme during the 2018-19, to identify the mechanisms that enhance or limit its success combined with a cycle of secondary data analysis. At its core, the study examined the impact of the programme on a range of stakeholder groups, centred on: a cohort of young people; their parents; the Seren team; particular schools involved in the Seren Programme; the clinical team delivering the programme within the Health Board; and the Medical Schools in Liverpool University and Cardiff University. To accomplish this, the study first utilised a Scoping Review to provide a conceptual review of the current evidence in the literature, based on Levac et al and Arksey and O'Malley's guidance of such reviews (Levac et al 2010; Arksey and O'Malley 2005). Following this conceptual review, the study moved to an empirical phase, which utilised a case study approach, focused on Yin (2003; 2014). This was done to give a 'holistic view of certain phenomenon, with a rounded picture' based on multiple sources of data, facilitating wider generalisations of the case studied (Yin, 2014, p.1603). These steps were done to provide the theoretical and empirical underpinnings of the study.

2. Widening Access

'Widening Access' (WA) is a term used to describe the principle of increasing engagement in medical education by targeting schools and students from disadvantaged backgrounds, with the aim of encouraging and facilitating applications from a wider pool

of applicants (Arulampalam et al 2005). Studies have highlighted the importance of early exposure and outreach in facilitating access to medical school for underrepresented groups (Greenhalgh et al 2006). These initiatives targeted activities toward secondary school students, aiming to expose students to health careers and promote their interest. Activities may include school visits, additional academic preparation, and targeted enrichment programmes where students are provided with opportunities to visit healthcare institutions. In addition, it has been shown that improving access to role models and mentoring, advice from careers advisors, the inclusion of parents, and promotional activities can help in decision-making around careers (Curtis et al 2012).

3. Background

Seren is a Welsh Assembly Government (WAG) initiative to help high-performing state school children (post-GCSE) achieve their potential (Welsh Government 2018). The initiative is national but delivered via local semi-autonomous hubs. In 2016, the Hospital Management Team (HMT) in Glan Clwyd Hospital was approached by its local Seren hub, who wished to establish an informal partnership to support children intending to apply to study medicine at university. The initial estimate was that there are approximately 30 such children per school year in the hub area. HMT agreed, and devolved ownership to interested clinicians. The result was a series of evening events, held in the hospital, designed to: provide insight into the profession of medicine, to help students decide whether to apply, and to provide practical support and advice on the medical school admission process. Key to this effort has been a focus on the three key hurdles that students face: The University Clinical Aptitude Test (UCAT), personal statements, and interviews. However, there also emerged anecdotally an important aspect which may be termed ‘general skills’. These include communication, presentation, and confidence. Confidence was seen as particularly important, because consistent informal feedback from medical school admission interviews suggested that privately educated children exude a level of confidence and urbanity that state-school children do not.

The sessions are led and delivered by four consultant clinicians, supported by other interested consultants, rotating trainees, and medical students. The scheme is entirely voluntary and involves weekly evening sessions that allow facilitators to attend

immediately after work. The format generally involves lectures, small group work, examination practice and interview practice. There are 14 two-hour sessions per calendar year.

The initiative began as a pilot in 2017. Over the course of the last 18 months, several lessons have been identified from the feedback collected from students during the Seren sessions by Seren facilitators (Conwy and Denbighshire Seren 2017):

- *Timing* – Initially the programme was run across an academic year. It has been realised that it makes more sense to run a cohort through year 12 into year 13. There is a natural attrition in numbers from year 12 to year 13 as students form their higher education goals, which means that some decide that medicine is not for them. In year 12 there is an emphasis on UCAT, and background to medicine, delivered as lectures and small group work, suitable for the intermediate sized groups seen at this stage. In year 13 the emphasis is on personal statements and interviews, including interview practice. This is suitable for a smaller group size due to the increased facilitator-to-student ratio required.
- *Student selection/commitment/engagement* – It has become clear that many students without an interest in studying medicine have attended. There are probably several reasons for this, but the overall effect has been: first, to dilute the experience for everyone, and second, sporadic attendance with evidence of marked attrition. The way the programme has been advertised has probably not helped. From 2018, it was made clear at the outset what the expectations are, and who the programme is aimed at. Attendance was monitored, and sporadic attendees invited to remove themselves from the programme at an early stage.
- *Catchment area* – It is also clear that students from the neighbouring Flintshire and Gwynedd hubs wish to attend the Seren Programme organised by the HMT. It is thus likely that there would be a need to set a limit on numbers and seek formal commitment from students at an early stage, after one or two ‘taster’ sessions.
- *Structure and support* – As the programme developed, it was recognized that it needed a syllabus, learning materials and institutional support.

What was missing from the programme was a formal evaluation of its impact and effectiveness, which this study sought to achieve.

4. Overarching Aims and objectives:

The study aimed to evaluate the Seren Programme at Glan Clwyd Hospital in North Wales to assess its impact on medical school applications, the likelihood of applications being successful, and the wider impact of the scheme on the hospital, and on the communities, it is intended to help. The study focused on examining the perspective of four key stakeholder groups involved in the programme: parents and young people, core staff from local schools and from the Seren administrative body; and the hospital (facilitators and HMT). In addition, the perspectives of local universities (Liverpool and Cardiff) were sought, in particular the staff involved in the admissions process and in ‘Widening Access’ schemes already sponsored by those universities.

The study primarily focused on the Seren Programme for academic year 2018-19: this would give access to two cohorts: year 13 (who would be in the process of applying for medicine); and year 12 (who would need to decide to apply and to prepare themselves). To provide additional context the study examined the background relating to the previous academic year (2017-18) and would look at how the subsequent year (2019-20) will be likely to be affected during this new and evolving programme. Overall, the intention was to identify mechanisms that enhance or limit the success of the programme, and map its future structure, content and delivery. The detailed objectives were:

To identify whether Seren at Glan Clwyd Hospital is having an impact in relation to its primary intentions:

- Increasing awareness of medicine as a possible career choice.
- Increasing application rates for medicine in the catchment area.
- Increasing UCAT scores in the catchment area.
- Increasing number of interviews being awarded to children in catchment area.
- Increasing number of medical school places awarded in catchment area.

To identify factors and mechanisms that support the sustainability and growth of the Seren Programme, including:

- Availability and commitment of facilitating staff;
- Resource envelope in terms of estate, learning materials, and administrative support;
- Perceptions of stakeholder groups around the effectiveness of the scheme;
- Potential untapped resources within existing systems that may be able to integrate with the Seren Programme more effectively:
 - Undergraduate education centre at Glan Clwyd Hospital;
 - Widening Access groups at Cardiff and Liverpool universities;
 - Workforce and Organisational Development team at Glan Clwyd Hospital.
- To examine the impact of the current Seren Programme on the:
 - **Young people:** Does the scheme help them decide on a career? Does it provide the support they need to succeed in their application? Are there ancillary effects, outside of the explicit programme aims?
 - **Parents:** Does the scheme help them to support their child through an application process? Do parents perceive the scheme as positive?
 - **Seren Administrators at YGC:** Do they perceive that the scheme is providing a benefit to students? Do they see it as an appropriate use of resource?
 - **Hospital facilitators:** Do facilitators feel that they are meeting the needs of the students? Do they feel supported themselves? Are there other effects of the programme, beneficial or otherwise?
 - **Hospital HMT:** Does the scheme fit into core aims of the organisation in terms of recruitment, and engagement with local communities? Does the scheme lead to a perceived increase in the overall reputation of the hospital?
- To ascertain the attitude of the respective medical schools at Liverpool and Cardiff Universities to the programme.

- To explore the attitudes towards the Seren Programme and medical careers within the school system in the local area, and ascertain if they are aware of the nature of the programme? Do they perceive it as a benefit?

5. Structure of Thesis

The thesis was presented in 4 chapters as part of a 2-paper model. Chapter 1 gave the introduction and policy background, setting the stage for the rationale behind the study. Chapter 2 was the Scoping Review, which served as Paper 1 as well as the literature review and theoretical underpinning of the study. Chapter 3 and 4 formed the Empirical Paper or Paper 2. Chapter 3 contained the materials and methods utilised in this study as well as an analysis of the results gleaned, while chapter 4 was the final chapter which served to draw conclusions from this study as well as to propose recommendations going forward.

6. Summary

The Seren Programme at Glan Clwyd Hospital was set up as part of a collaborative WA initiative in North Wales. The study consisted of a scoping review as well as an empirical case study, and it sought to identify the mechanisms that enhanced or limited the Seren Programme's success, as well as examining the perspectives of the key stakeholder groups involved.

CHAPTER TWO

STAKEHOLDER PERSPECTIVES OF WIDENING ACCESS INITIATIVES TO MEDICAL SCHOOL IN THE UK: A SCOPING REVIEW

1. Abstract

Background: Widening access initiatives to medical school have had mixed success. One reason may be the competing interests of different stakeholder groups involved.

Aim: To explore stakeholder perspectives of widening access initiatives to medical school in the UK.

Design: Scoping review.

Data sources: Published literature from 1998 to 2018, CINAHL, Applied Social Sciences Index and Abstracts, ProQuest Education Collection, PsychINFO, PubMed, key journals and citation tracking.

Results: The review focused on the 12 papers which comprise 11 studies can be categorised into; 8 studies on Widening Access initiatives done in the UK, 2 studies on stakeholder perspectives only and 1 generic review on “best practices” in WA to healthcare. The 4 main areas targeted by the Widening Access initiatives in this review include; outreach, selection, transition, retention and completion. They also display several key features which could have contributed to their success and sustainability, namely: committed personnel and resources, selection of suitable Widening Access applicants, focused sessions based on needs of students, led and delivered by a combination of staff and medical students, utilisation of technology and social media and data collection and feedback. The stakeholders identified are as follows: students, parents, school teachers, medical schools’ admissions deans, Widening Access facilitators, policy makers, hospital management and the public. Their interests and perspectives have been tabulated.

Conclusion: Widening Access programmes to medicine in the UK have come a long way since their inception, but much remains to be done in achieving their desired results more broadly. As more resources are being allocated to Widening Access programmes around the country, a more thorough exploration of stakeholder perspectives and interests may be helpful in understanding how these programmes work.

Keywords

Widening access, medical school, stakeholder groups, scoping review

What is already known about the topic?

- ‘Widening access’ (WA) initiatives to increase application and subsequent retention in underrepresented groups have had mixed success
- Early outreach and engagement with students and teachers from disadvantaged backgrounds is crucial in increasing application rates of those groups

What this paper adds?

- At the time of writing, this is the first scoping review to provide a systematic approach to understanding stakeholder perspectives to widening access programmes to medicine in the UK
- This review provides a closer inspection of WA initiatives and their features that help or hinder the wider WA direction

Implications for practice, theory or policy

- The findings will help guide approaches towards widening access to medicine in the UK, particularly taking into consideration the perspectives of stakeholders that these policies are meant to help

2. Background

Inequalities in medical school admissions are an ongoing concern that has been widely studied internationally and, in the UK (Cleland and Palma 2018). Despite calls for change and subsequent initiatives, people from disadvantaged and minority backgrounds continue to be under-represented or excluded entirely from medical school (Cleland and Palma 2018; Association of American Medical Colleges 2014; Castillo-Page 2012; Cleland et al 2012; Behrendt et al 2012; Dickins et al 2013; Millburn 2012). In the UK, for example, those from lower socio-economic status (SES) remain less likely to apply to and less likely to gain admission to medical school as compared to applicants from higher SES (Millburn 2012; Martin et al. 2018).

‘Widening Access’ (WA) or ‘Widening Participation’ (WP) are terms used interchangeably to describe the principle of increasing engagement in medical education by targeting schools and students from disadvantaged backgrounds, with the aim of encouraging and facilitating applications from a wider pool of applicants (Arulampalam et al 2005). Research has shown doctors recruited from lower SES groups tend to work in deprived areas and pursue shortage-careers such as general practice (Arulampalam et al 2005; Cooter et al 2004). Such WA programmes involve not only reviewing selection methods used by medical schools, but also involve encouraging wider applications by students via information outreach to schools, as well as facilitating applications via mentoring by current medical students (Martin et al 2018; Greenhalgh et al 2006; McLachlan 2005; Kamali et al 2005)

Early intervention is crucial in improving the equity of applications, as SES has an impact on education from an early age. Evidence suggests that by 14–16 years old, academically-abled students from low SES backgrounds see themselves as ‘not a university type’ and medical school as ‘culturally alien’ (Sacker et al 2002; Greenhalgh et al 2004). Therefore, WA programmes need to engage with universities to focus on outreach and early interventions.

The current evidence base suggests methods on how to encourage wider applications, for example, information outreach, additional enrichment programmes and acknowledging local cultural values (Kamali et al 2005; Curtis et al 2012; Younger et al 2018). However, some admissions faculty have raised concerns about the impact of WA on medical

schools' reputation; ranging from a political tick-box exercise to undesirable social engineering. These have been investigated both in the language used by admissions deans as well as information provided on admissions websites (Cleland et al 2015; Alexander et al 2015). Schools also neglect to evaluate the impact of WA activities (Cleland et al 2015). These competing interests amongst the various stakeholders may in part explain why there has been limited impact reported to date (Powis et al 2007).

In this review, established scoping review methodology was used (Levac et al 2010; Arksey and O'Malley 2005). This approach facilitated the inclusion of studies from different methodological backgrounds and allowed the researcher to investigate components within the evidence to explore relationships between perspectives of WA stakeholders.

3. Aim and objectives

The aim of this review was to explore within the research literature stakeholder perspectives of widening access initiatives to medical school in the UK. The detailed objectives were to examine:

- The range of widening access programmes to medical school in the UK
- Features that support the sustainability and growth of such programmes
- Reported impact on and perspectives of relevant stakeholder groups
- Research gaps in the literature

4. Methods

Design

This review design drew on Levac et al and Arksey and O'Malley's guidance of scoping reviews (Levac et al 2010; Arksey and O'Malley 2005). Unlike a systemic review which accesses the 'weight' of evidence via a quality appraisal, the purpose of a scoping review is to provide a conceptual review of the evidence in the literature. For this reason, the review adopted an inclusive, narrative approach to synthesis using a range of literature (Levac et al 2010; Arksey and O'Malley 2005; Rumrill et al 2010; Grant and Booth 2009;

Brien et al 2010; Armstrong et al 2011; Daudt, Van Mossel and Scott 2013). Thematic analysis (Braun and Clarke 2006) was used to categorise and code the themes identified from the literature. Data extraction and charting were divided into two phases as per guidance to maintain an iterative process of discovery (Levac et al 2010; Arksey and O'Malley 2005). The initial phase allowed the familiarisation of literature as well as the refining of objectives, research questions and data charting tables. This was followed by a deliberate approach to populate a framework using organised descriptive-analytical data for the identification of themes as described in 'Data extraction and charting'. The process of mapping out the scoping review is outlined in the following steps:

1. Identifying the research question/s
2. Search strategy
 - Identify the relevant studies
 - Inclusion/exclusion criteria
3. Study selection
 - Title
 - Abstract
 - Full text
 - Initial data extraction/charting
4. Refine objectives and research questions
 - Data extraction/charting
5. Collating, summarising and reporting the results

Primary research questions

The primary research questions of this scoping review relate to the aims of this study, and have been outlined below:

- 1. What widening access programmes to medical school have been done in the UK?**
- 2. What are the features of such programmes and do they support the sustainability and growth of these programmes?**
- 3. What is the reported impact on and perspectives of relevant stakeholder groups?**

Search methods

In searching the literature, articles were collected from five major social, education, psychology and health databases: CINAHL/EBSCO nursing and allied health, 1998–2018), ASSIA (Applied Social Sciences Index and Abstracts, 1998–2018), ProQuest Education Collection (education 1998–2018), PsycINFO/EBSCO (psychology 1998–2018), and PubMed (biomedical sciences, 1998–2018). Overarching search terms from relevant theories were used to achieve an inclusive scope of the literature (Table 1). The terms ‘Students’, ‘Widening Access’ and ‘Medical School’ were segmented into the aspects of which they are contextually constructed. Relationships of terms were connected with OR, and each of the three groups of terms were connected with AND. Citations were directly imported from the databases into the bibliographic manager RefWorks (RefWorks 2009) and duplicates were removed. No exclusions were made regarding the quality of the evidence or methodological approach. Studies were selected if they met the following PEO (Bettany-Saltikov 2012) criteria (Table 2).

Data sifting

Data selection consisted of screening titles, reading abstracts and if relevant, reading full texts. Only the articles pertaining to widening access to medical schools for disadvantaged students were included in the end, with a strong emphasis on case studies done in the UK. Once the databases were exhausted, reference lists were scanned for additional publications (Figure 1).

Initial data extraction and charting

Care was taken to create a narrative of re-analytical data (and not simply a collection of short summaries) by extracting data in reference to the broad research questions (Davis et al 2009; Pawson 2002). Consistency was achieved by organising the narratives onto data tables. The data tables provided a framework subdivided into columns to chart key

impacts, issues and themes. The completion of initial rows of data shaped the focus of subsequent data collection.

Refinement of research questions

The iterative process helped secure a wide collection of data. Initial data extraction offered refinement of the study objectives and research questions (Levac et al 2010; Arksey and O'Malley 2005). The second research question regarding the common features of the staff development programmes was expanded into a set of sub-questions:

- At which stage of the outreach, selection, admission or transition to medical school was the WA programmes implemented at?
- What was the scope and intended effects of each of those activities?
- Who were the stakeholders of the WA programmes? What were their relationships to each other and to the WA programmes of interest?
- Who were the underrepresented groups? Are they a well-defined group?
- Was the definition of WA adequate? Do all stakeholders interpret (and implement) WA in the same way?
- Were the studies interested in perspectives of stakeholders? Or just of intended results?
- What were the interests of stakeholders? Were they aligned or competing?

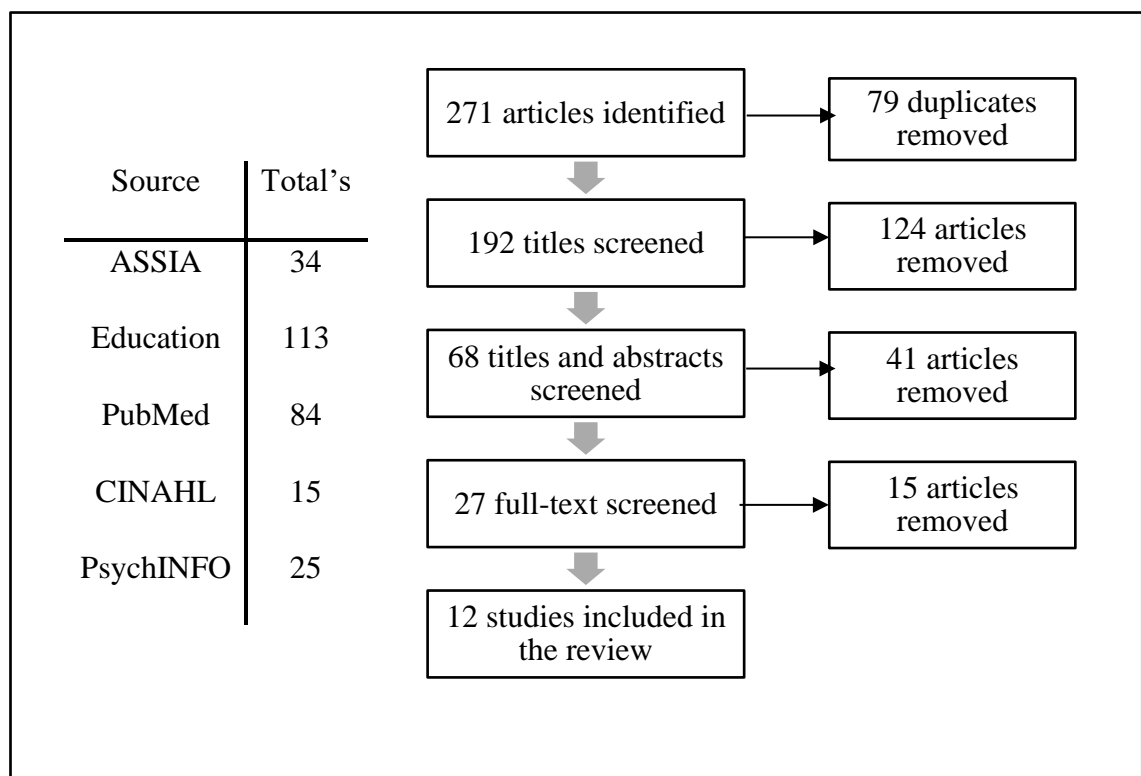
Table 1. Search terms

Under-represented Students	AND	Widening Access	AND	Medical School
State school OR secondary school OR high school OR disadvantaged students OR under-represented OR minority		Widening access OR widening participation		Medical application OR medical school OR medical education OR medical interview practice

Table 2. Inclusion criteria

P	Population	Underrepresented groups applying to medical school
E	Exposure or Experience	Widening access initiatives to medicine in the UK
O	Intended outcomes or themes	Impact on or experiences of stakeholders

Figure 1. Data sifting



Data extraction and charting

Once the review had been adequately refined, the descriptive-analytical data populated a standardised table. Each study was charted under the specific categories designed to organise data with regard to the research questions. These aided efficient comparisons of emerging data to develop categories and themes.

Collating, summarising and reporting the results

Studies were collated, summarised and results were reported in this stage of the review. As the weight of evidence was not being accessed, this was not a necessary stage of the scoping review. As explained by Arksey and O'Malley (2005), a scoping review provides a brief conceptual review of the relevant evidence in the literature, rather than a detailed analysis of the 'weight' of evidence via systemic review. The intention here was to present an inclusive representation of primary studies (Arksey and O'Malley 2005). Results were organised under the three review questions:

1. What widening access (WA) programmes to medical school have been done in the UK?

WA programmes were counted, listed, categorised and tabulated based on their scope and involvement of stakeholders.

2. What were the features of such programmes and do they support the sustainability and growth of these programmes?

The common features which included the aims, participation and experience of the programmes were re-analysed from the data tables through a process of thematic analysis (Braun and Clarke, 2006). The focus was on how these themes relate to one another and the overall impacts of the programmes on stakeholders.

3. What was the reported impact on and perspectives of relevant stakeholder groups?

The proposed associated impacts of the programmes were drawn from the data table (Table 3) and analysed with specific reference to the stakeholders involved. This was done through a process of thematic analysis (Braun and Clarke, 2006), with a focus on the stakeholders of the WA programmes as described by the 12 studies included in this review.

Data extraction

Table 3. Summary of WA programmes studied

Author / Ref / Year	Aims / Objectives	Methodology	Features / mechanism of WA	Stake- holders involved	Impacts on stakeholders	Results / Discussion / Conclusions	Notes / Key words
Cleland J and Palma TF, 2018	To explore how values on WA are communicated and presented in context of UK medical school admissions.	Qualitative. Linguistic analysis of interviews with admissions staff. Analysing “othering” lens to explore judgements.	Selection Process	UK medical schools, UK Medical Admissions Deans	UK Medical Admissions Deans unaware of pre-existing stereotypes and a significant ‘us’ and ‘them’ rhetoric	Language served to reinforce pre-existing stereotypes and a significant ‘us’ and ‘them’ rhetoric exists in medical education.	Discourse analysis, Increasing diversity, Othering, Widening access
Cleland J, et al, 2015	To explore the dynamics of policy enactment to give a novel perspective on WP practices	Qualitative. Interviews to 24 of 32 UK medical schools’ admissions staff. Framework analysis. Contextual dimensions;	Selection Process			The data hinted that the political goal of WP and medical education's goal of producing the best doctors may conflict.	Framework analysis, Contextual dimensions, Widening access

	across UK medical schools.	situational, professional, material and external.					
Curtis E, et al, 2012	Literature review exploring 'best' practice for recruitment into tertiary health programmes with particular relevance to Māori within a New Zealand context.	Mixed. Recruitment activities are described in five broad contexts: Early Exposure, Transitioning, Retention/ Completion, Workforce Development, and Across the pipeline.	Outreach, Selection Process, Transition, Retention and completion	Students, Parents, Teachers / Schools, Indigenous groups, Medical Schools, Medical Admissions Deans	Achieving equity in health workforce representation to overcome health inequities for indigenous peoples.	Unable to identify 'best practice'. Principles: 1) Indigenous worldviews 2) Tangible institutional commitment to equity 3) Address barriers to indigenous entry 4) Comprehensive pipeline model 5) Family and community engagement and 6) Quality data tracking and evaluation.	Indigenous, Under-represented Ethnic Minority, Recruitment, Health workforce development, Transitioning

Curtis S, et al, 2014	To describe features of WA to medicine via extended BM programmes at University of Southampton; recruitment and admissions.	Mixed. Data on extended BM6 WA course from 2002-2014. Key aspects of course; recruitment and admissions.	Outreach, Selection Process	Students, Medical Schools, Medical Admissions Deans	Supporting students from low SES in accessing medical school.	Widening access to medicine programmes can address some of the disadvantages in accessing HE by using appropriate contextual data in the admissions process.	Social mobility, Year 0, Contextual data, Widening access
Curtis S, et al, 2014	To describe features of WA to medicine via extended BM programmes at University of Southampton; curriculum design and student progression.	Mixed. Data on extended BM6 WA course from 2002-2014. Key aspects of course; curriculum and student support. Feedback from students	Transition, Retention and completion	Students, Medical Schools, WA facilitators	Prepare students to succeed in Years 1–5 of the medical degree programmes and becoming doctors.	A successful WA to medicine programmes should not only focus on recruitment and admissions but also on curriculum and supporting students in developing the skills and confidence that will help them succeed in their	Identity conflict, Raising aspirations

						studies and future careers.	
Garlick PB and Brown G, 2008	To describe features of WA to medicine via Extended Medical Degree Programmes (EMDP) at King's College London; admission, curriculum design and student progression.	Mixed. Data on EMDP WA course from 2001-2008. Key aspects of course; admissions, curriculum and student support. Feedback from students	Selection Process, Transition, Retention and completion	Students, Medical Schools, WA facilitators	Supporting students from low SES in succeeding in medical school.	Medical students can succeed with CCC grades at A level if their results are achieved at a low achieving school or college. Extra academic and pastoral support is needed to enable these students to reach their full potential.	“conventional” students, Self-belief, “embedding from below”
Greenhalgh T,	To develop a one-week WA summer school	Qualitative. Phases: schools' liaison, recruitment of pupils	Outreach	Students, parents, teachers,	Increased awareness and confidence in	Action research can be used to engage schools and pupils in	Summer school, Action research,

et al, 2006	for 16-year-old pupils from non-traditional backgrounds who are considering applying to medical school, and to identify its short-term impact and key success factors.	and assessment of needs, programme design, programme delivery, and evaluation using questionnaires, interviews, focus groups, and observation.		medical students, NHS staff, Medical Schools	students from low SES	the design and delivery of a summer school. Hands-on activities in small groups and a “grand round” in which all pupils participate are effective learning methods. Close contact with medical student “buddies” can boost confidence and motivation.	“not a university type”
Holmes D, 2002	To describe features of a 1-year, full-time WA course with University of Leicester that prepares mature	Quantitative. Three successive year groups were used as trial groups and nine medical schools agreed to participate in the trial. The	Selection Process, Transition	Students, Medical Schools, Medical Admissions Deans	WA to medicine for mature applicants as well as applicants from low SES. Students well prepared for	The medical school results of the trial groups show that the course has produced high calibre adult students, who gain medical school places,	Mature applicants, Access course, Pre-medical

	adults for entry to selected UK medical schools.	successful trial students were monitored as they progressed through medical school.			medical school. High calibre students for medical schools.	show high retention at medical school and consistently deliver good outcomes.	
Kamali AW et al, 2005	To assess whether assistance with and/or advice on the UK Universities & Colleges Admissions Service (UCAS) application process by undergraduate medical and dental students increases the offer	Quantitative. Applicants were either: offered advice and assistance with writing their personal statement and extra-curricular activities (group A) or advice only on the importance of the personal statement and extra-curricular activities (group B). All were offered mock	Outreach, Selection Process	Students, Medical Schools, Dental Schools, Medical students, Dental students	Supporting students from low SES in accessing medical school.	Undergraduate students can help applicants from low SES areas submit earlier, improved UCAS applications and provide interview practice, all of which are associated with a higher offer rate. Applicants benefit from advice on activities such as work experience,	UCAS, personal statement

	rate to applicants from educational institutions situated in areas of SES deprivation for medical and dental courses.	interviews. Main outcomes were number of offers made to applicants.				community work and personal interests, but assistance in organising such activities increases the offer rate more.	
Martin AJ et al, 2018	To explore what may deter school-age children from applying to study medicine and which agencies may mitigate those barriers.	Mixed. Workshops used a variety of methods to identify and discuss participants' perceptions of medicine, medical school and the application process. Subsequent workshops were	Outreach	Students (year 9 and year 12), Teachers / Schools, Medical Schools, WA Facilitators	Participants would benefit from more knowledge about medical school and careers. Parents and school teachers may not be equipped to fill these knowledge gaps.	Applicants to medicine need reliable, structured information. A lack of awareness of key areas of medical education and careers is widespread and those without access to relevant expertise at home or school have less opportunity.	Medical and dentistry days, Medical careers, Outreach

		informed by findings of earlier ones.				Medical schools have a key role in WA and should facilitate access and outreach.	
Ratneswaran C et al, 2015	A model for medical school application courses: widening access to student preparation	An outreach programme prioritised less affluent communities and a peer-assisted learning (PAL) teaching method was used. Social media was used for collaborative learning and networking, and a website was created. Formal feedback was elicited from both tutors and attendees using an electronic	Outreach	Students, Medical Students, WA facilitators, clinical lecturers	Pupils increased understanding of the roles and responsibilities of doctors, gained insight on personal statements. Medical students improved their organisation, communication, teaching and presentation skills.	Use of the PAL model results in a cost-effective, high-quality teaching session, whilst being mutually beneficial to both prospective applicants and medical students. Data on successful admission rates of participants, as well as the students' experiences of the conference, would	Peer-assisted learning, Collaborative learning

		survey. Multi-university committees were established to allow for long-term sustainability.				help to understand the impact of this initiative and build upon its initial success.	
Smith S et al, 2013	To describe and evaluate a sustainable, low-cost strategy that provides applicants with targeted support, advice and experience.	Pupils paired with medical student e-mentors. 20 mentees were selected for participation in a 1-week summer school. All participants were offered work experience during their summer holiday and were guaranteed places at a student-led outreach conference, where they received specific help with	Outreach	Students, Medical Schools, Medical students, WA Facilitators, Hospital Consultants	Increased knowledge about and interest in applying to medicine by pupils. Useful in helping pupils eliminate medicine from their future career aspirations.	Recruitment from pre-selected, targeted schools ensured that the labour-intensive summer school was targeted precisely at students, and that mentoring by medical students reduced the workload on academic staff and allowed the delivery of personalised advice on statement writing and interview skills,	E-mentoring, Summer school, Vision Outreach Conference

		personal statements and interview skills.				without diluting the activities of the summer school.	
--	--	--	--	--	--	---	--

5. Results

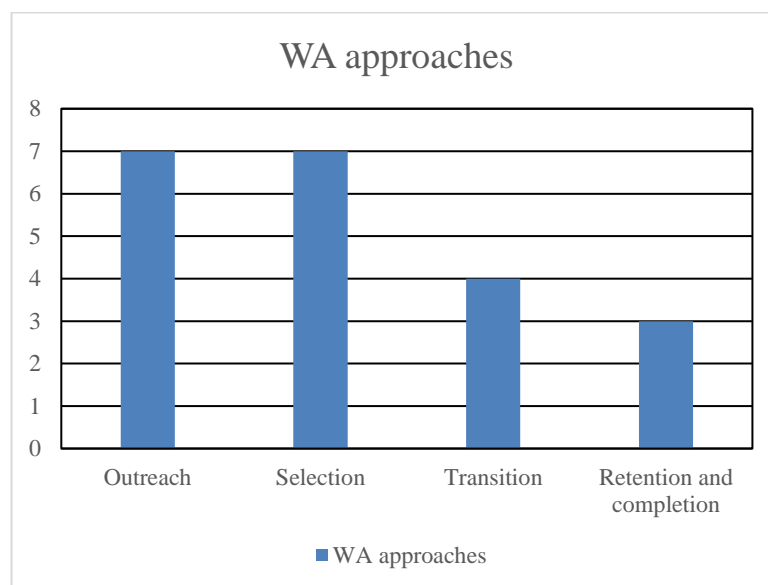
The evidence reported in this review displayed the different types of WA initiatives to medical school as well as their features. It also identified the aims and objectives of these initiatives as well as the results achieved. Lastly, it identified the stakeholders involved and their diverse perspectives, which were not previously discussed in detail (Table 3). The results are documented under the headings of the three review questions:

1. What widening access programmes to medical school have been done in the UK?

The review focused on the 12 papers in Table 3. The 12 papers which comprise of 11 studies can be categorised into; 8 studies on WA initiatives done in the UK, 2 studies on stakeholder perspectives only and 1 generic review on “best practices” in WA to healthcare (Table 3). This was ascertained during the data extraction phase.

The 4 main areas targeted by the WA initiatives in this review include; outreach, selection, transition, retention and completion. There was a considerable overlap among the initiatives reviewed and many initiatives targeted more than one area of the WA process (Figure 2).

Figure 2. Frequency of WA approaches



In the Outreach phase, the main aim of the programmes is to engage with targeted schools, students and parents to introduce medicine as a career choice that is available, as part of raising aspirations of students from disadvantaged backgrounds (Martin et al 2018; Greenhalgh et al 2006; Curtis et al 2012). This is followed by focused preparatory programmes to provide information and coaching to maximize students' chances of applying to and being accepted into medical school (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith et al 2013). This stage highlights the importance of having positive role models as well as a supportive environment as early as possible to dispel the common myths surrounding medicine "as a career choice for posh people" (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013).

The Selection phase involves engagement with the "gatekeepers" of medical education, namely the medical school admissions deans, to increase the success rates of WA applicants by considering "contextual data" and using other more holistic information in accessing candidates' suitability for medical school. This is exemplified in the use of extended medical programmes as well as with access courses for "mature" applicants (Garlick and Brown 2008; Curtis et al 2014; Holmes 2002). Medical schools set high admissions standards as they want to produce the best doctors (Cleland et al 2015). However, this objective is not always aligned with policy makers' aims of increasing diversity in the medical workforce (Cleland et al 2015; 2018). Hence engagement and support are crucial in ensuring that the perspectives of gatekeepers are considered in any successful WA policy (Cleland et al 2015; 2018).

The Transition phase occurs after WA students have been accepted into medical school, and involves providing the necessary support – academic, financial and pastoral support for them to integrate into medical school successfully. This is especially important for students leaving rural or isolated communities for a new and foreign environment (Curtis et al 2012). Such programmes may involve providing an "extended 6-year programme" or a "year 0" where by WA students are given more time to adapt to the new environment, gain confidence and "embed from below" (Garlick and Brown 2008; Curtis et al 2014; Holmes 2002). The Transition phase is closely followed by the final phase, retention and

completion, which aims to increase their chances of completing the course and graduating as doctors (Pawson 2002; Curtis et al 2012; 2014; Holmes 2002).

2. What are the features of such programmes and do they support the success and sustainability of these programmes?

The WA programmes to medicine displayed several key features which could have contributed to their success and sustainability, namely:

Committed personnel and resources. A recurring theme amongst the programmes is the commitment of personnel and resources throughout the academic year leading up to application to medical school. In each of the programmes, there were designated staff or medical student volunteers leading and delivering the programme throughout the academic year. Most programmes were conducted in small groups, with some including 1-to-1 mentoring by medical students as well (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Holmes 2002).

Identification and selection of suitable WA applicants. The WA programmes in this review had various requirements for students joining their programmes. These include meeting an agreed level of socio-economic deprivation as well as showing academic potential and commitment, as determined by school teachers and/or mental aptitude tests (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; 2014; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013). This is crucial as it is hoped that teachers would be able to identify capable students who may not be performing up to their true potential due to individual and environmental circumstances (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Curtis et al 2014). Apart from fairness, selecting the most committed applicants may allow for limited resources to be focused on the WA students with the best chances of being admitted into medical school (Smith, et al 2013).

Focused preparatory sessions based on specific needs of students. The WA programmes studied were focused on ensuring that participants had enough information and coaching to compete with applicants from “traditional” (affluent and higher social class) backgrounds, to increase their chances of being accepted into medical school

(Cleland et al 2015; 2018). Content of these sessions include: introduction to medicine as a career choice (with or without work-placement opportunities), awareness of application requirements, coaching on entrance tests, CVs and interview practice (clearing key hurdles). In addition, most of the programmes also targeted non-cognitive aspects such as improving confidence and self-image as part of overcoming dispositional barriers typically faced by WA students (Cleland et al 2015; 2018; Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Curtis et al 2014).

Led and delivered by a combination of staff and medical students. Whilst some WA programmes are led and delivered primarily by a dedicated team of university staff (Martin et al 2018; Greenhalgh et al 2006; Pawson 2002; Curtis et al 2014), others are led by medical student volunteers with supervision from university staff (Greenhalgh et al 2006; Kamali et al 2005; Ratneswaran, et al 2015; Smith, et al 2013). The advantage of programmes being led by medical students is the reduction of costs as well as the ability to assign each WA applicant a medical student mentor throughout the academic year leading up to applications (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Curtis et al 2014). Remaining resources can be focused on designing a short (1-2 week) intensive programme to consolidate students' preparation (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; Ratneswaran, et al 2015; Smith, et al 2013).

Utilisation of technology and social media. In the past 7 years, WA programmes have been utilising technology and social media more widely as a means of outreach and communication with tech-savvy WA students (Ratneswaran, et al 2015; Smith, et al 2013). Social media has been used to spread awareness of WA programmes as well as for forming online communities where students and “e-mentors” can work together at a more frequent and ad-hoc basis (Ratneswaran, et al 2015; Smith, et al 2013).

Data collection and feedback. Data collection and feedback have been an integral part of the WA programmes studied. They have been used to measure the success of the interventions applied, as well as to consider the views of stakeholders (Cleland et al 2015; 2018; Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Curtis et al 2014; Holmes 2002).

3. What is the reported impact on and perspectives of relevant stakeholder groups?

This review identified several stakeholder groups involved in WA to medicine (Table 4), as well as the potential gaps in the current literature. For example, there seemed to be a lack of data on the perspectives parents and schoolteachers, as explained in the following texts. The stakeholder groups identified include:

Students. WA students are the underrepresented groups applying to medicine whom these programmes are targeting. These groups have been identified via levels of proportional representation in medical school (for example, ethnic and cultural groups) as well as deprivation indices to determine their level of socio-economic disadvantage (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; 2014; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013). As they were most directly affected by these programmes, most of the reported impact and perspectives tend to revolve around this group. The feedback received indicated that amongst students who want to become doctors, many of them gained confidence not just with regards to the application process, but confidence in themselves generally. This was backed by evidence of increased application and acceptance rates into medical school (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Curtis et al 2014).

Parents. WA students have cited their parents being important sources of support, mainly in raising their aspirations and encouraging them to apply for medical school (McLachlan 2005; Martin et al 2018; Greenhalgh et al 2004; 2006; Curtis et al 2012; Garlick and Brown 2008). Unfortunately, parental support varies considerably, especially in areas of deprivation where many applicants are the first in their family to attend university (Martin et al 2018; Greenhalgh et al 2006; Curtis et al 2012; Garlick and Brown 2008). Hence engagement with parents is important to better understand their individual needs or even concerns. Most studies acknowledge the importance of parental feedback, although there remains room for a deeper understanding of parental perspectives towards WA programmes.

School teachers. Schools in areas of deprivation have less resources and experience when it comes to supporting applicants to medical school (Cleland et al 2018; Arulampalam et

al 2005; Martin et al 2018; McLachlan 2005; Greenhalgh et al 2004; 2006). Hence WA programmes can have a huge impact on schools in their ability to support able students in reaching their potential. The WA programmes in this review engage teachers and career advisors in schools by providing resources in the form of training and updated information on applying to medical school as well as dispelling any myths surrounding medicine as a career (Martin et al 2018; Greenhalgh et al 2006; Curtis et al 2012). Like the parents of WA students, there needs to be a deeper understanding of the perspectives of school teachers with regards to their interests as well as to WA to medicine.

Medical schools' admissions deans. Medical schools have an interest in producing the best doctors and preserving the school's reputation, which sometimes competes with WA's aim of increasing diversity in the medical workforce (Cleland et al 2015; 2018). With the introduction of WA policies, some admissions deans have viewed the policies with suspicion, citing "political motivation" and undesirable "social engineering" in some cases (Cleland et al 2018). This has resulted in varying levels of interpretations and implementation of WA policies amongst the medical schools, as well as unconscious biases displayed when their perspectives were sought (Cleland et al 2015; 2018). Whilst medical schools may appreciate the benefits of a diversified talent pool in the medical workforce, this presents a barrier to WA if there is a mismatch between the goals of WA policy and those of medical schools (Cleland et al 2015; 2018).

WA facilitators. WA facilitators include doctors and medical student volunteers. They may or may not be part of the medical school's WA programmes. WA facilitators implement WA policy on the ground, ensuring that the necessary information and support goes out to the WA students throughout their application. Whilst there are limited resources for facilitators, many (especially medical students) are volunteers and see other benefits of helping in these WA programmes, for example developing their organisation, communication, teaching and presentation skills (Ratneswaran et al 2015), although their perspectives and interests have not been studied widely.

Policy makers. This group includes the politicians who enacted WA policies with the aim of increasing diversity, reflecting the views of the public who want a more representative medical workforce (Cleland et al 2012; Arulampalam et al 2005; Martin et al 2018; Steven et al 2016). Unfortunately, the interests of policy makers and the medical schools' training doctors do not always converge (Cleland et al 2015; 2018). The

competing interests between these two groups of stakeholders need to be reconciled if barriers to successful WA to medicine are to be addressed.

Hospital management. Most WA programmes involve a local hospital where students go to for work placements (Curtis et al 2012). This group of stakeholders may not be directly responsible for implementing WA policies, and benefits to them may seem less obvious, compared to the considerable resources required for organising a work placement week for WA students. However, as doctors recruited from deprived neighbourhoods tend to return to the local communities that they came from (Arulampalam et al 2005; Cooter et al 2004), this could present an opportunity for local medical workforce provision.

Public. The public, especially those living in deprived or rural communities, would benefit from a representative group serving them (Millburn 2012; Arulampalam et al 2005; Martin et al 2018; Cooter et al 2004). As mentioned above, studies have shown that doctors tend to return to their home communities to practice after qualifying, as well as working in hard-to-recruit specialties (Arulampalam et al 2005; Cooter et al 2004). Hence it is important to consider the public's views with regards to WA.

Table 4. Stakeholder groups to WA and their interests

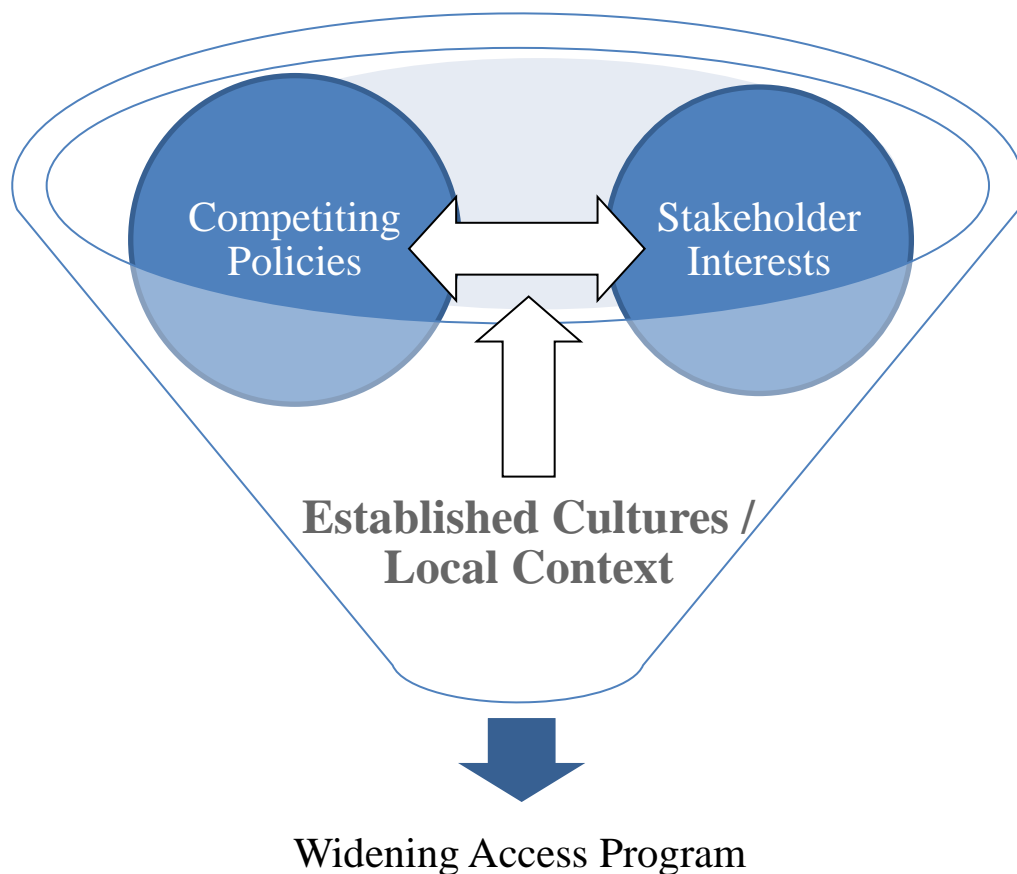
Stakeholders	Interests	Perspectives explored	Potential gaps in knowledge
Students	Deciding if medicine is for them, getting into medical school, being treated with “respect”, being accepted by peers	Perspectives on WA programmes explored and documented	<ul style="list-style-type: none">• An exploration of perspectives of all the stakeholder groups in WA to medicine, not just direct beneficiaries (i.e. students)• An exploration of the competing and converging interests of stakeholder groups and possible solutions• Other wider benefits of WA programmes to medicine for all stakeholders
Parents	Supporting their children into medical school, realising their children’s’ potential	Scant evidence of perspectives sought	
School teachers	Supporting all their students in realising their potential, improving school standards, supporting their students in their university applications		
Admissions deans	Producing the best doctors, upholding the reputation of the university, fulfilling “diversity” requirements, ensuring that all students are adequately supported?	Perspectives on WA programmes explored and documented	
WA facilitators	Helping students get into medical school, ensuring success of WA programme, “intangible” benefits?	Scant evidence of perspectives sought	
Hospital management	Good standard of healthcare provision, fulfilling workforce needs, reputation of the hospital?		

Policy makers	Good standard of healthcare provision, delivering on promises to public (i.e. diversified medical workforce), proper use of tax monies		<ul style="list-style-type: none"> • Generalizable principles for the successful and sustainable implementation of context specific WA programmes
Public	Good standard of healthcare received, well represented medical workforce, proper use of tax monies		

5. Discussion

This review demonstrates that the successful implementation of WA programmes is a by-product of the various stakeholders (and their interests), policy and the established local culture within the organisation, which were not always aligned. Stakeholders seemed to ‘push’ for their interests by attempting to influence policy, whilst working within the confines of local context and established organisational cultures. In this way, the WA programme as a final product can be very different to what was expected by each of the stakeholder groups. The relationships that emerged from the initial scoping review are illustrated in Figure 3.

Figure 3. Factors shaping WA programmes to medicine



The drive to widen access to medical school and increase social mobility for underrepresented groups has been on the national agenda, reflecting the views of

policymakers and the public who want a more representative medical workforce (Cleland et al 2012; Arulampalam et al 2005; Martin et al 2018; Steven et al 2016). However, the interests of the diverse groups of stakeholders do not always align. Medical schools prioritise quality and reputation over quantity and conforming to governmental pressures, which lead to varying levels of interpretations and implementation of WA policies amongst the medical schools, as well as unconscious biases displayed in the language used during interviews as well as on their university websites (Cleland et al 2015; 2018). Some medical schools were more enthusiastic and secured full institutional support and adequate funding for their WA initiative, ear-marking up to 30 places per year for underrepresented groups and providing up to £190 000 per year in funding for additional staff (Curtis et al 2014; Garlick and Brown 2008). These divergences in interests are not limited to the medical schools of Higher Education Institutes (HEIs). The divergence between HEIs on the interpretation and delivery of WA policy agendas reflect institution-specific contexts, including their internal politics, assumptions about the type of students they admit, and their broader goals of competing in a global, marketized, HEI system (Evans et al 2017). This is just an example of the diverse perspectives of one group of stakeholders in the effort for WA to medical school.

Competing policies what might affect WA policy enactment have also been called into question. Universities have been subject to the growing prominence of market-led policies which have resulted in them having to factor in the impact of league tables and other ranking systems on their strategic decision-making (Croxford and Raffe 2015). How this culture of competition and stratification interacts with other policies, namely WA is uncertain. This would undoubtedly influence the final implementation of WA policy.

Finally, the competing policies and diverse stakeholder interests must operate within the local context and entrenched organisational cultural landscape, which may not be accustomed to a tradition of learning and higher education. An example of this is well documented in academically-able students from low SES backgrounds who see themselves as ‘not a university type’ and medical school as ‘culturally alien’, including a student who was attacked by her peer group after being the first in that group to go to university (Sacker et al 2002; Greenhalgh et al 2004).

The review enabled the use of a broad method of investigation to extract data from a wide range of evidence. The scoping review methodology allowed for investigation in ways a systematic review would not (Levac et al 2010; Arksey and O'Malley 2005). First, by sourcing a comprehensive list of studies from a variety of methodological backgrounds. Second by allowing space to review some of the key features of the programmes and stakeholder groups, and importantly, to produce a narrative of the results.

The range of interventions was categorized based on their generalised mechanism of action(s) as well as the stakeholders involved. On closer inspection of stakeholder aims and their relationships to each other, themes began to emerge concerning the scant evidence of exploration of stakeholder perspectives as well as the possible misalignment in interests among key stakeholder groups. This is important as the successful implementation of the final WA programme is a function of the relevant actors contributing to the local WA programme. A more thorough investigation of stakeholder perspectives is therefore warranted. In addition, deeper analysis into the contextual factors which produce and sustain the WA programmes, within the local environment and daily practice, would help identify and explain how these programmes work (or fail to work), for whom and in what circumstances, allowing for more generalised findings. Furthermore, to our knowledge, there have been no studies done on the WA policy in Wales, namely the Seren Programme. Therefore, it might be worth focusing on examining these relationships in the context of the Seren Programme, with particular emphasis on the perspectives of stakeholders involved.

6. Conclusion

Widening Access programmes to medicine in the UK have come a long way since their inception, but much remains to be done in achieving their desired results more broadly. This review serves as an important step to collate and understand the mechanisms of successful WA programmes as well as perspectives of stakeholder groups. The review identified the various WA programmes to medicine done in the UK as well as their scope and objectives. Additionally, we gained a better understanding of the different mechanisms associated with the success and sustainability of such programmes. Lastly, this review highlighted the relevant stakeholder groups as well as their interests with regards to WA programmes.

CHAPTER THREE

AN EVALUATION OF THE SEREN PROGRAMME FOR PROSPECTIVE MEDICAL SCHOOL APPLICANTS: MAPPING IMPACT, SUSTAINABILITY AND GROWTH.

1. Abstract

Background: The Seren (Star) Programme at Glan Clwyd Hospital is part of a Welsh Assembly Government (WAG) initiative to help support high-performing state school children (post-GCSE) intending to apply to study medicine at university.

Aim: To evaluate the 2018/19 cohort Seren Programme in North Wales and to assess its impact on its stakeholders.

Design: Single case study.

Data sources: Participant surveys with 34 of the stakeholders as well as interviews with as subset of 15 of the stakeholders. Direct non-participant observation was conducted for the Seren Sessions. Unfortunately, formal data on admissions rates for the cohort of 2017/18 was not available at the time of study.

Results: The results were presented into the five distinct themes of: *Personal Motivations, Relationships: Coalescence and conflict, Parental role and ‘not knowing’, Student learning and engagement, and Growth and resilience*. The results provided a powerful narrative of the experiences of the stakeholders within the Seren Programme. The students, their parents and schoolteachers have found the programme to be extremely helpful in their application to medical school. However, the Seren Programme is not a “cure all” for Widening Access (WA) to medicine in North Wales. It addresses but one of the many layers of embedded barriers that students from disadvantaged backgrounds need to overcome in order to get into medical school.

Conclusion: This single case study provides an in-depth understanding of the Seren Programme at Glan Clwyd Hospital. Despite being specific to the local WA to medicine initiative in North Wales, the Seren Programme had a lot in common with other successful

WA programmes to medicine tried elsewhere, and has been shown in this study that it can be successful in the long run if it continues to adopt 'best practices' in WA to medicine as well as adapting to the local culture, ensuring that the interests of the various local stakeholders are managed successfully.

Keywords

Widening access, medical school, stakeholder groups

What is already known about the topic?

- ‘Widening access’ (WA) initiatives to medicine in underrepresented groups have had mixed success, which may be due to competing interests of stakeholders involved in WA to medicine
- General principles for ‘best practices’ in WA initiatives to medicine have been identified in various studies

What this paper adds?

- The study focuses on a single case study – the Seren Programme at Glan Clwyd Hospital in North Wales, and provides detailed accounts and observations of the features and mechanisms contributing to its sustainability and growth
- The study also explored the Seren Programme’s stakeholders’ interests in-depth, as well as identifying competing interests, highlighting the importance of reconciling stakeholder interests to maximise the local WA’s effectiveness

Implications for practice, theory or policy

- The lack of knowledge and experience with WA to medicine amongst parents and teachers is a major stumbling block. Therefore, priority should be to focus on partnering up with parents and teachers to educate them so that they can influence the young people under them
- The study points to a miscommunication and misalignment of interests between different agencies within the Seren Program, leading to reduced effectiveness. There is the need to encourage cooperation between different agencies to share data and pool resources for increased efficiency, as well as to form the evidence base for future cohorts
- Collaborating with universities and using their medical student population would be helpful. Medical students with strong “personal motivations” and “shared biographies” would be ideal in leading the local WA hubs with guidance from senior medical or university staff

2. Background

The Seren Programme is a Welsh Assembly Government (WAG) initiative to help high-performing state schoolchildren (post-GCSE) achieve their potential (Welsh Government 2018). The initiative is national but delivered via local semi-autonomous hubs. In 2016, Glan Clwyd Hospital was approached by its local Seren hub, who wished to establish an informal partnership to support children intending to apply to study medicine at university. There are approximately 30 such children per school year in the hub area. HMT agreed, and devolved ownership to interested clinicians. The result has been a series of evening events, held in the hospital, designed to provide insight into the profession of medicine, to help students decide whether to apply, and to provide practical support and advice on the medical school admission process. Key to this effort has been a focus on the 3 key hurdles that students face: the UCAT exam; personal statements; and interviews. However, there is also an important aspect which may be termed ‘general skills’. These include communication, presentation, and confidence. Confidence is particularly important, because consistent feedback from admission interviews is that privately educated children exude a level of confidence and urbanity that state-school children do not.

The sessions are led and delivered by four consultant clinicians, supported by other interested consultants, rotating trainees, and medical students. The scheme is entirely voluntary and involves weekly evening sessions that allow facilitators to attend immediately after work. The format generally involves lectures, small group work, examination practice and interview practice. There are 14 two-hour sessions per calendar year.

The initiative began as a pilot in 2017. What is currently missing from the programme is a formal evaluation of its impact and effectiveness.

The study will seek to develop the Seren Programme further by completing an evaluation of the 2018-19 iteration and involve all relevant stakeholders, including parents and young people, schools in the North East, Central and West areas and members of the facilitator group. In addition, the study will seek the views of individuals within receiving medical schools. The study will seek to build on the initial informal student evaluation of the 2017 programme and clarify challenges and opportunities for development.

3. Aim and objectives

The study aimed to evaluate the Seren Programme in North Wales to assess its impact on medical school applications, the likelihood of applications being successful, and the wider impact of the scheme on the hospital (and communities), it is intended to help. The study focused on examining the perspective of four key stakeholder groups involved in the programme: parents and young people; core staff from local schools and from the Seren administrative body; and the hospital (facilitators and HMT). In addition, the perspectives of local universities (Liverpool and Cardiff) were sought, in particular the staff involved in the admissions process and in ‘widening access’ schemes already sponsored by those universities.

The study primarily focused on the Seren Programme for academic year 2018-19: this would give access to two cohorts: year 13 (who would be in the process of applying for medicine); and year 12 (who would need to decide to apply and to prepare themselves). To provide additional context the study examined the background relating to the previous academic year (2017-18) and looked at how the subsequent year (2019-20) would be likely to be affected during this new and evolving programme. Overall, the intention was to identify mechanisms that enhance or limit the success of the programme, and map its future structure, content and delivery. The detailed objectives were:

To identify whether Seren is having an impact in relation to its primary intentions:

- Increasing awareness of medicine as a possible career choice.
- Increasing application rates for medicine in the catchment area.
- Increasing UCAT scores in the catchment area.
- Increasing number of interviews being awarded to children in catchment area.
- Increasing number of medical school places awarded in catchment area.

To identify factors and mechanisms that support the sustainability and growth of the Seren Programme, including:

- Availability and commitment of facilitating staff;
- Resource envelope in terms of estate, learning materials, and administrative support;

- Perceptions of stakeholder groups around the effectiveness of the scheme;
- Potential untapped resources within existing systems that may be able to integrate with the Seren Programme more effectively:
 - Undergraduate education centre at Glan Clwyd Hospital;
 - Widening Access groups at Cardiff and Liverpool universities;
 - Workforce and Organisational Development team at Glan Clwyd Hospital.
- To examine the impact of the current Seren Programme on the:
 - **Young people:** Does the scheme help them decide on a career? Does it provide the support they need to succeed in their application? Are there ancillary effects, outside of the explicit programme aims?
 - **Parents:** Does the scheme help them to support their child through an application process? Do parents perceive the scheme as positive?
 - **Seren Administrators:** Do they perceive that the scheme is providing a benefit to students? Do they see it as an appropriate use of resource?
 - **Hospital facilitators:** Do facilitators feel that they are meeting the needs of the students? Do they feel supported themselves? Are there other effects of the programme, beneficial or otherwise?
 - **Hospital HMT:** Does the scheme fit into core aims of the organisation in terms of recruitment, and engagement with local communities? Does the scheme lead to a perceived increase in the overall reputation of the hospital?
- To ascertain the attitude of the respective medical schools at Liverpool and Cardiff Universities to the programme
- To explore the attitudes towards the Seren Programme and medical careers within the school system in the local area and ascertain if they are aware of the nature of the programme. Do they perceive it as a benefit?

4. Methodology and Methods

The study was organised into a number of overlapping phases:

Phase 1: Scoping Review

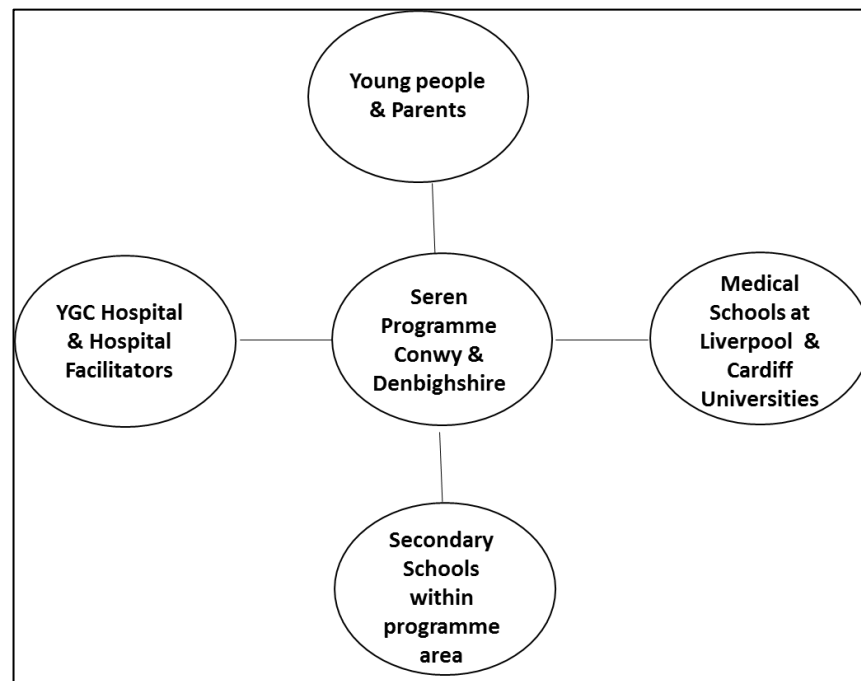
The initial phase of the study involved the completion of a scoping review (Arksey and O'Malley, 2005; Levac et al 2010). Its purpose was to provide a conceptual review of the evidence in the literature regarding widening access programmes such as Seren for medicine. This provided the theoretical background for guiding the case study work by developing several theoretical propositions (Yin 2014) that have been mapped within the empirical 'case'.

Phase 2: Case Study

The main part of the study utilised a case study approach, focused on Yin (2003; 2014). Overall, the strength of case study work is its 'holistic view of certain phenomenon, with a rounded picture' based on multiple sources of data, facilitating wider generalisations (Yin 2014, p.1603). It is appropriate in addressing 'how' and 'why' questions, providing in-depth understanding of phenomenon and 'real world' context (Yin 2014; Noor 2008).

In case studies a range or single of 'cases' may be investigated to explore the research question (Yin 2014). The use of triangulation in data sampling and data collection are at the core of rigour in case study approach, combined with reflection and theoretical propositions underpinning the investigation to increase 'credibility' (Yin 2014). As part of the study a single embedded case design (Yin 2014) was utilised to evaluate the Seren Programme in North Wales. The study utilised an exploratory case (Yin 2014) focused on the Seren Programme in the Conwy and Denbighshire areas, nested within a range of stakeholders (Figure 4). The study centred on the perspectives of a number of young people and their parents and key stakeholders in the Seren Programme, including Glan Clwyd hospital (YGC), and local schools, supplemented by those involved with widening access in the Medical Schools at Liverpool University and Cardiff University.

Figure 4. Case study and stakeholders



In this way, the characteristics of the Seren Programme as a case were viewed as being centred in the catchment area of Conwy and Denbighshire areas, with its delivery focused on the clinical setting based at YGC, as part of the Betsi Cadwaladr University Health Board (BCUHB). It is defined as having started in 2017 with the aim of supporting a selected group (approximately 30) of high-performing state school pupils (based on their GCSE results) potentially seeking to apply to study medicine at university, notably Cardiff and Liverpool medical schools. The programme is focused on primarily addressing widening access to these medical schools. The voluntary scheme is led and delivered by four consultant clinicians and run over 14 weeks from every September and is focused on the 3 key hurdles in the admissions process: the UCAT exam; personal statements; and interviews, as well as building up students' level of confidence. This study utilised a mixed method research design focused on descriptive surveys and stakeholder interviews. Data analysis included thematic analysis and descriptive statistics, with concurrent triangulation to cross validate results (Yin 2014).

Ethics

Ethical approval was obtained from the Bangor University (HCMS AEC) and access was granted by the headmasters of the sampled schools (Appendix 1). Informed consent was obtained from the key teaching staff, young people and their parents and stakeholders. The responses were anonymized and kept confidential (Alcser et al 2016).

Case study: Sampling and Recruitment

The case was selected to reflect the characteristics of the Seren Programme in North Wales, providing a bounded case (Yin 2014) but with its findings potentially reflecting on the broader area of widening access schemes in Wales. Participants were purposefully selected (Miles and Huberman, 1994) within the Seren Programme in representing different potential shared experiences and different perspectives to inform the quality of data (Rubin and Rubin 2012). The participants included secondary school pupils aged 16-18 years with parents engaging in the study (n=15-30) and members of the Faculty (n=3-6). These participants were recruited into the study after receiving a Participant Information Sheet (PIS) (Appendix 3.1-3.6) and consent forms (Appendix 4.1-4.6) and returning an expression of interest form (Appendix 3). The catchment schools involved with the Seren Programme were accessed through the gatekeepers of the local education departments, who have provided a letter of approval/ access (Appendix 1). A purposeful sampling strategy (Creswell, 2012) was used to identify the school staff involved in the university application process (n=2-5). Key stakeholders in the Medical Schools at Liverpool University and Cardiff University were sampled (n=2-4). These participants were recruited into the study after receiving a PIS (Appendix 3.1-3.6) and consent forms and returning an expression of interest form (Appendix 4.1-4.6).

Data Collection

In terms of data collection, this case study used multiple methods, including observation (Figure 5 and Appendix 2) during the Seren Programme, along with a questionnaire to the cohort participating in the Seren Programme (n=15-30) (Young people - Appendix

5.1, Parents – Appendix 6.1). The surveys were conducted at two time points, one at the start of the Seren Programme and the other towards the end of the program.

Interviews were then conducted throughout the program with a sub-sample of parents (Appendix 6.2) and young people (Appendix 5.2) participating in the Seren Programme (n=6). Interviews (including telephone interviews) were utilised to seek the perspective of stakeholders in Liverpool and Cardiff universities (n=2-4) (Appendix 9) as well as in sampled schools (n=2-5) (Appendix 7). The additional stakeholders of Seren Programme facilitators (Appendix 8) and hospital stakeholders (Appendix 10) were also interviewed (n=5-6). The mean length of each interview was 23 minutes (range: 8-48 minutes), and the total data represented approximately 5 hours and 48 minutes of interview time.

A total of 34 Seren stakeholders agreed to be surveyed for the study. Of those surveyed a subset of 15 participants from the five categories of stakeholders were interviewed (Table 5.) The study questionnaires predominantly consisted of closed questions using a Likert-type scale (Bertram, 2008) with some questions followed up by ‘open’ qualitative comment boxes to enrich data. The questionnaire was organised into several thematic sections with an initial set of demographic details.

In addition to the surveys and interviews, direct non-participant observation as described by Spradley (1980) was conducted in six of the initial Seren sessions for the 2018-19 cohort. The dimensions of the direct non-participant observation used is shown in Figure 5, and an example of the format used for data collection is shown in Appendix 2. Each Seren session was 2 hours, and the total data represented approximately 12 hours of interview observation.

Table 5. Study participants

Seren stakeholder	Code	Surveys (n)	Interviews (n)
Students	S1-4	18	4
Parents	P1-3	7	3
School teachers	ST1-2	3	2
Seren facilitators	SF1-3	3	3
University admissions	UA1-2	2	2
Hospital management	HMT	1	1
Total (n) Seren stakeholders		34	15

Figure 5. Dimensions of descriptive observation

<p style="text-align: center;">Direct non- participant observation schedule</p> <p>Dimensions of descriptive observation (Spradley, 1980)</p> <p>SPACE - layout of the physical setting; e.g. rooms, outdoor spaces</p> <p>ACTORS - the names and relevant details of the people involved</p> <p>ACTIVITIES - the various activities of the actors</p> <p>OBJECTS - physical elements: e.g. furniture</p> <p>ACTS - specific individual actions</p> <p>EVENTS - particular occasions, e.g. meetings</p> <p>TIME - the sequence of events</p> <p>GOALS - what actors are attempting to accomplish</p> <p>FEELINGS - emotions in particular contexts</p>	
--	--

Data Analysis

Interview data were analysed using thematic analysis (Braun and Clarke 2006; Miles and Huberman 1994). As part of the case study approach within-case and across-case analysis were used (Yin 2014), with a focus on richness of the data. Richness involves a mix of accounts from participants reflecting conflicting and commentary perspectives, involving tensions and dynamic. Richness is about ‘fine grained analysis’ (p.70) that enables questions about how and why events occur, building themes inductively (Brooks et al 2012). The observation data was also subjected to thematic analysis (Braun and Clarke 2006). The survey data was graphically represented with descriptive analysis using Spearman's correlation coefficient will be applied to show construct validity of the data set (Spearman 1904). The qualitative comments within surveys were also subject to thematic analysis (Braun and Clarke 2006).

Data storage

The data was stored in accordance with University regulations. Each research participant was assigned a code, known only to the principal investigator to ensure anonymity and confidentiality.

5. Results

The results have been presented in five distinct themes, each with their own subthemes gleaned from the analysis. Each of these subthemes drew from the various sources of data including interviews, which were supported by surveys and observational data. The different types of data have been presented in their distinct categories but have been integrated into the wider narrative of the themes presented. For example, some themes would have a series of interview excerpts interlaced with supporting survey results as well as observational results as part of the ‘triangulation’ of data sources (Yin 2014).

Thematic analysis: Mapping Seren

Across case analysis highlighted three key parts to the results, focused on professional actors and partnerships, participant actors within the program and the past, present and future development of the Seren Programme. These delineated the distinct components involved in the Seren Programme and included a range of themes and sub themes (Braun and Clarke 2006) that seem to delineate the complexity underpinning the Seren Programme. This is to be expected, largely due to the complex web of relationships between the stakeholders and their interests as outlined in the scoping review, whereby the interests of students, policy makers and the medical schools' training doctors do not always converge (Cleland et al 2015; 2018). Each theme has been presented with the corresponding sources of data.

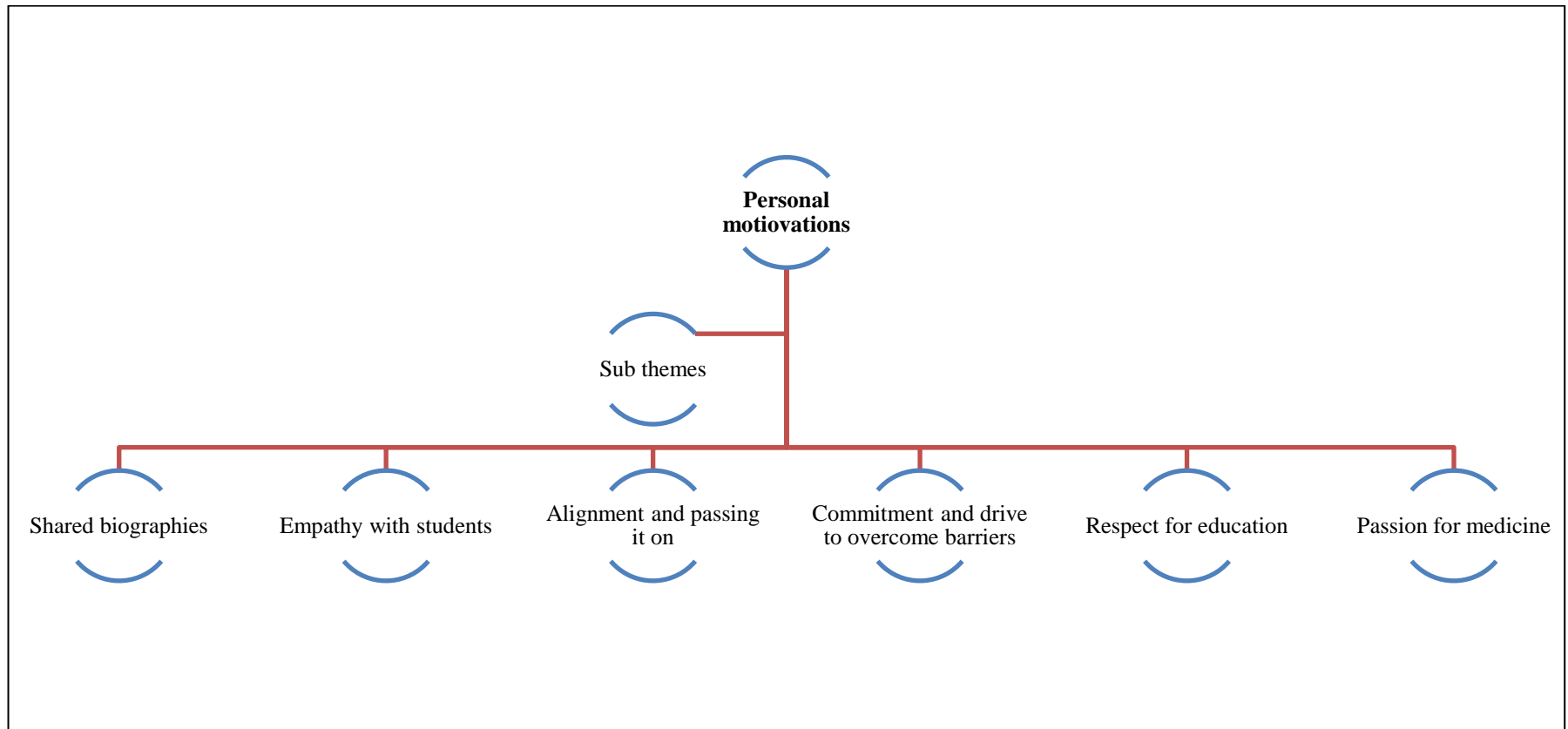
1. Professional actors and partnerships

The theme 'Professional actors and partnerships' focuses on the 'professional' stakeholders involved in actively running the Seren Program, such as the Seren Facilitators (SF), School Teachers (ST), University Admissions (UA) as well as the Hospital Management Team (HMT), and they encompass the themes of: (1) Personal Motivations and (2) Relationships: Coalescence and conflict, as follows:

Theme: Personal Motivations

The dominant mechanism driving forward involvement and sustaining the Seren Programme was personal motivation of health professionals within medicine across all levels and groups. Several sub-themes emerged from this, as shown in Figure 6.

Figure 6. Personal motivation theme and sub-themes



A striking feature that emerged from the data is the shared biographies and personal motivations of those involved in the running of the Seren Programme. Every one of the Seren facilitators spoke about their disadvantaged backgrounds and the struggles they faced getting into medical school. These shared biographies may partly explain the Seren facilitators' willingness to volunteer much more of their time and resources in the running of the Seren Programme here in this locality. They had personal motivations for wanting the programme to succeed. In the following excerpts, the Seren facilitators cite their motivations of wanting to help people "like them" who shared "their background" get into medical school. They even went so far as to mention "fighting against" the perceived changing demographics of medical practitioners:

"My motivation is that I want to see people *like me* get into medicine. I feel that having people from working class backgrounds who can bring a wide variety of perspectives to medicine should be able to access medicine. You know like I said I am working class, I am socialist, my family have all voted Labour...and that's who I am, and I see medicine increasingly being represented and being delivered by *people who don't come from my background*, and don't share the background of the majority of people in this country, and this is something that needs to be fought against..." (SF1)

"I mean if you feel that the doctor can understand *your lifestyle or your background*, I think it makes a difference as opposed to being lectured from up high. In terms of people going back to where they came from, it inspires the next generation, you need *people just like you* doing something that you perhaps didn't think you could." (SF2)

Seren facilitators clearly felt empathy for the students taking part in the Seren Programme. They felt that getting into medical school has become more difficult for disadvantaged students and they see a part of themselves in the students they are trying to help. In the excerpts below, the Seren facilitators reminisced about their past experiences and reflected on, what could have been have they not been fortunate enough to have help to study medicine:

"I managed to get into medicine, but I feel that...*if we replayed my life* 20 years later, I probably wouldn't have gotten into medicine, because, ironically, a number of the barriers to getting into medicine, for example the UCAT test...has

introduced a more structuralised bias...those who are well prepared are unlikely to be from a state school..” (SF1)

“I genuinely love it. It has *made me realise or remember* how difficult the UCAT was. It has actually been quite nice to meet the students, and I have been quite impressed by how eloquent and informed they are...it made me realise *how lucky I was* to be able to access help as well as having this family friend, who, if anything, just gave me confidence that I could emulate her.” (SF2)

“I really enjoyed it, personally, during that year 12 session with the history taking, when they didn’t know what to ask and I had to help them...that *made me realise how much I have learnt in 4 years*. I feel like I am a doctor here, teaching students, and it *highlighted to me how much I have learnt*.” (SF3)

Another interviewee was both a schoolteacher and a parent of a child who had to struggle to get into medical school without the help of Seren. She recounted the challenges they faced supporting her daughter in applying to medical school. This helped her empathise with her students and underpinned her motivations for being involved with the Seren Programme:

“My daughter is studying medicine... *Having been through the process* with her without Seren, I can see the benefits of having Seren Programme’s medicine, which is why I am so keen to be involved. Because I had to do things like help her prepare for the UCAT myself, not having ever had any insight to how it works. So as a parent, I had to do that. We had to find work experience for her ourselves, and *we had to look for opportunities for her ourselves*.” (ST1)

The Seren facilitators also spoke about how they had someone or some circumstance’s help which enabled them to get into medical school, which they were extremely grateful for. Our data suggests that these “beneficiaries” feel the obligation to “pass it on” and help the students whom they can empathise with due to their shared biographies. In the excerpt below, the Seren facilitator reflects on the help she was given and her desire to help others in her similar situation. She describes the “personal satisfaction” she has experienced from giving back to the Seren Programme, as a way or repaying her benefactor:

“I did the graduate entry to medicine...I found a kind of a friend of a friend of a family, who is a doctor. I went and shadowed her for a bit...I just want to *pass it on*. I wouldn't have been able to get into medical school without her giving me the confidence. I just want to help those who maybe have the ability but don't have the confidence to apply...I will admit, there is a level of *satisfaction* of kind of remembering thinking to yourself I will never get into medical school, I will never get through medical school, I will never be a doctor, and realising that I did it. There is some level of *personal satisfaction* knowing that I have some level of knowledge that I can *pass on*.” (SF2)

The personal beliefs of the Seren facilitators seemed to play a part in sustaining their enthusiasm for wanting to “redress the balance” and level the playing field for those like themselves who want to pursue medicine, they mention their ideal of medical education; that admission should not depend on one's ability to pay:

“I think the Seren Programme is an important part of how we make medicine something that is accessible from all walks of life...medicine is becoming the preserve of people who are...middle class backgrounds...who have access to private education... I see the Seren Programme...as trying to *redress the balance* and trying to plug a gap.” (SF1)

“I went on multiple preparation courses which cost me hundreds to thousands of pounds...So I definitely spent a lot of money on it...I don't think that your ability to pay to get onto the course should be the deciding factor to determine whether you get onto the course.” (SF2)

Significantly, the interviews highlighted the importance of having an environment and culture centred on the respect for education when applying to medical school. The interviewee drew from his experience coming from a deprived public school and compares it to a student from private school, pointing out that the same “standard” may require very different levels of effort depending on one's background. This ties in with the “alien culture” of university and medical school faced by students from disadvantaged backgrounds:

“What I find slightly wrong about the system, to get an A in the A level when you have gone to private school with all the resources, when you come from a background which has a *respect for education* and an *expectation of achievement*,

to get an A level is certainly an achievement. (Whereas) If you have come from a chaotic household background where there is no place to study, where you come from a classroom where there are paper aeroplanes being thrown and where you are with your 5th locum teacher of the year because they can't get teachers to stay where you have a classroom has a size of 35. If you get an A in A-level *in those circumstances*, I think that is quite wrong if that is counted as the same level of achievement. I think it is a much greater level of achievement. *Much greater to climb a mountain at sea level vs having started from a much higher plane.* To me their achievements are quite different.” (SF1)

The interviewees also emphasized their belief in the importance of medical school applicants being fully committed and passionate about medicine. They seemed to value a student's commitment over their social background in applying to medicine, again reflecting their shared biographies with the students they were helping. In the excerpts to follow, the interviewees shared their beliefs about wanting future doctors to “be a fairer representation of society”, people who really want to become doctors, not just those who have had the privilege of being well prepared. They also emphasized on the seriousness of the Seren Programme, wanting people who are “in with both feet and fully committed”:

“It is such a shame, because there can be good doctors from whatever your background. I would like people with the *ability and interest and compassion* to get through, not the ones who have been prepped really well. So what we can do now is prep. I would like medical applicants to be a fairer reflection of society.” (SF2)

“...I turned up at that and I said, do not come unless you want to be a doctor or are seriously thinking about it, *do not come, unless you are serious*. I don't want people dropping in for a week, then going away playing rugby and come back 3 weeks later. *If you are in this, you are in with both feet and fully committed*...I don't want to offer people false hope. If you are the sort of person, and it is sad to say, you do have to manage at a very young age and be mature if you want to do medicine, if you are the sort of person who comes to this for one week and goes to the arts programme another week you are simply not going to get into medicine.” (SF1)

This may in many respects explain why the programme emphasized heavily on attendance to the weekly sessions and completion of all the assignments set by Seren facilitators. This is shown from the observer data in Figure 7 as part of the Seren Programme.

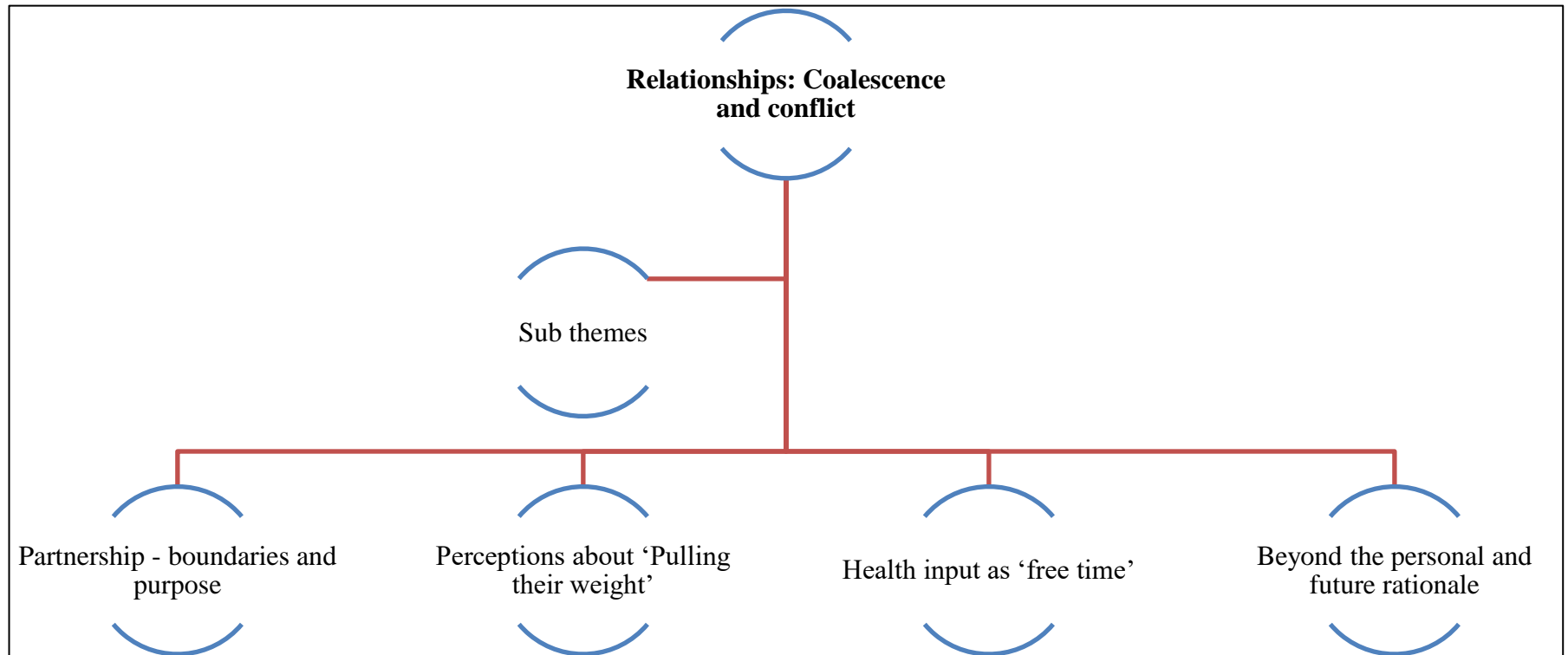
Figure 7. Direct non-participant observer data excerpt 1, November 2018

It was observed that during the 14-week Seren term, there is an opportunity for 20 of the students to take part in a coveted week-long work placement in the hospital, which would give the students an opportunity to interact with doctors and patients in a clinical environment. The places are limited, with 2 students per place and are awarded based on students' attendance, completion of assignments and participation in Seren activities each week. When the criteria for the work placements were announced by the Seren facilitators, there was an atmosphere of seriousness and competitiveness among the students, as they became aware that being in the Seren Program did not guarantee them a place in the work placement week. This may also be the reason why attendance at the weekly Seren sessions have been more than 90%.

Theme: Relationships: Coalescence and conflict

The key partnerships within the region – focusing on health and secondary education organisations - was defined as involving both coalescence and conflict at a 'bottom up' level, centred on a range of differing motivations and purposes for engaging in Seren. There was further complexity with relationships between these partners involved in the Seren Programme within the broader context of a number of catchment medical schools in the Higher Education Institution (HEI) sector and the overarching policy context that acted as a 'top down' driver to widening access. Several sub-themes emerged from this, as shown in Figure 8.

Figure 8. Relationships: Coalescence and conflict theme and sub-themes



The stakeholders of the Seren Programme had various agendas and priorities which were not always aligned. Each had different expectations of the roles and responsibilities of the other. From Table 6, the students and parents taking part in Seren were more focused on their priorities as compared to the stakeholders involved in contributing to or running of the Seren Programme. This could be a reflection of the demand of resources on the various stakeholders and hence their level of willingness to prioritise the Seren Programme.

Table 6. Seren stakeholders and their interests

Stakeholders	Interests
Students	Deciding if medicine is for them, getting into medical school
Parents	Supporting their children into medical school
School teachers	Supporting all their students (not just Seren students) in realising their potential, improving school standards
University Admissions	Producing the best doctors, upholding the reputation of the university, widening access for disadvantaged groups
Seren facilitators	Helping students get into medical school, ensuring success of WA programme, personal benefits
Hospital management	Good standard of healthcare provision, fulfilling workforce needs, reputation of the hospital
Policy makers	Good standard of healthcare provision, delivering on promises to public, proper use of tax monies
Public	Good standard of healthcare received, well represented medical workforce, proper use of tax monies

In the following excerpt, the Seren facilitator reflected on the growth of the Seren Programme at Glan Clwyd Hospital to the point where the programme might be compromised if boundaries were not clearly defined. He mentioned about the physical limitations of current resources and likened the programme to a “lifeboat” which could sink and be ineffective for everyone involved, if the numbers were not managed. He then went back to mention about “looking after your own” – prioritising local programmes over regional ones:

“Now, that I have been explicit about what we want and what we expect, the results have been consistently *at the limits of what we can cope with*. I think I have to be brutal next year and say, this is Conwy and Denbigshire, Gwynedd has its own hospital and so has Flintshire. If the recognition is that this programme is desirable, then they have to adapt it in their hospitals because I don’t think we can cope especially if each year has been busier than the last. We ran out of chairs. There was literally not enough space...I think *you can only look after your own* isn’t it, if the whole programme becomes ineffective you know, *you can only fit so many people in a lifeboat before it sinks*” (SF1)

Another subtheme that emerged from the interviews was the perceived unfair distribution of responsibilities over the Seren Programme among the professional actors. Given the short history of the Seren Programme here, various professional actors have partnered up gradually with varying levels of involvement. This can present with interests that are not always aligned. In the following excerpt, the hospital management representative empathised with the need for more resources to make this programme sustainable, but she also stresses that the hospital is already providing a fantastic resource, as compared to the council who, as it is implied, should be contributing more towards something that is benefiting their objectives immensely:

“I am not sure if that has been discussed, how much of a challenge it is to get resources...I would like to think if that sort of thing were needed, the council would support it? Because, essentially, what (we are) providing...is a fantastic resource. And the only resource they (the council) are having to put into it is transport to get the young people here and back again. But *it’s not huge investment on their part*.” (HMT)

Another interviewee spoke about how she was finding it difficult to understand why the hospital is not contributing more resources to the Seren Programme as she imagined that the hospital to be benefiting a lot from this partnership. She had the impression that the interests of Seren and the hospital were well aligned, hence they should be receiving more support from the hospital. This was clearly a very different view from the previous interviewee:

“...her (Seren facilitator) involvement in this is not recognised by the health board, I mean it should be something that, I thought would contribute to the aims and the values of the health board, you know, it not only fits in with their workforce and development planning, so they are actually investing in the younger generation, they are hoping that there will be some payback in the future generations, but also in their workforce, in terms of coaching and educating, you know, that they get from you guys working with the young people...I think *it should be something that is recognised and is given resource by the health board*...because it is a great example of partnership working...I want to see resource given to it, in order to make sure it becomes something that is resilient and sustainable in the long term...I’d imagine that their organizational aims would involve connecting with the local community and that is exactly what this programme does, it’s very much an enhancement programme not their only function but I can’t believe the health board isn’t jumping up and down and screaming from the roofs about this.” (UA1)

The 2 divergent views highlighted the hugely differing views among the stakeholders, which may reflect the complex interplay of individual priorities and expectations of the partnership.

As discussed, the various stakeholders seemed to have different views as to the roles and responsibilities of each other. In the following excerpt, the interviewee explained that the Seren facilitators volunteer to help after their official workday, hence there it is implied that no real resources are taken up (since they volunteered) and the hospital does not need to spend more resources on the Seren Programme:

“Very few, actually, very few (of the hospital’s resources are taken up), because most people give their time up to do it *voluntarily*. It is done out of hours, mostly after the school day finishes, so most people do it not on clinical time.” (HMT)

However, the Seren facilitator highlighted the need for a hired central administrator to make the programme more effective, as the facilitator seemed to reflect on the strain of the responsibility of running and managing the Seren Programme:

“But in this *resource scarce* environment it is difficult isn’t it? There needs to be a central administrator doing this. I have a full-time job in the hospital, *it has to stop somewhere for me doesn’t it?*” (SF1)

The subthemes discussed so far highlight the importance of mutual understanding and “laying out all the cards” in terms of this partnership. Stakeholders need to move from a position of presumption to a clearly articulated understanding of each other’s interests and expectations. The following excerpts again show the divergence in views, the Seren facilitators thought that it was self-evident that the Seren Programme was of benefit to the hospital:

“I don’t know. *What does management want?* I would like to hope so... the areas I see potential fissures in – I am very focused on medicine whereas the hospital has a requirement for workers in all areas, nursing or admin. By concentrating on medicine solely I may not be fully aligned with the organisation.” (SF1)

“...anything that we can do to increase the recognition and branding of the hospital to the local community *will obviously benefit the hospital*” (SF2)

The hospital management however, were more focused on the day-to-day running of the hospital. The Seren Programme is a “very long-term plan” to the hospital at best, and it is implied that the running of the hospital and acute bed shortages take precedence over long term projects like the Seren Programme or intangibles like “increasing the recognition and branding of the hospital”:

“I think the workforce planning of it is a fairly long-term outcome of the project...I think it is positive, *I am not sure how much it helps with our acute day to day pressures though* ...I think ultimately, a lot of people do drift back to where they came from, when they want to settle finally. So this is *a very long term plan*, to increase the number of doctors serving the population of North Wales. It is absolutely at this stage that we need to start or even younger.” (HMT)

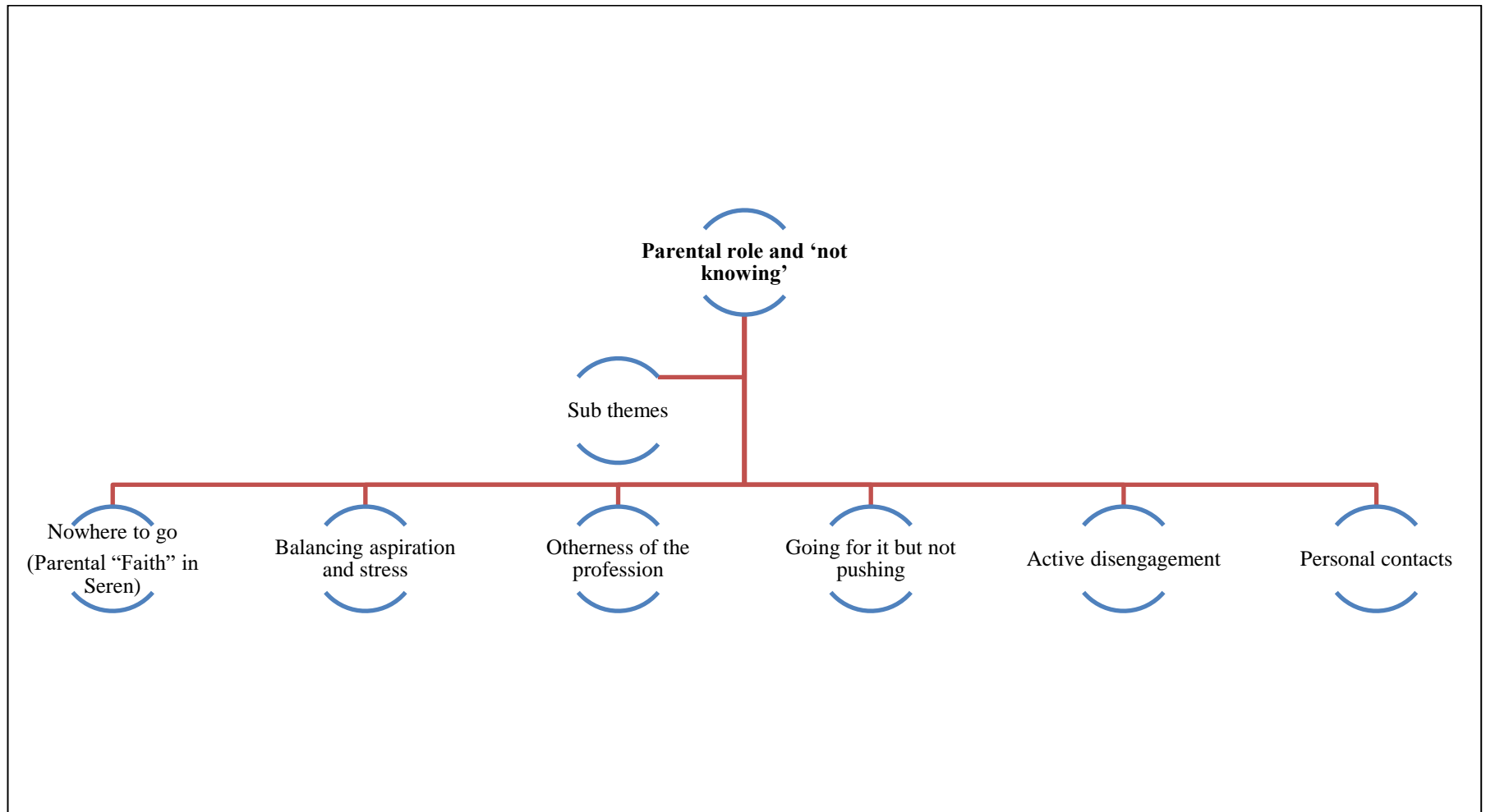
2. Participant actors: Students and Parents

‘Participant actors: Students and Parents’ focuses on the ‘participant’ stakeholders of the Seren Program, such as the Students (S) and Parents (P), and they encompass the themes of: (1) Parental role and ‘not knowing’ and (2) Student learning and engagement, as follows:

Theme: Parental role and ‘not knowing’

The role of parents was important as actors in supporting and developing the engagement of students in the Seren Programme, but this was delineated by the ‘foreignness of the profession’ and the process, as shown in Figure 9.

Figure 9. Parental role and ‘not knowing’ theme and sub themes



Most of the parents in the study had little knowledge of the application process or about medicine as a career (Figure 10 and Table 7). Parents wanted to support their children to get into medical school but were unsure of how to do so outside of the Seren Programme. Many of them seemed to place their hope in the Seren Programme, that it would help their children where they were unable to do so. In the excerpts to follow, parents spoke about the Seren Programme being helpful in supporting and preparing their children to apply to medical school. The excerpts also pointed to parents not being able to provide much support in terms of knowledge of the application process or the networks needed to do so. This suggests that the perceived lack of other options for supporting their children into medical school might influence parents' views on the Seren Program. The parents interviewed reflected on the disadvantages their children faced, compared to the advantages children who went to private school had, in terms of preparation and application to medical school:

“I think it (Seren) serves as a good platform to begin with, because there is *a lot of hoops* before you even get to medical school, *more than I thought*, the interview process. I went to the meeting at the beginning, and we were talking about it was not just about grades, you got to show that bit more and children who have gone to private school are almost trained to apply to these places...it would just be nice if we are more consistent throughout our education, whatever school you study at.” (P2)

This parent commented that the application process was more complicated than she thought and is glad that the Seren Programme was fair and structured, based on locality rather than personal connections. Even though she herself worked for the trust, she stressed the importance of fairness versus personal connections:

“Seren Programme is *fair*, whether or not you had relatives, including me who worked for the trust. So, I think it is very good, again going back to education it is not *who you know* it's much more structured. It just seems *fairer*.” (P2)

Another parent interviewee commented about how not having access to the Seren Programme had been an obstacle to gaining entry into medical school for her colleagues in other areas:

“I have also spoken to colleagues at work who I think live in *Flintshire and do not have access to medical Seren Programme* and their daughter was applying and I just got the impression that they were all struggling a bit more, you know, it is quite possible that *we got more from Seren* with (my daughter) coming home, talking about stuff that we have perhaps realised...” (P3)

Surveys with parents reflected the parents’ dependence on the Seren Programme as a source of support for their children, as they did not know much about the medicine as a career or the application process to medical school. The parents also seem to have a high level of confidence in their children getting the support they need to get into medical school. The survey results also reflect the parents’ positive impression of the Seren Program, despite them not knowing much about how the Seren Program would help their children specifically. These results suggest that the parents’ high levels of confidence in their children getting the support they need to get into medical school may be linked to their trust and dependence on the Seren Program. These results are shown in Figure 10 and Table 7.

Figure 10. Survey to parents – Likert Scale

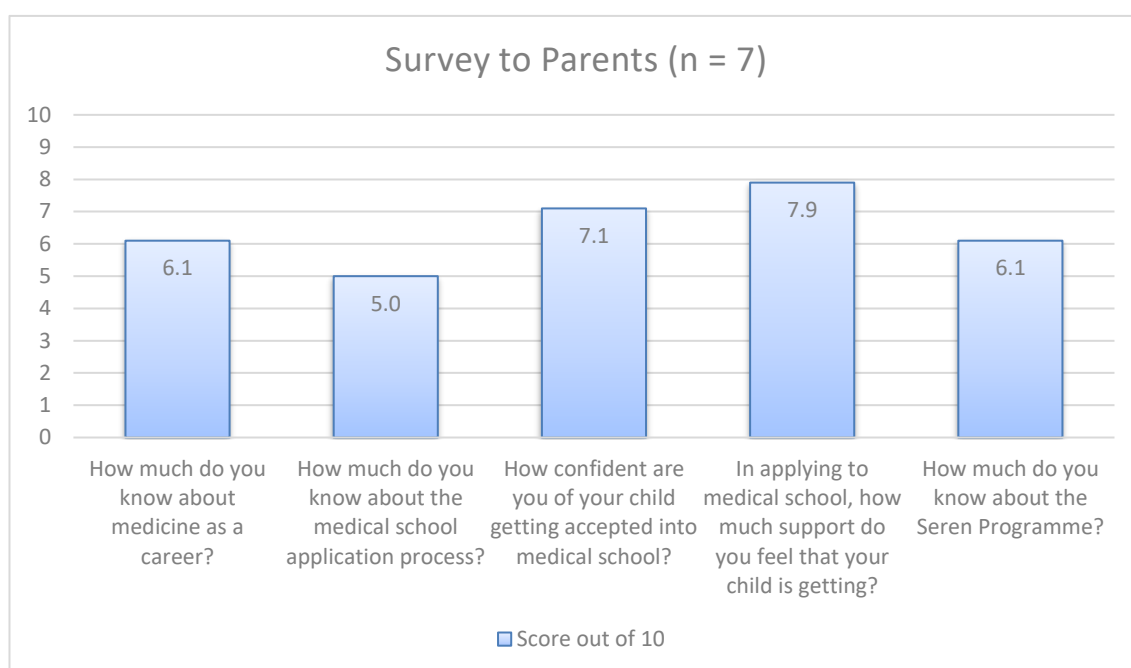


Table 7. Survey to parents – Comments

Survey questions (n responses = 7)	Comments
Please list some ways that you are supporting your child.	<p>"Ensuring she has access to...resources to enhance her learning."</p> <p>"Attending university open days and discussing the options open to her"</p> <p>"By reading all the Seren documents and researching careers"</p> <p>"Discussion. Encouragement. Engagement with...Seren"</p> <p>"Talking...and helping when appropriate...about the application process.... encouraging her to do voluntary activities"</p> <p>"Encouraging her endeavours"</p> <p>Key words: Seren, encouragement</p>
Do you know of any other sources	"No, just the Seren programme"

of support with applying to medical school?	<p>“No”</p> <p>“Info from Seren”</p> <p>“Lots of advice online”</p> <p>“YGC work experience program. Online resources re UCAT”</p> <p>“No”</p> <p>“None”</p> <p>Key words: Seren, none</p>
<p>What does the Seren Programme mean for you?</p> <p>List 3-5 words.</p>	<p>“Extended, specific career advice for studying Medicine”</p> <p>“Impressive, approachable, helpful”</p> <p>“Insight to medicine at YGC”</p> <p>“Amazing support and help”</p> <p>“Support with application”</p> <p>“Support for able students”</p> <p>“Working class children are being supported in aspiring to worthwhile careers”</p> <p>Key words: Support</p>

The students were motivated and aspired to do medicine, but these high hopes were being balanced with the stress of “overreaching” their expected potential. In the following excerpts, the student compared herself with “other schools in the South of England” which, according to her, had “a lot more support than us”. This perception of inferiority and low expectations had an obvious effect of the students’ confidence. In addition, the student related her experience of having lowered expectations placed on her as well as her being in the “minority group” for wanting to go to university, which again undermined her aspirations:

“It’s quite *nerve wrecking*, because if you think of *other schools*, like in the South of England, like say, 15 or more people applying for medicine...because there is more of them, there is more demand for... *a lot more support than us*, which makes (us) less confident...” (S4)

“I went in year 10 and they tried to get me into college instead of Sixth form...Because...the majority of my year did go to college, in sort of a direct pathway, and in university is a few more years of studying and more difficult to get in...” (S4)

Studies have been done on the “otherness” of the medical profession to underrepresented groups. Minorities and underprivileged groups usually find it difficult to relate to medicine as a career choice (Greenhalgh et al 2004). This phenomenon has been observed in this study, not just in the students involved but their teachers as well. In the following excerpts, the students explained how they were not expected “from where they are from” to go to university to do “courses that you need the highest grades that sort of stuff”, except for one girl she knows of, reflecting the foreignness of medicine as a career choice. There was also a sentiment about the need to be exposed to role models who are “similar enough to you” in order to have the confidence to aim higher.

“No I don’t think anyone ever has (applied to medicine) from our school, apart from there’s *one girl* in the year above who has... I think *it is expected, from where we are from* around our school there’s not much people that go to sort of that do medicine or dentistry or go to university do courses that you need the highest grades that sort of stuff and there’s not that many people if any.” (S4)

“I think if you don’t have access to people who are *similar enough to you* who you can emulate, to help you visualise how you could be, it becomes hard. I think some of it has to do with *exposure and expectation*.” (SF2)

This “foreignness of the profession” was also reflected in the attitudes of the head teachers in the schools where these students come from, as well as in the miniscule number of students from each cohort applying to medical school:

“...not large numbers at all. Really, as I say, just *1 or 2 per year out of 110 – 120* (students consider applying to medicine).” (ST1)

“...there has recently be research, hasn’t there that children most likely to go into medicine are children of doctors. Same with teachers. The ones who want to become teachers have got 1 parent who are teachers. *It’s self-professing*. Well we haven’t got many children in our school who have got parents who are doctors...” (ST2)

The lack of awareness about medicine as a career and the application process to medical school was expressed by the school teachers as well as parents. However, unlike the parents, the school teachers seemed to have a far better understanding of what the Seren Program entails, as well as other sources of support available to their students apart from the Seren Program. These results have been illustrated in Figure 11 and Table 8.

Figure 11. Survey to teachers – Likert Scale

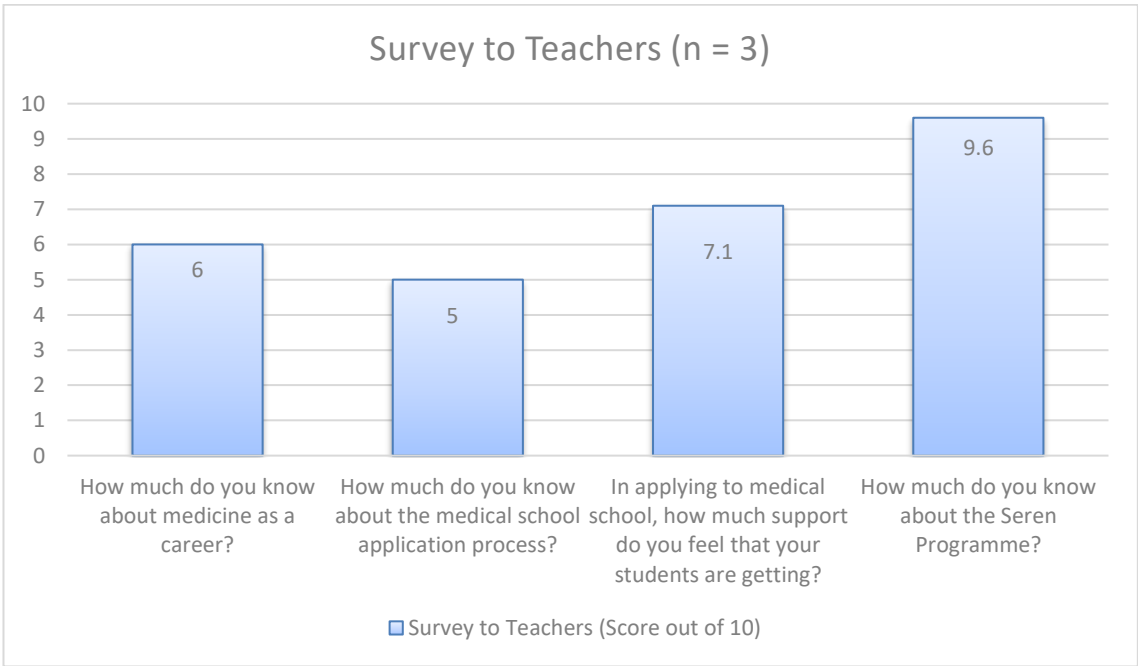


Table 8.2 Surveys to teachers – Comments

Survey questions (n responses = 3)	Comments
Are there any means of support that you are able to provide to your students?	<p>“No”</p> <p>“Guest speakers from the NHS and universities, Careers Wales and Seren Programme”</p> <p>“My daughter is a 5th year medical student so I am able to support our students fairly well.”</p> <p>Key words: Seren, Universities</p>
Do you know of any other sources of support with applying to medical school?	<p>“Local surgery”</p> <p>“Careers Wales”</p> <p>“Seren programme, local GP support, work experience programmes at Ysbyty Gwynedd and Liverpool hospitals”</p> <p>Key words: Seren, local GP, work experience</p>
What does the Seren Project mean for you? List 3-5 words.	<p>“Enhanced aspiration and self-awareness”</p> <p>“Target MAT students, help with university applications, Broaden Horizons of MAT students”</p> <p>“A great deal of time commitment”</p> <p>Key words: Aspiration, help</p>

There was a sense that parents were generally supportive of their children applying to medicine but lack the knowledge and familiarity with the subject to confidently push their children to achieve their goal of getting into medical school. The following excerpts conveyed a feeling of ambivalence by the parents and teachers for the children to apply to medical school, again feeding into their trust in the Seren Programme.

“We speak in often quite, sort of colourful way, possibly from the things that frustrate us (about working in healthcare...to be honest, *we haven't really encouraged her to go down the health line, but we are here to support her...* I think coming from a health background, I am not entirely sure it would be my first choice, I think it can be quite dark sometimes. I would certainly support her as much as possible, certainly academically to follow that career if that was her choice.” (P1)

“Sorry, it (Seren and medical applications) *is a world I have no experience in...*” (P1)

“I think in my school, because we haven't got an academic background in our parents, it really is the most able student in the year, who kind of think they could possibly do it, and I know, for example, my husband teaches in Friars in Bangor, they have a lot more academic parents, they have parents who work in hospital, they have parents working in university, so they have more students who consider themselves able to do medicine. *But if you don't have that push from parents here because it is just not the background of parents.* (ST1)

Aside from passivity in ‘pushing their children towards medicine, there were cases of parents actively dissuading their high achieving children from pursuing medicine, mainly because of their bad experiences with healthcare. This active discouragement relates to the “foreignness” of medicine as a career and the underlying distrust of the medical profession:

“I never actually wanted to be a doctor at all, because both my parents work for the NHS, and they always told me, whatever you do, don't work for the NHS. So I never really wanted to... Yea, *they massively discouraged me and attempted to dissuade me.*” (S2)

“...Well we haven't got many children in our school who have got parents who are doctors. *And a couple of them have seen what it has done to their parents and are absolutely adamant that it is the last thing on earth they want to do.* It works both ways.” (ST2)

There was also a recognition of the importance of having personal contacts when applying to medical school. The participants seemed to be particularly aware of this, as well as

their lack of personal contacts in medicine. The students who had relatives in the healthcare professional recognised the value of this in their application to medicine:

“I think, unless you have *contact* in the medical world or unless you have got a *family member in the medical field*, sometimes *it is very difficult to break into* a completely different area. So, this just helps people who may not have any contacts.” (SF2)

“Because if you don’t have a *family member* who has done it or a *family friend* who has gone to medical school then you really don’t know, and *you have a lot of questions that go unanswered*.” (SF3)

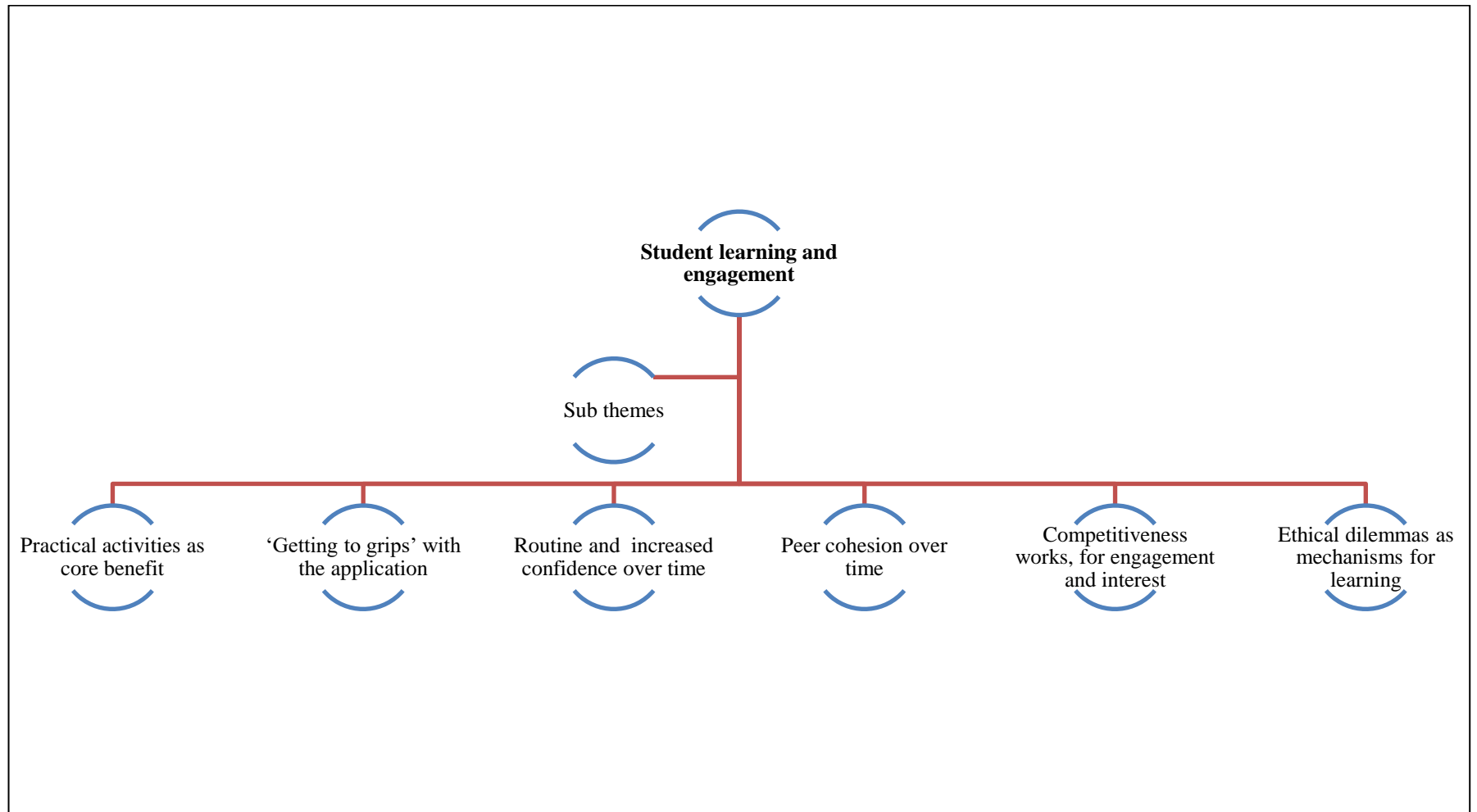
“My family have been very supportive. My granddad especially, because he was a doctor and he went to medical school.” (S3)

“My mother, I suppose, she’s a nurse who works in neonates. I found part really interesting, she’ll tell me all about it. That just sort of swayed me towards it. I just wasn’t sure initially.” (S4)

Theme: Student learning and engagement

The structure, nature and content of the learning provided within the programme was seen as beneficial by students, with practical areas of learning being a particularly positive experience (Figure 12).

Figure 12. Student learning and engagement theme and sub-themes



A key aspect of the programme that the students enjoyed and found to be useful was the practical aspects of the course. Through the programme, they had to interact with healthcare staff they would otherwise not have the opportunity to. In addition, practical activities have the effect of familiarising students with the application process and improving their confidence. This is evident from the interviews and observations (Figure 13) carried out:

“I genuinely don’t think I would have got in without the help I got from the programme. It was amazing. It was brilliant. It just gave me a lot more insight and interview practice. That was invaluable to me. The programme *gave me more time to speak to doctors* a bit more. Because...you don’t always get the chance to speak to doctors on work placements”. (S1)

“I especially like the clinical skills we did last week, I really enjoyed that one...I would like to do more practical things. I just really enjoyed it, I just really find it, I just really enjoyed it” (S2)

“I quite enjoyed doing the essay...English language isn’t my best subject, but I got through it quite comfortably...UCAT questions, there is a lot of them and quite a lot to get through, but I think it is definitely worth it, because the only way you are really going to learn how to do the UCAT questions is by doing enough of them, and by setting it as homework, is ensuring we are going to do it. It has been very helpful.” (S3)

Figure 13. Direct non-participant observer data excerpt 2, November 2018

From the direct non-participant observations carried out during the SEREN sessions, it was observed that the students were fully engaged in the planned practical activities; i.e. practice speech about medical advances in groups, discussion of ethical principles and dilemmas, Kahoot! Mock UCAT, history taking activity in groups, activities at North Wales Clinical School (ECHO simulator, blood pressure monitoring, venepuncture, practice CPR). These activities gave the students the much desired “glimpse” into the medical world, which served to reaffirm their decision to study medicine.

A key feature of the Seren Programme was supporting students in their application to medical school by preparing them for the “key hurdles” of getting into medical school (UCAT, personal statement and interviews). This ‘getting to grips’ with the application was a core area of practical experience building on shared knowledge and experience leading to increased confidence and competence. As discussed, these integrated practical activities have the effect of familiarising students with the application process and increasing their confidence in the applications, and the students commented that they would otherwise be at a disadvantage without all the practice, familiarisation and support that they received:

“I had a lot of help with my personal statements through Seren...they (Seren Facilitators) certainly gave a lot of help, that was brilliant, and they gave me their emails and I was able to contact them. So I was able to get in touch with them...I was able to send them a further draft after they’ve helped me. So it was brilliant...it was just really helpful to have someone to contact with any questions, someone I could see every week, if any questions cropped up.” (S1)

“I didn’t even know about the UCAT before, so if I were to be applying, I would be at a massive disadvantage, compared to where I am now that I have known about it and have so much help and guidance with it.” (S4)

The regular, structured Seren sessions helped increase the students’ level of confidence as they familiarised themselves with the programme. They were then able to get the most out of the programme in terms of gaining confidence with their medical school applications:

“I was a lot more comfortable with the interviews, having done Seren. I got 4 interviews, and they were all MMIs. I had a bit of interview prep at school, but it wasn’t MMI...Being able to do actual MMI prep with Seren was invaluable...it made me a lot more comfortable on the day. Knowing what sort of things would be asked.” (S1)

This was confirmed by the survey results, which show that the students were not very well informed of the medical school application process or about medicine as a career,

and that their confidence levels were not very high (Figure 14). The survey also showed that the students were placing a lot of hope on the Seren Programme, their school teachers and their family to support them in their application to medical school (Figure 14 and Table 9). Notably, the survey also revealed some of the motivations and concerns of the students in their decision to apply to medical school. This has been discussed in previous studies (Greenhalgh et al 2006; Martin et al 2018)

Figure 14. Survey to students – Likert Scale

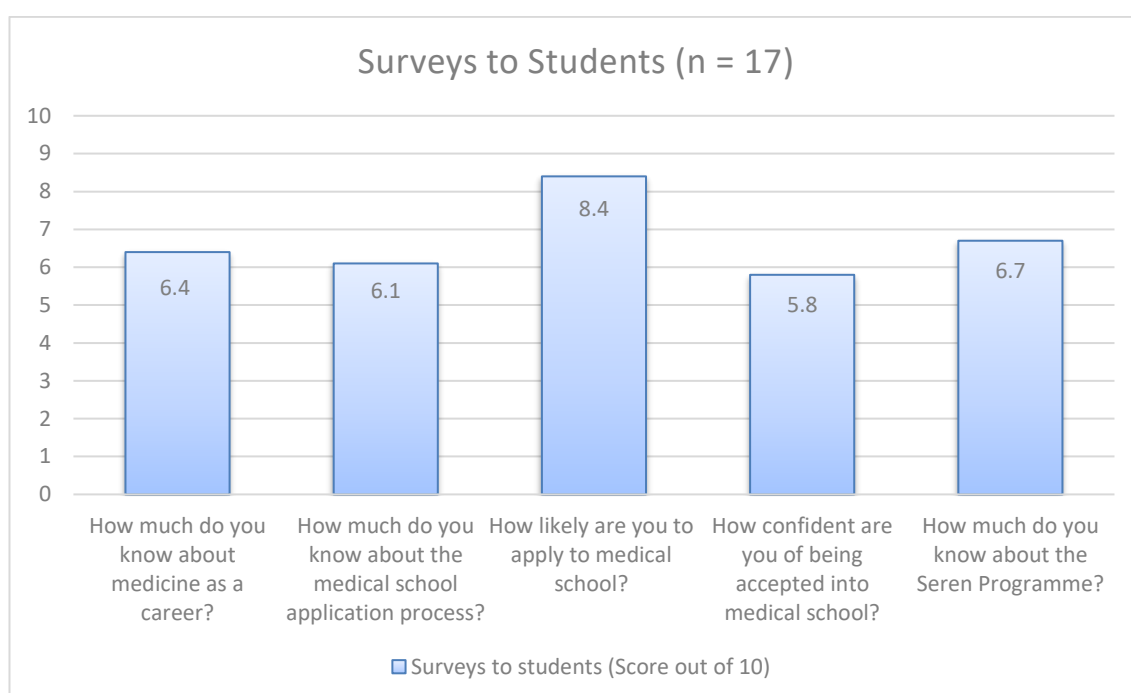


Table 9. Surveys to students – Comments

Survey questions (n responses = 17)	Comments
Can you think of anything positive about a medical career that would make you want to	<p>“Helping people”</p> <p>“Money”</p> <p>“gives back to society, whilst being rewarding”</p>

apply to medicine?	<p>“Helping others”</p> <p>“Allows you to help people”</p> <p>“interesting and rewarding career path with varied work days”</p> <p>“Stable career, known pay, moral career”</p> <p>“You get to help save and improve people's lives”</p> <p>Key words: Helping people, rewarding career</p>
Can you think of anything negative about a medical career that may put you off applying to medicine?	<p>“Hard hours”</p> <p>“Its a career that may be very hard to achieve”</p> <p>“It would be busy”</p> <p>“Long hours”</p> <p>“Very exhausting career”</p> <p>“Paperwork”</p> <p>“A lot of hard work”</p> <p>“The work load of toll on yourself could be too much for some people”</p> <p>“Unpleasant images which I hope to get over”</p> <p>Key words: Long hours, hard work, difficult career</p>
If you do apply to medical school, where do you think support may come from?	<p>“School and Seren Network”</p> <p>“Seren Programme, meeting people who have a career in medicine”</p> <p>“Seren”</p> <p>“Family”</p> <p>“School”</p> <p>“Current school”</p>

	<p>“Work experience, grades, past jobs, teachers, Seren”</p> <p>“Seren, school and parents”</p> <p>Key words: Seren, family, school</p>
How do you think the Seren Programme may help you?	<p>“With application tests”</p> <p>“Provide information”</p> <p>“By giving opportunities”</p> <p>“UCAT application”</p> <p>“Further information on application process”</p> <p>“Help prepare for the interviews and UCAT”</p> <p>“With application”</p> <p>“Gain confidence”</p> <p>“Boosting my confidence”</p> <p>“Helping me to be more prepared for university applications “</p> <p>“By providing advice, guidance and resources”</p> <p>Key words: Information, application process, confidence</p>

Observer data supports the students’ improving confidence levels as the Seren sessions progressed and they had more opportunities to familiarise themselves with the programme, as shown in Figure 15:

Figure 15. Direct non-participant observer data excerpt 3, November 2018

From the observations, in the initial Seren sessions it was noted that the students were initially tense and unsure about the application process. Students were nervous when presenting to entire room of more than 50 people. They felt overwhelmed and stressed about the long task ahead (of preparing for and applying into medical school). There was even a hint of information overload as some students had a blank look after taking in all the information about expectations on them for the 14-week Seren Program. Throughout the sessions, it was clear that the students were gaining confidence as they took initiative to lead in the prescribed activities; whether volunteering to be the first to present their speeches in their group, or to volunteer as group leader for group activities. They also became more vocal with their opinions and contributed more to the case discussions led by the Seren facilitators.

From the data, it is suggested that the Seren Programme in North Wales had the advantage of bringing together like-minded and academically able students who were then able to learn from and emulate each other. This mutual support is especially important in the backdrop of medical school being “foreign” to the local culture. Most of the students were either the only one or one of a handful of students from their entire school who are considering applying to medical school. For some of the students, they may be the only student applying in the past 5 years, as shown in the following excerpts:

“I think one of the huge advantages is that it brings, so you might only have one applicant in each school, but you *bring them together and they learn from each other*, you know you have this network and so I think that another big advantage is that they come together and they learn from each other over a period of weeks...” (UA1)

“I would say normally nobody (from my school) applies (to medicine). As far as I am aware, in the past 30 years, there has been 1 student who applied to and got into medicine...I say I get most of it (motivation, support and guidance) from the Seren Programme...*me and this other girl from my school we try and support each other and encourage each other.*” (S2)

This inter-mingling and support amongst the students was observed in Figure 16:

Figure 16. Direct non-participant observer data excerpt 4, January 2019

From the observations, it is noted that the students warmed up to each other as the weeks progressed. Initially it was observed that the students displayed anxiety in presenting their speeches to their individual groups as well as to the entire room of 50 students. Over time however, it was noted that the fun atmosphere led to increasing comfort and the students forming friendships with Seren students from other schools. In subsequent sessions, students tend to congregate with friends made from the previous meetings, they became more confident in presenting to each other, and even started to engage and volunteer themselves to present to the room. This soon led to a feeling of familiarity and "routine-ness" by the 5th session.

There was also an element of competition amongst students during the Seren sessions. As the students were no longer just the top of their respective classes or schools now, they had to perform as they knew that they were now among other extremely capable students also vying for a place in medical school. That atmosphere of competitiveness could be a factor in motivating students to engage more to prove themselves in front of their peers:

“...before the 2 min talk, I wouldn’t have actually kind of have a look at that type of thing, but if *I knew that I was going to have to do that in front of a group, I think that would make me want to prepare.*” (S3)

This atmosphere of competitiveness was also evident in the observer data in Figure 17:

Figure 17. Direct non-participant observer data excerpt 5, January 2019

From the observations, it was clear that there was a level of competitiveness going on, fostered both by the students themselves as well as the Seren facilitators. As part of the Seren Program, there was an opportunity for 20 of the students to take part in a coveted week-long work placement in the hospital, which would give the students an opportunity to interact with doctors and patients in a clinical environment. As the places were limited, places were awarded based on students' attendance, completion of assignments and participation in Seren activities each week. These criteria created an atmosphere of seriousness and competitiveness among the students, as they became aware that being in the Seren Program did not guarantee them a place in the work placement week. There was also that awareness that they were competing for medical school places.

As part of the practical sessions introducing students to medicine, students were introduced to ethical principles which led to a discussion on ethical dilemmas. From the interviews and observations, it was noted that the students found the topics interesting as it was something new compared to their curriculum in school and so they engaged with the discussions and really enjoyed it:

“Yea, I just find it (ethics discussions) really interesting, it's a really good way to go with science, but sort of with a more specific part of it, with medicine and the ethics part I just found it really interesting about how you can really help people...we did euthanasia at one point, and treating people with disease inflicted from smoking, and drinking, things that were partly self-inflicted. And we were sort of thinking about how to go about treatment compared to with people with diseases who have not been self-inflicted.” (S4)

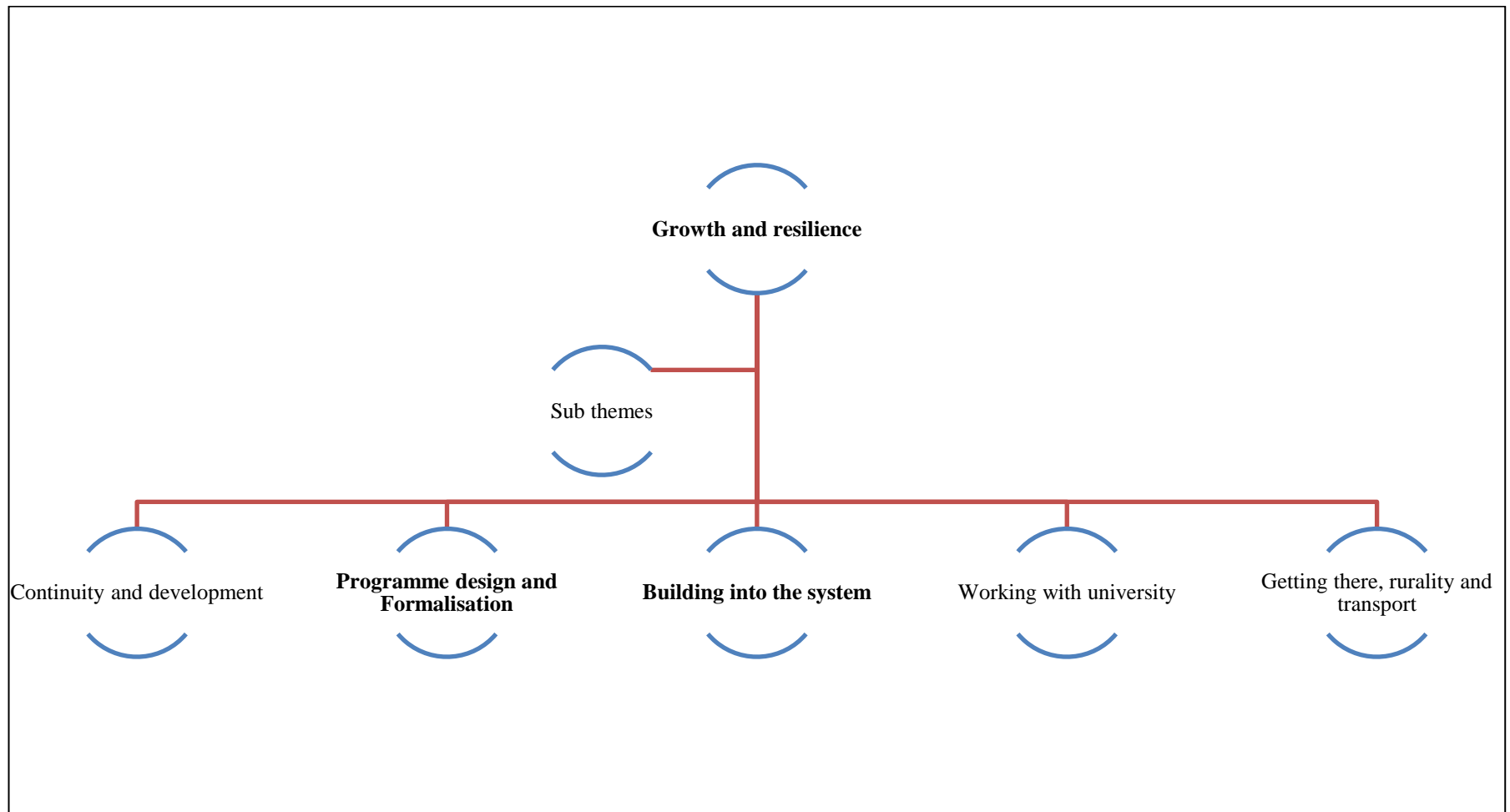
3. Programme: past, present and future development

‘Programme: past, present and future development’ describes the structural factors that have enabled the Seren Program's growth thus far, and highlights the potential obstacles ahead:

Theme: Growth and resilience

The importance of the origins of the programme development and its personal architecture built on personal motivations and networks. Emerging awareness of the need to develop the emergent programme further and engage in consolidation to ensure it succeed in the future (Figure 18).

Figure 18. Growth and resilience theme and sub-themes



As with any new widening access programme spearheaded by an individual, the Seren Programme had several issues that needed to be improved on for it to grow and develop. In the following excerpts, the participants recommended having a younger group of Seren facilitators whom the students may more easily relate to, being less “intimidating” and less “hierarchical”. This may even encourage the students to be more honest with their feedback of the programme, accelerating improvements for future participants:

“I think perhaps just *younger people, like medical students and F1s and F2s. Who can relate better to the students?* Because with consultants, when they applied to medical school it was a different world, wasn’t it?” (SF3)

“Especially for personal statements and for someone who has sat MMIs before. Older doctors haven’t done so, since it has changed quite a bit. Just someone who is a bit younger and more similar to their age for them to contact. It would be *less intimidating* than to contact the consultant.” (S1)

“I think it is very useful for medical students to survey the students at the end because they would be more honest – *less hierarchical barrier* going on. If you ask them at the end they may not remember so best to get medical students to ask them after each session.” (SF3)

The following excerpts highlighted a contrast between the older and younger Seren facilitators in their attitudes toward the use of social media or informal channels of contact with the students. The younger Seren facilitators found it more useful and acceptable to communicate with students outside of the official weekly meetings whilst the older Seren facilitators emphasized keeping a “professional” distance when dealing with students. In terms of future development for the Seren Programme, these divergent perspectives could be a source of disagreement going forward.

“Let the students connect to us on *social media*, so that if during that 6 months, they happen to have 1 question to ask, they can? That would be so useful. Because I ended up being put in contact with the head teacher’s daughter, who happened to be a 3rd year medical student at that time, and I remember just

messaging her the odd question, just little things about university, or, you know when you apply do they need things like this or things like that.” (SF3)

“Again, in terms of data collection, I don’t have personal access – I don’t want personal access to the students, *I don’t think it is really appropriate to have any personal contact with them* outside of the evenings that they come for the Seren Programme. I think there has to be a *professional distance*.” (SF1)

Among the Seren facilitators, there was a desire for “formalising” the Seren Programme and giving it “structure” via financial and administrative support (from the hospital), moving away from one model and developing structures and processes- (e.g lesson plans) so that it would be able to transcend the individuals who started it and be easier to “hand down” to future generations. In the following excerpts, the Seren facilitators were aware that the programme needed administrative support and formal recognition by a well-funded institution for it to outlive its organisers.

“I mean I have tried to involve people...everyone is busy... The latest thing I have done is that I have written an operational policy which I need to have approved by the hospital medical education board. Once that is done, *it formalises the Seren Programme*. Once that is formalised *I can start lobbying for resource*. Because what this needs to continue is *administrative backing*.” (SF1)

“I feel that the content is becoming much more clear, the timetable is in my mind becoming solid, and I can write that down... if you gave me money, and *I could hire an admin person*, I could sit down with them and tell them exactly what is needed...really to be picked up and handed over to someone as a package in terms of the timetabling, the content, the trajectory. My next goal is to do it with maybe the clinical school, who would be appropriate custodians of this, if they could get appropriately sourced.” (SF1)

“I think once it is *more formalised*, once there is a *structure* of what we need to do each day, it will become the kind of thing that can be *passed on to different generations* once it has been kind of developed?” (SF2)

As with “formalisation” of the Seren Programme, there had also been discussions about integrating it with the local teaching hospital and the local medical school, with both institutions sharing their available resources to benefit the programme. The

interviewees cited examples of present resources that could be re-purposed for the benefit of students at little expense to the supporting institutions:

“I would say another *untapped resource*, you know SF1 asked me about body language, I mean, we have got a whole ream of PowerPoint presentations, resources that we use and we would be *more than happy to share this*. So that is the other thing to consider. For example, stuff like body language, that kind of thing, the health board would have stuff like staff training for interviews, HR perspective, they might be able to help with that phase, because interview technique is interview technique, it doesn't have to be medical, so the stuff around body language and handshake, and looking people in the eye, and looking smart, that can be part of HR of the health board, they can help with that, or, the other thing I was thinking, was, you know there's a lot of comms teaching isn't there, I was wondering if that can be used to give people an edge.” (UA1)

“We (Cardiff university) have actually not have had any input into (Seren)...I think it has increased as a priority over the past couple of years, and is now seen very much as core business...and if SF1 were to turn around and say, we need support from Cardiff university for this this and this, so *we would absolutely, 100% support.*” (UA1)

From the interviews with the university admissions representatives, it was clear that there is a keen interest in partnering up with Seren for the purpose of widening access to medical school. The interests of the 2 parties seem to be well aligned. However, there was a sense that the universities are not entirely sure how to play a bigger role in the local Seren Programme, or if this has been communicated to them sufficiently:

“...we have been able to do is to say to other health boards, hey do you know what is happening at YGC, and that's kind of made people go, what? They have what? Are doing what? I would have thought that it could have an *influence*, what SF1 is doing, is essentially showing what is possible...” (UA1)

“I don't really *know anything official about it* really, I have never seen any paperwork. My knowledge of it comes from going to things like the medical schools council meeting, and hearing it being discussed.” (UA2)

“...*I am very willing to go out into North Wales*, because we know that there is a problem of hot spots. So, our team is very much located where the cold spots are. Our team is very much located in the Merseyside region centrally. So there is potential there to discuss more *joined up approaches.*” (UA2)

“We have got a faculty, we are an established university, as part of our widening access plan. The main thing is that, we have a faculty *widening participation lead*, and we are all in line with university policy. So, *there is formal backing*, because the university is so entrenched in widening participation.” (UA2)

“My worry is that the resources we put in might not be transparent to people in the medical school...I think we are going into a phase where *evaluations are going to be extremely important...*” (UA2)

“...you might only have one applicant in each school, but you bring them together and they learn from each other, you know you have this network and so I think that another big advantage is that they come together and they learn from each other over a period of weeks... and from a university perspective, gives us an opportunity to disseminate information in a regional basis rather than having to contact schools...” (UA1)

“So, that is my concern, and I think it has been highlighted...it *is very dependent on goodwill, and it is not sustainable and resilient in the long-term*. Clearly, SF1 is passionate...but you know, what if he stepped out, what if something happens to him...running things on goodwill alone does not make for a *sustainable or resilient* programme.” (UA1)

From the data collected, it was clear that the university representatives were keen to collaborate to improve WA to medicine in their respective medical schools. However, this willingness to cooperate was hindered by their lack of awareness as to what the Seren Program does, as well as the universities’ possible role within the Seren Program, as shown in Figure 19 and Table 10.

Figure 19. Survey to university representatives – Likert Scale

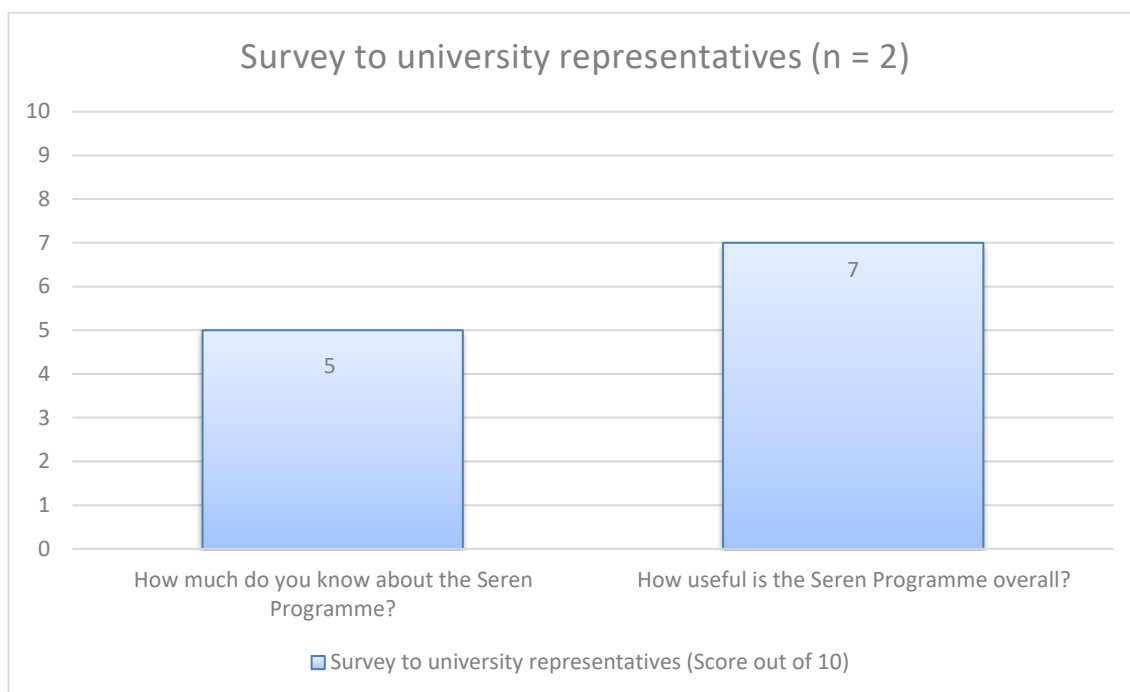


Table 10. Survey to university representatives – Comments

Survey questions (n responses = 2)	Comments
The Seren Programme has increased students' chances of getting into medical school. Do you agree with this statement?	<p>“Strongly agree”</p> <p>“Neutral / I don't know”</p>
Have you noticed an increased application rates for medicine by applicants from Welsh state schools?	<p>“Yes”</p> <p>“I don't know”</p>
Have you noticed an increase in UCAT scores by applicants from Welsh state schools?	<p>“I don't know”</p> <p>“I don't know”</p>

Have you noticed an increase in number of interviews being awarded to applicants from Welsh state schools?	<p>“I don't know”</p> <p>“I don't know”</p>
What does the Seren Project mean for you? List 3-5 words.	<p>“Aspiration, Knowledge, Inspiration”</p> <p>“Opportunity aspirations equality”</p>
Do you know of any other similar initiatives linked to your medical school? Please list them.	<p>“The programme at Glan Clwyd is unique in its intensive nature. Ysbyty Gwynedd have a monthly session with Seren students, and other Seren networks work with Cardiff University to provide students with interview practice, but the collaboration with the health board is unique.”</p> <p>“Merseyside Young Medics; Destination Medicine; Scholars”</p>

As the programme is based in North Wales, rurality and transport was a major determinant as to whether the students could attend the Seren sessions. Many of the students lived in small villages with poor transport links and the buses provided can take more than an hour to get to the hospital for each session:

“The transport is brilliant. *If the transport had not been provided, I would have not been able to come...*It (sourcing for volunteering) has been really difficult and really stressful. Because, obviously I am keen for volunteering, but *I live in a small village, with not very good transport links*. So the opportunities for me are very limited, and the *opportunities to travel is also quite limited*. I found it very difficult to balance everything, to be honest. It obviously takes priority, but I also can't afford not to work, so it has been quite difficult to manage it all.” (S2)

“...it is good because if you got just like one kid from the school, they are not going to go on the train to Nottingham by themselves, for a 3 day trip. Whereas in here they can always have a chat with someone about it... so I think it is good because you are assisting the 2 kids per school who want to go to medical school” (SF3)

This sentiment was echoed by one of the school teachers, who highlights that the added effort needed to travel alone every week for 14 weeks to the hospital for the Seren Programme, and what a deterrent it could be:

“I mean they haven’t put off our girl this time, but *for people to travel for an hour and a half to a venue, on their own, it is quite a considerable step for a lot of our young people.* I mean if there is 5 or 6 of you going together, it is a completely different matter. But if you are in a taxi, you are on your own, you can see the issues that we are going to have.” (ST2)

6. Synthesis and Discussion

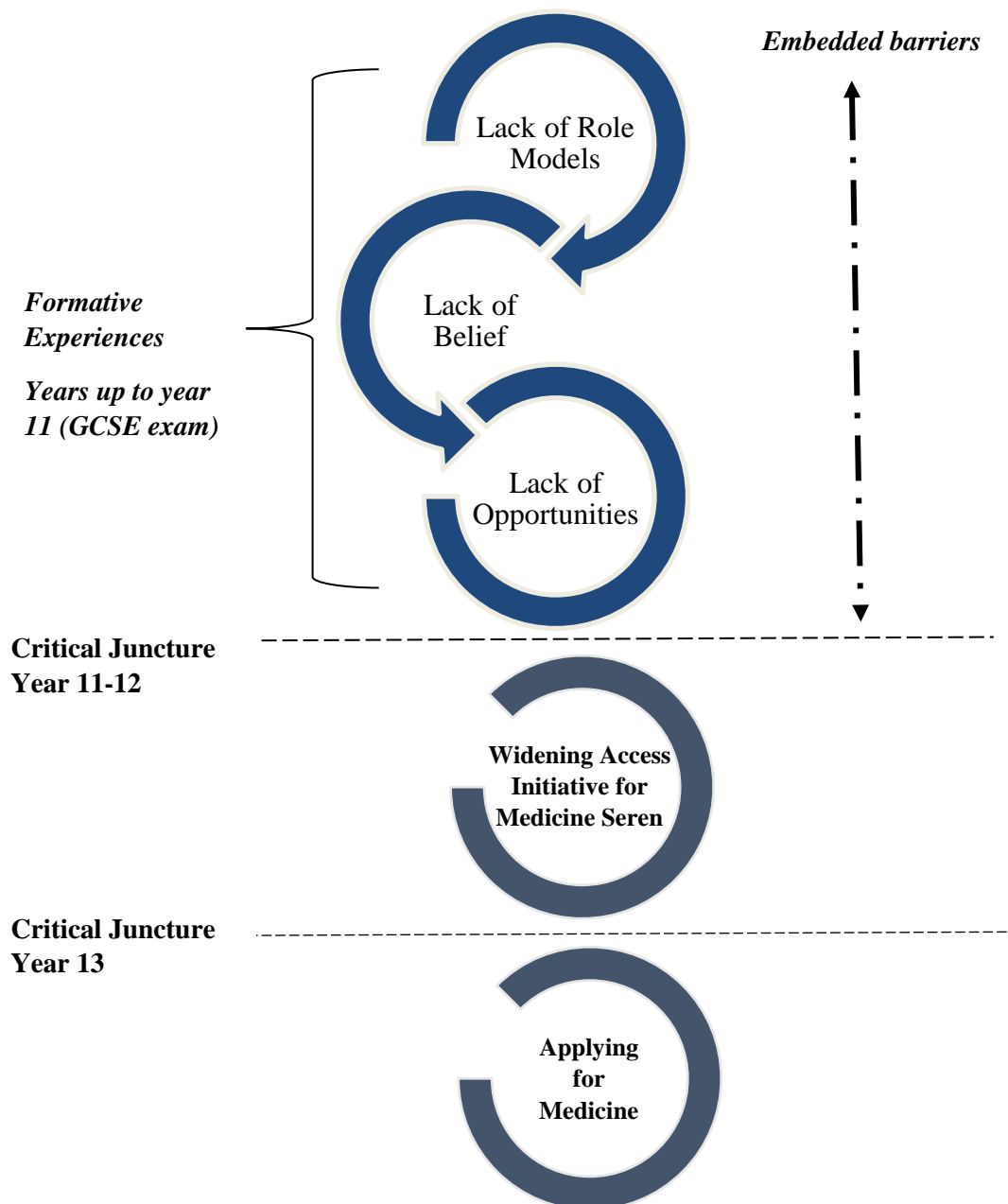
In the overall synthesis of results, the following diagrams highlight: the preconditions and compounded barriers up to the point of the student joining the Seren Programme (Figure 20); and the key substantive model which explains the complex model which is the Seren Programme (Figure 21).

The results presented provide a powerful narrative of the experiences of the stakeholders within the Seren Programme, many of whom have an optimistic view of Seren’s role in WA. However, it is crucial to understand that the Seren Programme is not a “cure all” for WA to medicine in North Wales. It addresses but one of the many layers of embedded barriers that students from disadvantaged backgrounds need to overcome in order to get into medical school (Greenhalgh 2006; Curtis et al 2012; Martin et al 2018).

The Seren Programme is shown to be helpful in the critical years of Year 11-13 where top-performing students from disadvantaged backgrounds are given guidance and coaching to help them compete with students from private schools applying to

medicine in Year 13. However, this intervention may come a little too late for most students. Studies have shown that these disadvantages start very early in life and are cemented into the students' self-image and beliefs by the time they are 16-17 years old (Greenhalgh 2006; Curtis et al 2012; Martin et al 2018). As the Seren Programme recruits students largely based on General Certificate of Secondary Education (GCSE) results (GCSE exams being taken in Year 11), students from disadvantaged backgrounds would already have had compounded disadvantages up to this point that may preclude them from the WA efforts of the Seren Programme. By the time the students are recruited in Years 11-12, they may have formed a self-selected group of "elites" among the public-school students. These compounded disadvantages and critical junctions to apply to medical school are illustrated in Figure 20.

Figure 20. Widening access: Compound disadvantages over time



While the WA model of Figure 20 sets the backdrop for compounded disadvantages over time, Figure 21 represents the final model of the Seren Program itself. With the Seren Programme, analysis of the data-set comprising interviews, surveys and observation revealed several key components which have been represented in the final model of the Seren Program (Figure 21), centring on the dynamics of: '*Rootedness*', '*Complex Relationships*', '*Content*' and '*Growth & Resilience*'. These dynamics feed into each other and are what appeared to sustain the Seren Programme.

'*Rootedness*' stems from the local culture and context. As seen in the themes of Personal Motivation and Shared Biographies, many of the Professional Actors in the Seren Programme felt a strong desire to further the cause of WA in their locality as they had been in a similar situation before when they struggled to apply to medical school. Many of the Seren facilitators were beneficiaries of the generosity of others and they were keen to 'pass it on' as they felt that they would not have made it into medical school without the help of others. Therefore, this core group of 'Rooted' individuals is what drives the Seren Programme forward as they have an intrinsic motivation to help their local community.

'*Complex Relationships*' refer to the relationships between different groups of stakeholders and it is one of the enablers for the Seren Programme here in North Wales. The core group of individuals would not be able to run the Seren Programme without help from other Professional Actors and Sponsors. As seen in the themes of coalescing and conflicting partnerships, there were various Political Actors with various competing interests and priorities that do not always align. Managing these relationships are crucial to ensure the "buying in" by all parties involved and hence the strengthening of the Seren Programme.

'*Content*' refers to the more technical aspects of the Seren Programme, and is only possible with the cooperation and contribution of the parties involved. The content of the Seren Programme continues to adapt to the needs of the students based on the feedback received as well as the resources provided by the various Actors and Sponsors. As seen from the themes of peer cohesion and practical activities, the students benefit greatly from

interacting with medical professionals as well as likeminded peers during the course of the Seren sessions.

‘Growth & Resilience’ refers to the expansion and sustainability of the Seren Programme going forward. This has been discussed extensively over the interviews with the stakeholders, about the need to “formalise” the Seren Programme and provide it with administrative support so that it can be scaled up and transferred between generations of facilitators. There were draft proposals of plans to work with the local university, a resource rich partner who might be able to better support and expand the Seren Programme here in North Wales.

These themes coincide with the supporting literature, which stress the importance of raising aspirations of students from disadvantaged backgrounds as early as possible (Martin et al 2018; Greenhalgh et al 2006; Curtis et al 2012). This is achieved through strong local information outreach, additional enrichment programmes and acknowledging local cultural values (Kamali et al 2005; Curtis et al 2012; Younger et al 2018). Local programs would benefit from committed leadership and support by a combination of local staff and medical students, further strengthening the ‘rootedness’ of the program, tailoring it to the local context (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005 Garlick and Brown 2008; Ratneswaran, et al 2015; Smith, et al 2013; Curtis et al 2014). In addition, the importance of managing competing interests amongst the various stakeholders cannot be overstated. The key relationships highlighted in the literature concern WA policy makers and university admissions faculty, whose interests are not always aligned (Cleland et al 2015; Alexander et al 2015) Competing interests among various stakeholders may in part explain why there has been limited impact of WA programs reported to date (Powis et al 2007).

Modelling widening access: Seren as case exemplar

The Seren Programme at Glan Clwyd hospital has shown that WA programmes to medicine require numerous key components for it to grow and be sustainable, as illustrated in the final model of the Seren Program (Figure 21), centring on the dynamics

of: '*Rootedness*', '*Complex Relationships*', '*Content*' and '*Growth & Resilience*', each of which work together to sustain the Seren Programme.

The theme of '*Rootedness*' emphasises the importance of understanding the local culture and context when engaging with the local stakeholders. Examples include the target students who may have specific needs such as travelling long distances from a rural town to get to the WA programmes. Another example is in understanding the Personal Motivation and Shared Biographies of the Seren facilitators and their intrinsic motivation to help their local community via the Seren Programme. Elements of this have been discussed in previous studies on 'best practice' for recruitment into tertiary health programmes in a rural context, emphasising the understanding of indigenous or local worldviews as a key principle for engagement (Curtis et al 2012).

The theme of '*Complex Relationships*' highlights the key relationships between different groups of stakeholders. As discussed, understanding and resolving the different interests of the varying groups of stakeholders in WA programmes is paramount to the programme's success (Cleland et al 2015; 2018; Curtis et al 2012). The theme of '*Content*' refers to the technical aspects of the Seren Programme, which, as discussed in '*Rootedness*', is specific to the local context and individual needs of the students. More generally, as seen from the themes of peer cohesion and practical activities, the students benefit greatly from interacting with medical professionals as well as likeminded peers during the course of the Seren sessions. This 'mentoring' of likeminded students in groups has been described by Curtis et al (2014) and Garlick and Brown (2008) in their local WA programmes respectively. Lastly, the theme of '*Growth & Resilience*' encompasses the sustainability and growth of the Seren Programme. Key principles identified included the need to "formalise" the Seren Programme within an affiliated institution so as to provide it with administrative support and additional resources going forward. Successful programmes have a 'Tangible institutional commitment to equity' as described by Curtis et al (2012). This 'institutional commitment' and support is also seen in the WA programmes described by Curtis et al (2014) and Garlick and Brown (2008).

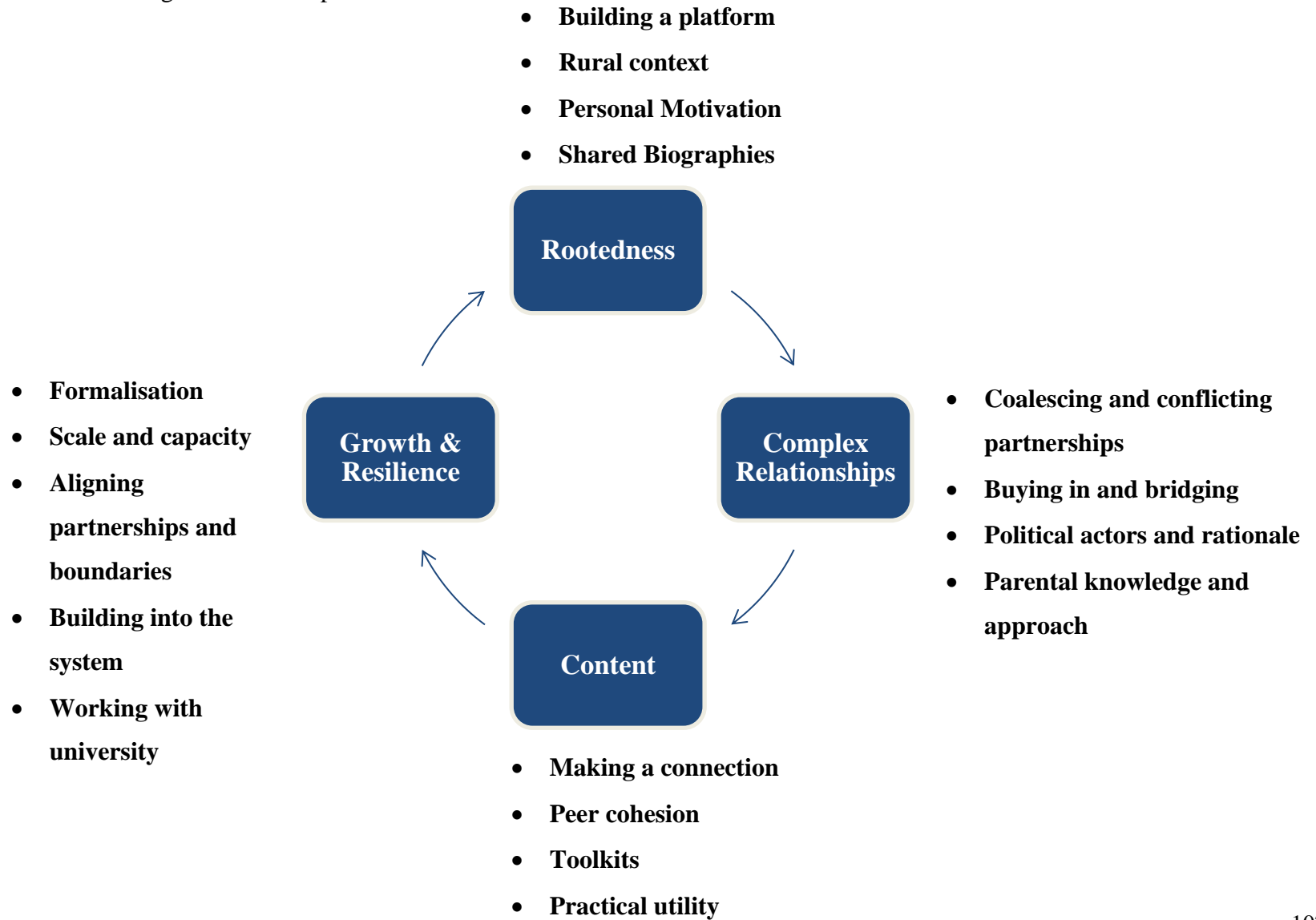
Overall, the final model of the Seren Program (Figure 21) shows that the technicalities of the actual content and materials used for the Seren Programme are less important than the managing of complex relationships among the various stakeholders, as the programme is

simply unable to sustain itself without the support and agreement of all the stakeholders involved.

7. Conclusion

Overall, the final model of the Seren Program (Figure 21) shows that the technicalities of the actual content and materials used for the Seren Programme are less important than the managing of complex relationships among the various stakeholders, as the programme is simply unable to sustain itself without the support and agreement of all the stakeholders involved.

Figure 21. The Seren Programme: a complex model



Chapter Four

Discussion and Recommendations

1. Introduction

Inequalities in medical school admissions remain an ongoing issue in the UK. Those from lower SES continue to be less likely to apply to and less likely to gain admission to medical school as compared to applicants from higher SES (Millburn 2012; Martin et al 2018). While efforts have been made by different groups to support their own WA programmes, these have had varying levels of success due to levels of commitment and resources available, as well as demographic and local challenges. For example, several medical schools in England had the financial and administrative backing to run an extensive WA programme from recruitment to medical school all the way through to graduation, resulting in improved local representation in their respective medical schools (Curtis et al 2014; Garlick and Brown 2008; Greenhalgh et al 2006; Holmes 2002; Kamali et al 2005; Ratnes-waran et al 2015; Smith et al 2013). The study in North Wales highlighted it was no different in that it has its own unique challenges. Central to this is the local context which will be discussed.

The Seren Programme at Glan Clwyd Hospital has been a pioneering attempt at WA to medicine in North Wales. To our knowledge, this is the first-time a cross-organisation WA to medicine programme targeting a rural community has been carried out in the UK. With the Seren Programme, underrepresented students have a better chance at getting into medical school. The students, their parents and school teachers have found the programme to be extremely helpful in their application to medical school. The other stakeholders of the Seren Programme including facilitators, HMT and the university admissions staff have also found the programme useful for their interests.

2. Contribution and Impact

The Seren Programme at Glan Clwyd Hospital was founded with the aim of improving WA to medical school for high-achieving state school students in North Wales. While the programme has had positive feedback, this is mainly anecdotal. The Seren Programme

has been run mainly on anecdotal evidence alone, without a rigorous evidence base to inform the process. There was no formal understanding of the ‘best practices’ used in WA to medicine, the features and mechanisms helping or hindering its sustainability and growth, and of the stakeholders involved.

This study has provided the evidence base underpinning the running of WA programmes to medicine, for example, with ‘best practices’ for recruitment and retention into medical school (Curtis et al 2012). The study also provided clear examples of WA programmes in the UK, how they have been organised and implemented, and the lessons learnt (Curtis et al 2014; Garlick and Brown 2008; Greenhalgh et al 2006; Holmes 2002; Kamali et al 2005; Ratnes-waran et al 2015; Smith et al 2013). Furthermore, the study also provided detailed accounts and observations of the features and mechanisms contributing to the sustainability of the programme as well as areas for improvement, as illustrated in Figure 20. Certain features, such as peer cohesion amongst the students and recruiting of facilitators who had a shared biography with the students were more generalise-able, whereas others such as the rural context of North Wales were less so. Nevertheless, together, the literature alongside the data collected from the Seren Programme, would be useful in its future alterations.

Lastly, the study also identified and explored the Seren stakeholders’ interests in-depth. As highlighted in previous studies, the interests of WA stakeholders do not always align (Cleland et al 2015; 2018). This misalignment of interests may limit the effectiveness of any WA programme to medicine. Therefore, this study highlights the importance of correctly identifying the interests of the different stakeholder groups and finding a way to align them via cooperative partnerships toward a common objective.

3. Findings in context: (re)scoping of the literature

The scoping review demonstrated the scant evidence of stakeholder perspectives and on “best practices” in WA to medicine. It sought to clearly describe the features of such programmes that support the success and sustainability of the programmes studied. In addition, the scoping review identified the stakeholders involved in the WA programmes

studied as well as their motivations. These findings resulted in the mapping of relationships and are illustrated in Figure 3.

The case study work sought to evaluate the Seren Programme using evidence via the data collected. The data largely coincided with the results of the scoping review, with some notable differences. Features of this programme that aligned with the documented key features of successful WA programmes are as follows:

(1) Committed personnel and resources. The Seren Programme was built around a team of committed individuals who expected a high level of commitment from the students throughout the 14 weeks of the programme. In addition, the Seren facilitators had strong personal motivations and shared biographies that gave them the intrinsic motivation needed to carry out the Seren Programme without any external reward. This ties in with the other programmes described in the scoping review (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; Garlick and Brown 2008; Ratneswaran et al 2015; Smith, et al 2013; Holmes 2002).

(2) Identification and selection of suitable WA applicants. The Seren Programme was very specific in its ideal candidate, namely high-performing students (at least 6 A*grades at GCSE) who attend an educational facility in the Conwy and Denbighshire area (Glen et al 2019). This too was in line with the successful WA programmes studied (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Curtis et al 2012; 2014; Garlick and Brown 2008; Ratneswaran, et al 2015; Smith et al 2013).

(3) Focused preparatory sessions based on specific needs of students. The Seren Programme has been very clear since its inception about its aim to focus on the key hurdles to medical school; the UCAT, personal statement and medical school interviews, and the entire Seren Programme was catered towards that. Starting with preparation for the UCAT via mock exams, transitioning to personal statement reviews and then finally intensive interview preparation sessions. This was similar to the WA programmes studied, which were focused on ensuring that participants had enough information and coaching to compete with applicants from “traditional”

(affluent and higher social class) backgrounds, increasing their chances of being accepted into medical school (Cleland et al 2015; 2018).

(4) Led and delivered by a combination of staff and medical students. The Seren Programme was led and delivered by a combination of consultants, junior medical staff and medical students. As discussed, most of these volunteers had strong personal motivations and shared biographies for wanting to participate. This was generally in line with the programmes studied, which were led by a combination of university staff and medical student volunteers (Greenhalgh et al 2006; Kamali et al 2005; Ratneswaran, et al 2015; Smith, et al 2013).

(5) Utilisation of technology and social media. The Seren Programme was quick to adopt technologies for its operations. For example, QR codes scanned by the students' camera phones were used for attendance taking. The mock UCAT sessions were done using the online platform Kahoot! whereby students were able to compete with one another, contributing to the fun during each session. The Seren Programme also used Google forms to collect feedback from students about each session. It diverges from the other WA programmes studied in its lack of use of social media for reaching out to and communicating with the students (Ratneswaran et al 2015; Smith et al 2013). This was because of the local Seren leadership taking caution with the use of unbridled social media and the fear of inappropriate relations forming outside the Seren sessions.

(6) Data collection and feedback. Being a new WA programme in its infancy, the Seren Programme was keen to collect feedback from both students and facilitators, both informally and formally through this MRes research project. This is in line with other programmes which sought to measure the success of their interventions (Cleland et al 2015; 2018; Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005 Garlick and Brown 2008; Ratneswaran et al 2015; Smith et al 2013; Curtis et al 2014; Holmes 2002).

Like the scoping review, this study also focused on the stakeholders of the WA programmes and attempted to decipher their interests and perspectives. As with the

scoping review, the students in this study had lower aspirations of themselves as well as lower expectations from those around them. Their school teachers had lower expectations of them and lacked the knowledge and skills to coach them into applying for medical school. In addition to that there was the false beliefs of doctors and the medical profession in general. The parents of these students did not come from academic backgrounds, so whilst supportive, they too lacked the knowledge and skills to coach their children (Martin et al 2018; Greenhalgh et al 2006; Kamali et al 2005; Garlick and Brown 2008; Ratneswaran et al 2015; Smith et al 2013; Curtis et al 2014).

In our study, however, the gatekeepers i.e. university admissions were very positive toward widening access to medical school. They were able appreciate the benefits of a diversified talent pool in the medical workforce and saw WA students as an integral and important part of giving back to their respective communities rather than an obligatory “tick-box” exercise. This was in contrast to the medical schools’ admissions deans in previous studies who have viewed certain WA policies with suspicion, citing “political motivation” and undesirable “social engineering” in some cases (Cleland et al 2015; 2018).

Rather than coming from the university admissions, the misalignment of interests in this study came from the HMT who hosted the Seren sessions on the hospital premises, possibly because the more immediate benefits of the programme toward the hospital were not readily seen. There was also a sense of “unfair” distribution of the burden of responsibility towards the programme, e.g. other stakeholders not “pulling their weight”.

4. Reflections on the study: Strengths and weaknesses

The main strength of this study was the ability to sample participants throughout the course of the prospective case study. This was helped by the ease of access to participants as all the Seren sessions were held at the same location in Glan Clwyd Hospital. This provided a controlled, local environment whereby the researcher could observe the running of the programme without much variation or external interference. This was important as the rural geography meant that it would be logistically challenging if the venue was not fixed. In addition, being a single case study, the study had the benefit of requiring only a small sample group who were easy to survey and interview. This small

sample requirement allowed the researcher to delve deeper into the participant perspectives. In addition, all the participants approached were compliant in providing data for the researcher. This was useful as it meant that resources and up-to-date data were easily available. Lastly, this study utilised multiple sources of data, including surveys, interviews and observations, which allowed for the “triangulation of data” to make for a robust study overall.

However, the main strengths of this study also account for some of its weaknesses. Mainly that the sample size is small and confined to a small locality, possibly limiting the generalisability of its results. In addition, despite receiving past data of the previous Seren sessions, most of the previous data sources were found to be incomplete or inconclusive, limiting their use. The lack of official quantitative data on medical student admissions at the time of study made it more difficult to be generalisable as a single study. Also, being a single case study performed by a single researcher, there is a possibility of intrinsic biases influencing the data. Nonetheless, benefits of performing a single case study include the reduced resources required as well as the ability for the researcher to take a more in-depth and higher quality approach in exploring a single case phenomenon as with the Seren Programme (Yin 2004; 2014).

Another weakness is that the single researcher involved in the case study is also an employee of the host hospital, as well as being a junior colleague of one of the Seren leadership. This complex relationship may add to the unconscious biases present. However, this allows for a deeper reflexive inquiry by the single researcher, providing valuable insights into the phenomenon studied by stimulating a critical exploration of knowledge, which allows for self-awareness and re-evaluation of biases that may be present (Yin 2004; 2014).

Having a single researcher also means that there is a limited amount of data being able to be collected and analysed, which again arguably might be seen as reducing its generalisability. Nonetheless, as with single case studies, the aim of this study was to explore a single phenomenon in-depth, drawing out the ‘how’ and ‘why’ questions about the Seren Programme, leading to a deeper analysis of this specific phenomenon, which would then be able to be transferred to future case studies.

While the study was only able to focus on one cohort of Seren participants, it allowed for the development of a deeper understanding of the complexity associated with the Seren Programme. Furthermore, despite this limitation of having a single cohort to study, the data collected showed an obvious unity between case study results and results of the scoping review, adding weight to this study. Going forward, as there has only been one cohort prior to this study: there needs to be longer term follow up studies in collaboration with HEIs to produce more conclusive evidence. Lastly, this study, as with previous studies on specific WA programmes, focuses a lot on the successful elements of the programmes without much discussion of unsuccessful WA programmes, possibly due to survivorship bias.

5. Recommendations

Based on the evidence from the study, several recommendations are in order. The recommendations going forward will be laid out under the headings of “Policy”, “Research” and “Practice.

1. Policy

From the data, it is clear that the lack of knowledge and experience with WA to medicine amongst the parents and teachers is a major stumbling block to WA to medicine amongst underrepresented students. Therefore, a priority should be to focus on partnering up with parents and teachers to train them, so that they in turn can influence the young people under them. This has a multiplier effect, as parents and teachers can influence a larger number of young people more intimately than a group of WA volunteers. In addition, the study points to a miscommunication between different agencies within WA programmes, leading to reduced effectiveness. Therefore, there is the need to encourage cooperation between different agencies to share data, pool resources for increased efficiency. Sharing of data is crucial, not just whilst students are in the programme but after they leave, as this data is what forms the evidence base for any WA programme going forward.

2. Research

For future research, it would be useful to trial training local school teachers and parents on WA to medicine and study the impact of this intervention, as there is a lack of literature

in this area. Teachers and parents would have more intimate knowledge of the local context and the young people which could prove helpful in the WA effort. In addition, the Seren Programme would benefit from a trial of using peers and medical student mentors to run the programmes instead of having consultants run it entirely. As mentioned in the interviews, this could reduce the power distance and also help the programme expand and be more sustainable. Lastly, the Seren Programme would benefit from trialling the use of social media as a means of communication amongst the tech-savvy youth. In this rural context, social media could be a power tool for reaching out to students in isolated communities, reducing the reliance on frequent transport.

3. Practice

In terms of practice, it would be helpful to build on the “best practices” used by successful WA programmes as discussed, and adapt it to the local context, as discussed in the theme of “rootedness”. In addition, collaborating with universities and utilising their medical student population would be helpful. Medical students with strong “personal motivations” and “shared biographies” would be ideal in leading the local WA hubs with guidance from senior medical or university staff. Medical students previously from underrepresented groups would also serve to raise aspirations for students, teachers and parents in their local community. Lastly, it is crucial to understand the underlying stakeholder interests before embarking on any complex WA intervention, as any misalignment in interests would hamper the WA effort.

6. Conclusion

In conclusion, this single case study provides an in-depth understanding of the Seren Programme at Glan Clwyd Hospital. Whilst being specific to the local WA to medicine initiative in North Wales, this study showed that the Seren Programme had a lot in common with other successful WA programmes to medicine tried elsewhere in the UK and abroad. Despite being in its infancy, the Seren Programme has shown in this study that it can be successful both in the short and long term if it continues to adopt ‘best practices’ in WA to medicine as well as adapting to the local culture, ensuring that the interests of the various local stakeholders are managed successfully.

A longer term, more quantitative approach should also be taken in a separate study in order to compare the effectiveness of the Seren programme compared to other WA programmes done in the UK.

References

1. Alcser, K. (2016). Interviewer Recruitment Selection, and Training. Retrieved from https://ccsg.isr.umich.edu/images/PDFs/CCSG_Interviewer_Recruitment.pdf. (Accessed on 29 Sep 2018).
2. Alexander, K., Fahey, Palma, T., Nicholson, S., & Cleland, J. (2017). *Why not you?* Discourses of widening access on UK medical school websites. England: The Association for the Study of Medical Education. John Wiley & Sons Ltd., 51, 6, 598-611.
3. Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *Int J Soc Res Methodol*, 8, 19–32.
4. Armstrong, R., Hall, B.J., Doyle, J., & Waters, E. (2011). Scoping the scope of a cochrane review. *J Public Health*, 33(147–150).
5. Arulampalam, W., Naylor, R., & Smith, J. (2005). *Doctor who? Who gets admission offers in UK medical schools?* Coventry, UK: University of Warwick. Retrieved from https://warwick.ac.uk/fac/cross_fac/healthatwarwick/newsandevents/past_events/seminar_series_20056/wiji.pdf. (Accessed 23 May 2018).
6. Association of American Medical Colleges. (2014). *Table 26: Total enrolment by U.S. medical school and race and ethnicity, 2010-2014*. Retrieved from <https://www.aamc.org/download/321526/data/factstable26-2.pdf>. (Accessed on 29 Sep 2018).
7. Behrendt, L., Larkin, S., Griew, R., & Kelly, P. (2012). Review of higher education access and outcomes for Aboriginal and Torres Strait Islander people: *Final report*. In Australian Government Department of Education and Training (ACT, Canberra).
8. Bertram, D. (2008). Likert Scales: *Are the Meaning of Life*. Retrieved from <http://poincare.matf.bg.ac.rs/~kristina/topic-dane-likert.pdf>. (Accessed 1 May 2019).
9. Bettany-Saltikov, J. (2012). *How to do a systematic literature review in nursing: a step-by-step guide*. Maidenhead: McGraw-Hill/Open University Press.
10. Braun, V. & Clarke, V. (2006). *Using thematic analysis in psychology*. *Qual Res Psychol*, 3(2),77–101.
11. Brien, S., Lorenzetti, D., Lewis, S., Kennedy, J., & Ghali, W.A. (2010). Overview of a formal scoping review on health system report cards. *Implement Sci*, 5:2.
12. Castillo-Page, L. (2012). *Diversity in medical education: Fact & Figures*. Washington DC: Association of American Medical Colleges. Retrieved from

- <https://members.aamc.org/eweb/upload/Diversity%20in%20Medical%20Education%20Facts%20and%20Figures%202012.pdf>. (Accessed 10 Jan 2019).
13. Cleland, J., Dowell, J., McLachlan, J., Nicholson, S., & Patterson, F. (2012). *Identifying best practice in the selection of medical students (literature review and interview survey)*. Retrieved from <http://www.gmc-uk.org/about/research/14400.asp>. (Accessed 10 Jan 2019).
 14. Cleland, J., & Fahey Palma, T. (2018). "Aspirations of people who come from state education are different": How language reflects social exclusion in medical education. *Advances in Health Sciences Education: Theory and Practice*, 23(3), 513-531.
 15. Cleland, J., Nicholson, S., Kelly, N., & Moffat, M. (2015). Taking context seriously: explaining widening access policy enactments in UK medical schools. *Med Educ*, 49(1):25-35.
 16. Conwy & Denbighshire Seren (2017). *Participant Evaluations. Health Sciences Programme 2017 in partnership with Ysbyty Glan Clwyd*. Retrieved from <http://www.wales.nhs.uk/sitesplus/documents/861/Annual%20Report%202018%20-%20Full%20report%2C%20accounts%20and%20AGS%20ENGLISH.pdf> (Accessed 22 Jan 2019)
 17. Cooter, R., Erdmann, J.B., Gonnella, J.S., & Callahan, C. (2007). Economic diversity in medical education: The relationship between students' family income and academic performance, career choice and student debt. *Evaluating Health Professions*, 27(3): 252-64.
 18. Creswell, J. W. (2012). *Qualitative inquiry & research design: Choosing among five approaches* (4th ed.). Thousand Oaks, CA: Sage.
 19. Croxford, L., & Raffe, D. (2015). "The Iron Law of Hierarchy? Institutional Differentiation in UK Higher Education". *Studies in Higher Education*, 40(9): 1625-1640.
 20. Curtis, E., Wikaire, E., Stokes, K., & Reidm, P. (2012). Addressing indigenous health workforce inequities: A literature review exploring 'best' practice for recruitment into tertiary health programmes, *International Journal Equity Health*, 11(13).
 21. Curtis, S., Blundell, C., Platz, C., & Turner, L. (2014). Successfully widening access to medicine. Part 1: Recruitment and Admissions. *J R Soc Med*, 107(9): 342–346.

22. Curtis, S., Blundell, C., Platz, C., & Turner, L. (2014). Successfully widening access to medicine. Part 2: Curriculum design and student progression. *J R Soc Med*, 107(10): 393–397.
23. Daudt, HM., Van Mossel, C., & Scott, SJ. (2013). Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. *BMC*, 13:48.
24. Davis, K., Drey, N., & Gould, D. (2009). What are scoping studies? A review of the nursing literature. *International Journal Nursing Studies*, 46(10): 1386–1400.
25. Dickins, K., Levinson, D., Smith, S.G., & Humphrey, H.J. (2013). The minority student voice at one medical school: Lessons for all? *Academic Medicine*, 88(1), 73–79.
26. Evans C., Gareth, R., Taylor, C., & Wright, C. (2019). 'Widening Access' to higher education: The reproduction of university hierarchies through policy enactment, *Journal of Education Policy*, 34:1, 101-116.
27. Garlick, P. B., & Brown, G. (2008). Widening participation in medicine. *BMJ*, 336(7653):1111-3.
28. Grant, M., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Info Library Journal*, 26:91–108.
29. Glen, J., McCall, J., & Ingle, A. (2019). WAM01. *YGC Widening Access to Medicine Scheme. Version 2.0*. Ysbyty Glan Clwyd.
30. Greenhalgh, T., Russell, J., Boynton, P., Lefford, F., Chopra, N., & Dunkley, L. (2006). "We were treated like adults"--development of a pre-medicine summer school for 16 year olds from deprived socioeconomic backgrounds: action research study. *BMJ*, 332(7544):762-7.
31. Greenhalgh, T., Seyan, K., & Boynton, P. (2004). "Not a university type": focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school. *BMJ*, 328(7455):1541.
32. Holmes, D. (2002). Eight years' experience of widening access to medical education. *Medical Education*, 36(10).
33. Kamali, AW., Nicholson, S., & Wood, DF. (Sep 2005). A model for widening access into medicine and dentistry: the SAMDA-BL project. *Medical Education*, 39(9):918-25.

34. Levac, D., Colquhoun, H., & O'Brien, K. (2019). Scoping studies: Advancing the methodology. *Implement Sci*, 20(5):69.
35. Martin, A.J., Beska, B.J., Wood, G., Wyatt, N., Codd, A., Vance, G. & Burford, B.(2018). Widening interest, widening participation: Factors influencing school students' aspirations to study medicine. *BMC*, 18(1):117.
36. McLachlan, J.C. (Sep 2005). Outreach is better than selection for increasing diversity. *Medical Education*, 39(9):872-5.
37. Millburn, A. (2012). *Fair access to professional careers. A progress report by the independent reviewer on social mobility and child poverty*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/61090/IR_FairAccess_acc2.pdf. (Accessed 30 Mar 2019)
38. Miles, M.B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage Publications.
39. Mohd, N. & Khairul, B. (2008). Case Study: A Strategic Research Methodology. *American Journal of Applied Sciences*, 5(11).
40. P., Spradley, James. (1980). Participant Observation. *Anthropological Quarterly* 53(4):260.
41. Pawson, R. (2002). Evidence-based policy: in search of a method. *Evaluation*, 8(2): 157–181.
42. Powis, D., Hamilton, J., & McManus, I. (2007). Widening access by changing the criteria for selecting medical students. *Teach Education*, 23:1235 –45.
43. Ratneswaran, C., Mushtaq, J., & Steier, J. (2015). A model for medical school application courses: widening access to student preparation. *Medical Education*, 49(11).
44. RefWorks. (2009). RefWorks-Your online research management, writing and collaboration tool. Retrieved from <https://prep.refworks.com/>. (Accessed 15 May 2019)
45. Rubin, H.J., & Rubin, I.S. (2012) *Qualitative Interviewing: The Art of Hearing Data. 3rd Edition*, Sage Publications, Thousand Oaks.
46. Rumrill, P., Fitzgerald, S., & Merchant, W. (2010). Using scoping literature reviews as a means of understanding and interpreting existing literature. *Work*, 35: 399–404.

47. Sacker, A., Schoon, I., & Bartley, M. (Sep 2002). Social inequality in educational achievement and psychosocial adjustment throughout childhood: Magnitude and mechanisms. *Social Sciences Medical*, 55(5): 863-80.
48. Smith, S., Alexander, A., Dubb, S., Murphy, K., & Laycock, J. (2013). Opening doors and minds: A path for widening access. *Clin Teach*, 10(2):124-8.
49. Spearman, C. (1904). The Proof and Measurement of Association between Two Things. *Am. J. Psychol.*, 15, 72–101.
50. Welsh Government (2018). *Seren network*, Retrieved from <https://beta.gov.wales/Seren-network> (Accessed on 11 Sep 2018).
51. Yin, R. K. (2003). Case study research: *Design and methods*. 2nd ed. Thousand Oaks, Calif: Sage Publications.
52. Yin, R. K. (2014). Case study research: *Design and methods*. 5th ed. Thousand Oaks, Calif: Sage Publications.
53. Younger, K., Gascoine, L., Menzies, V., & Torgerson, C. (2018). A systematic review of evidence on the effectiveness of interventions and strategies for widening participation in higher education, *Journal of Further and Higher Education*, 43(6):742-773.

Appendix 1. Letter of Access

Request for access to interview staff involved with Seren Programme

Dear Sir / Mdm

Thank you again for your contribution to the Seren Programme.

With regards to this year's cohort, we have a researcher (Dr Ernest Wong) conducting a study on the Seren Programme with Bangor University as part of his MRes degree, whereby we are hoping to find out if the Seren Programme is indeed beneficial to our students and worth continuing. The study will involve surveys and interviews with key staff (please refer to the participant information sheet attached).

We would be very grateful if you grant Dr Wong access to the relevant Seren Programme participants in your school, namely; students, teachers and facilitators.

Yours Faithfully

Appendix 2. Direct non- participant observation schedule

Direct non- participant observation schedule

Code

Date and times

Dimensions of descriptive observation (Spradley, 1980)

1. SPACE - layout of the physical setting; e.g. rooms, outdoor spaces
2. ACTORS - the names and relevant details of the people involved
3. ACTIVITIES - the various activities of the actors
4. OBJECTS - physical elements: e.g. furniture
5. ACTS - specific individual actions
6. EVENTS - particular occasions, e.g. meetings
7. TIME - the sequence of events
8. GOALS - what actors are attempting to accomplish
9. FEELINGS - emotions in particular contexts

Dimension of observation	Notes
Space	
Actors	
Activities	
Objects	
Acts	
Events	
Time	
Goals	
Feelings	

Appendix 3.1 Participant Information Sheet – students

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Information about the study

You are invited to participate in this study which is conducted as part of the MRes degree of the researcher Dr Ernest Wong at Bangor University, UK. The aim of the study is to understand how the Seren Programme affects the various groups it is intended to help (students, parents, schools, university faculty and the local hospital) as well as to identify the factors that support and grow this programme for future participants.

The study asks local school students and their parents as well as school staff, university faculty, and hospital management about their views on how the Seren Programme affects them in the Medical School admissions process. The study looks at the current 2018-19 cohort to have an overview of how the programme might have an impact, as well as how the programme can be improved and expanded.

Why have I been asked to take part?

You have been asked to take part because of your involvement in the current 2018-19 Seren Programme.

What does the study involve?

The study will involve the researcher Dr Ernest Wong asking to complete a survey and an interview with you to ask about your views about the Seren Programme with emphasis on this current 2018-19 cohort. In particular, Dr Ernest Wong will ask about the how the

Seren Programme has impacted you the area of Medical School applications and how the programme can be improved in the future.

Are there any benefits or risks?

Your participation may benefit the development of the Seren Programme and its impact in schools and the community in Wales.

What will happen to my data?

All data collected will be confidential and anonymised, and you will not be identifiable in any report, thesis or publication which arises from this study. The data from this study will be stored securely as part of the regulations of Bangor University. If you choose to withdraw from the study then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact on any other aspect of your involvement in the Seren Programme.

Further Information about the study?

If you want further information about this study then please contact:

Dr Ernest Wong

Email: Ernest.WongYong-Shun@wales.nhs.uk

Contact#: 07583357961(9-5pm)

Who do I contact with any concerns about this study?

If you have any concerns or complaints about this study or the conduct of individuals conducting this study, then please contact Dr Lynne Williams, Chair HCMS AEC, School of Healthcare Sciences, Bangor University, Bangor Gwynedd LL57 2EF or e-mail lynne.williams@bangor.ac.uk (Telephone: +441248-383170)

Appendix 3.2 Participant Information Sheet – parents

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Information about the study

You are invited to participate in this study which is conducted as part of the MRes degree of the researcher Dr Ernest Wong at Bangor University, UK. The aim of the study is to understand how the Seren Programme affects the various groups it is intended to help (students, parents, schools, university faculty and the local hospital) as well as to identify the factors that support and grow this programme for future participants.

The study asks local school students and their parents as well as school staff, university faculty, and hospital management about their views on how the Seren Programme affects them in the Medical School admissions process. The study looks at the current 2018-19 cohort to have an overview of how the programme might have an impact, as well as how the programme can be improved and expanded.

Why have I been asked to take part?

You have been asked to take part because of your involvement in the current 2018-19 Seren Programme.

What does the study involve?

The study will involve the researcher Dr Ernest Wong asking to complete a survey and an interview with you to ask about your views about the Seren Programme with emphasis on this current 2018-19 cohort. In particular, Dr Ernest Wong will ask about the how the

Seren Programme has impacted you the area of Medical School applications and how the programme can be improved in the future.

Are there any benefits or risks?

Your participation may benefit the development of the Seren Programme and its impact in schools and the community in Wales.

What will happen to my data?

All data collected will be confidential and anonymised, and you will not be identifiable in any report, thesis or publication which arises from this study. The data from this study will be stored securely as part of the regulations of Bangor University. If you choose to withdraw from the study then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact on any other aspect of your involvement in the Seren Programme.

Further Information about the study?

If you want further information about this study then please contact:

Dr Ernest Wong

Email: Ernest.WongYong-Shun@wales.nhs.uk

Contact#: 07583357961(9-5pm)

Who do I contact with any concerns about this study?

If you have any concerns or complaints about this study or the conduct of individuals conducting this study, then please contact Dr Lynne Williams, Chair HCMS AEC, School of Healthcare Sciences, Bangor University, Bangor Gwynedd LL57 2EF or e-mail lynne.williams@bangor.ac.uk (Telephone: +441248-383170)

Appendix 3.3 Participant Information Sheet – school staff

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Information about the study

You are invited to participate in this study which is conducted as part of the MRes degree of the researcher Dr Ernest Wong at Bangor University, UK. The aim of the study is to understand how the Seren Programme affects the various groups it is intended to help (students, parents, schools, university faculty and the local hospital) as well as to identify the factors that support and grow this programme for future participants.

The study asks local school students and their parents as well as school staff, university faculty, and hospital management about their views on how the Seren Programme affects them in the Medical School admissions process. The study looks at the current 2018-19 cohort to have an overview of how the programme might have an impact, as well as how the programme can be improved and expanded.

Why have I been asked to take part?

You have been asked to take part because of your involvement in the current 2018-19 Seren Programme.

What does the study involve?

The study will involve the researcher Dr Ernest Wong asking to complete a survey and an interview with you to ask about your views about the Seren Programme with emphasis on this current 2018-19 cohort. In particular, Dr Ernest Wong will ask about the how the

Seren Programme has impacted you the area of Medical School applications and how the programme can be improved in the future.

Are there any benefits or risks?

Your participation may benefit the development of the Seren Programme and its impact in schools and the community in Wales.

What will happen to my data?

All data collected will be confidential and anonymised, and you will not be identifiable in any report, thesis or publication which arises from this study. The data from this study will be stored securely as part of the regulations of Bangor University. If you choose to withdraw from the study then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact on any other aspect of your involvement in the Seren Programme.

Further Information about the study?

If you want further information about this study then please contact:

Dr Ernest Wong

Email: Ernest.WongYong-Shun@wales.nhs.uk

Contact#: 07583357961(9-5pm)

Who do I contact with any concerns about this study?

If you have any concerns or complaints about this study or the conduct of individuals conducting this study, then please contact Dr Lynne Williams, Chair HCMS AEC, School of Healthcare Sciences, Bangor University, Bangor Gwynedd LL57 2EF or e-mail lynne.williams@bangor.ac.uk (Telephone: +441248-383170)

Appendix 3.4 Participant Information Sheet – facilitators

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Information about the study

You are invited to participate in this study which is conducted as part of the MRes degree of the researcher Dr Ernest Wong at Bangor University, UK. The aim of the study is to understand how the Seren Programme affects the various groups it is intended to help (students, parents, schools, university faculty and the local hospital) as well as to identify the factors that support and grow this programme for future participants.

The study asks local school students and their parents as well as school staff, university faculty, and hospital management about their views on how the Seren Programme affects them in the Medical School admissions process. The study looks at the current 2018-19 cohort to have an overview of how the programme might have an impact, as well as how the programme can be improved and expanded.

Why have I been asked to take part?

You have been asked to take part because of your involvement in the current 2018-19 Seren Programme.

What does the study involve?

The study will involve the researcher Dr Ernest Wong asking to complete a survey and a telephone interview with you to ask about your views about the Seren Programme with emphasis on this current 2018-19 cohort. In particular, Dr Ernest Wong will ask about the

how the Seren Programme has impacted you the area of Medical School applications and how the programme can be improved in the future.

Are there any benefits or risks?

Your participation may benefit the development of the Seren Programme and its impact in schools and the community in Wales.

What will happen to my data?

All data collected will be confidential and anonymised, and you will not be identifiable in any report, thesis or publication which arises from this study. The data from this study will be stored securely as part of the regulations of Bangor University. If you choose to withdraw from the study then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact on any other aspect of your involvement in the Seren Programme.

Further Information about the study?

If you want further information about this study then please contact:

Dr Ernest Wong

Email: Ernest.WongYong-Shun@wales.nhs.uk

Contact#: 07583357961(9-5pm)

Who do I contact with any concerns about this study?

If you have any concerns or complaints about this study or the conduct of individuals conducting this study, then please contact Dr Lynne Williams, Chair HCMS AEC, School of Healthcare Sciences, Bangor University, Bangor Gwynedd LL57 2EF or e-mail lynne.williams@bangor.ac.uk (Telephone: +441248-383170)

Appendix 3.5 Participant Information Sheet – university staff

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Information about the study

You are invited to participate in this study which is conducted as part of the MRes degree of the researcher Dr Ernest Wong at Bangor University, UK. The aim of the study is to understand how the Seren Programme affects the various groups it is intended to help (students, parents, schools, university faculty and the local hospital) as well as to identify the factors that support and grow this programme for future participants.

The study asks local school students and their parents as well as school staff, university faculty, and hospital management about their views on how the Seren Programme affects them in the Medical School admissions process. The study looks at the current 2018-19 cohort to have an overview of how the programme might have an impact, as well as how the program can be improved and expanded.

Why have I been asked to take part?

You have been asked to take part because of your involvement in the current 2018-19 Seren Programme.

What does the study involve?

The study will involve the researcher Dr Ernest Wong asking to complete a survey and a telephone interview with you to ask about your views about the Seren Programme with emphasis on this current 2018-19 cohort. In particular, Dr Ernest Wong will ask about the

how the Seren Programme has impacted you the area of Medical School applications and how the Program can be improved in the future.

Are there any benefits or risks?

Your participation may benefit the development of the Seren Programme and its impact in schools and the community in Wales.

What will happen to my data?

All data collected will be confidential and anonymised, and you will not be identifiable in any report, thesis or publication which arises from this study. The data from this study will be stored securely as part of the regulations of Bangor University. If you choose to withdraw from the study then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact on any other aspect of your involvement in the Seren Programme.

Further Information about the study?

If you want further information about this study then please contact:

Dr Ernest Wong

Email: Ernest.WongYong-Shun@wales.nhs.uk

Contact#: 07583357961(9-5pm)

Who do I contact with any concerns about this study?

If you have any concerns or complaints about this study or the conduct of individuals conducting this study, then please contact Dr Lynne Williams, Chair HCMS AEC, School of Healthcare Sciences, Bangor University, Bangor Gwynedd LL57 2EF or e-mail lynne.williams@bangor.ac.uk (Telephone: +441248-383170)

Appendix 3.6 Participant Information Sheet – hospital management

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Information about the study

You are invited to participate in this study which is conducted as part of the MRes degree of the researcher Dr Ernest Wong at Bangor University, UK. The aim of the study is to understand how the Seren Programme affects the various groups it is intended to help (students, parents, schools, university faculty and the local hospital) as well as to identify the factors that support and grow this programme for future participants.

The study asks local school students and their parents as well as school staff, university faculty, and hospital management about their views on how the Seren Programme affects them in the Medical School admissions process. The study looks at the current 2018-19 cohort to have an overview of how the programme might have an impact, as well as how the program can be improved and expanded.

Why have I been asked to take part?

You have been asked to take part because of your involvement in the current 2018-19 Seren Programme.

What does the study involve?

The study will involve the researcher Dr Ernest Wong asking to complete a survey and an interview with you to ask about your views about the Seren Programme with emphasis on this current 2018-19 cohort. In particular, Dr Ernest Wong will ask about the how the

Seren Programme has impacted you the area of Medical School applications and how the Program can be improved in the future.

Are there any benefits or risks?

Your participation may benefit the development of the Seren Programme and its impact in schools and the community in Wales.

What will happen to my data?

All data collected will be confidential and anonymised, and you will not be identifiable in any report, thesis or publication which arises from this study. The data from this study will be stored securely as part of the regulations of Bangor University. If you choose to withdraw from the study then you have the right to request that your data is not used.

What if I don't want to take part?

It is up to you to decide whether or not you would like to participate in this study. Deciding not to take part will not impact on any other aspect of your involvement in the Seren Programme.

Further Information about the study?

If you want further information about this study then please contact:

Dr Ernest Wong

Email: Ernest.WongYong-Shun@wales.nhs.uk

Contact#: 07583357961(9-5pm)

Who do I contact with any concerns about this study?

If you have any concerns or complaints about this study or the conduct of individuals conducting this study, then please contact Dr Lynne Williams, Chair HCMS AEC, School of Healthcare Sciences, Bangor University, Bangor Gwynedd LL57 2EF or e-mail lynne.williams@bangor.ac.uk (Telephone: +441248-383170)

Appendix 4.1 Participant consent forms – students

Version 1 [10th September 2018]

Centre Number:

Study Number:

Identification Number for this trial:

CONSENT FORM

Title of Project: An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Name of Researcher: Dr Ernest Wong

Please initial box

1. I confirm that I have read and understood the information sheet dated [10th September 2018 and version 1] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected. ☐
3. I confirm that I consent to the interview being audio recorded by the researcher as part of the study and observed during the Seren Programme. ☐
4. I give permission for the researcher to use anonymised quotes from the interview and for anonymised interviews to be shared with any other researchers or stored as data archives. ☐
5. I agree to take part in the above study. ☐

Name of Person

Date

Signature

Researcher

Date

Signature

When completed, 1 for informant 1 for researcher site file; 1 (original)

Appendix 4.2 Participant consent forms – parents

Version 1 [10th September 2018]

Centre Number:

Study Number:

Identification Number for this trial:

CONSENT FORM

Title of Project: An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Name of Researcher: Dr Ernest Wong

Please initial box

1. I confirm that I have read and understood the information sheet dated Version 1 [10th September 2018] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

☐

3. I confirm that I consent to the interview being audio recorded by the researcher as part of the study and observed during the Seren Programme.

☐

4. I give permission for the researcher to use anonymised quotes from the interview and for anonymised interviews to be shared with any other researchers or stored as data archives.

☐

5. I agree to take part in the above study.

☐

Name of Person

Date

Signature

Researcher

Date

Signature

When completed, 1 for informant 1 for researcher site file; 1 (original)

Appendix 4.3 Participant consent forms – school staff

Version 1 [10th September 2018]

Centre Number:

Study Number:

Identification Number for this trial:

CONSENT FORM

Title of Project: An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Name of Researcher: Dr Ernest Wong

Please initial box

1. I confirm that I have read and understood the information sheet dated [Version 1 [10th September 2018] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

☐

3. I confirm that I consent to the interview being audio recorded by the researcher as part of the study and observed during the Seren Programme.

☐

4. I give permission for the researcher to use anonymised quotes from the interview and for anonymised interviews to be shared with any other researchers or stored as data archives.

☐

5. I agree to take part in the above study.

☐

Name of Person

Date

Signature

Researcher

Date

Signature

When completed, 1 for informant 1 for researcher site file; 1 (original)

Appendix 4.4 Participant consent forms – facilitators

Version 1 [10th September 2018]

Centre Number:

Study Number:

Identification Number for this trial:

CONSENT FORM

Title of Project: An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Name of Researcher: Dr Ernest Wong

Please initial box

1. I confirm that I have read and understood the information sheet dated Version 1 [10th September 2018] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

☐

3. I confirm that I consent to the interview being audio recorded by the researcher as part of the study and observed during the Seren Programme.

☐

4. I give permission for the researcher to use anonymised quotes from the interview and for anonymised interviews to be shared with any other researchers or stored as data archives.

☐

5. I agree to take part in the above study.

☐

Name of Person

Date

Signature

Researcher

Date

Signature

When completed, 1 for informant 1 for researcher site file; 1 (original)

Appendix 4.5 Participant consent forms – university staff

Version 1 [10th September 2018]

Centre Number:

Study Number:

Identification Number for this trial:

CONSENT FORM

Title of Project: An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Name of Researcher: Dr Ernest Wong

Please initial box

1. I confirm that I have read and understood the information sheet dated [Dated and version number] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected. ☐
3. I confirm that I consent to the interview being audio recorded by the researcher as part of the study. ☐
4. I give permission for the researcher to use anonymised quotes from the interview and for anonymised interviews to be shared with any other researchers or stored as data archives. ☐
5. I agree to take part in the above study. ☐

Name of Person

Date

Signature

Researcher

Date

Signature

When completed, 1 for informant 1 for researcher site file; 1 (original)

Appendix 4.6 Participant consent forms – hospital management

Version 1 [10th September 2018]

Centre Number:

Study Number:

Identification Number for this trial:

CONSENT FORM

Title of Project: An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

Name of Researcher: Dr Ernest Wong

Please initial box

1. I confirm that I have read and understood the information sheet dated [Dated and version number] for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected. ☐
3. I confirm that I consent to the interview being audio recorded by the researcher as part of the study. ☐
4. I give permission for the researcher to use anonymised quotes from the interview and for anonymised interviews to be shared with any other researchers or stored as data archives. ☐
5. I agree to take part in the above study. ☐

Name of Person

Date

Signature

Researcher

Date

Signature

When completed, 1 for informant 1 for researcher site file; 1 (original)

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the programme.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

School (please circle as appropriate)

- **Ysgol y Creuddyn**
- **Ysgol Aberconwy**
- **Ysgol Dyffryn Conwy**

- Ysgol Eirias
- Ysgol John Bright
- Ysgol Brynhyfryd
- Denbigh High School
- Ysgol Dinas Bran
- Ysgol Glan Clwyd
- Prestatyn High School
- St. Brigid's School
- Other: _____

3. Medical careers

Can you think of anything positive about a medical career that would make you want to apply to medicine?

Can you think of anything negative about a medical career that may put you off applying to medicine?

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about medicine as a career?	0 1 2 3 4 5 6 7 8 9 10
How much do you know about the medical school application process?	0 1 2 3 4 5 6 7 8 9 10
How likely are you going to apply to medical school?	0 1 2 3 4 5 6 7 8 9 10
How confident are you of getting accepted into medical school?	0 1 2 3 4 5 6 7 8 9 10

If you do apply to medical school, where do you think support may come from?

How do you think the Seren Programme may help you?

Please use the space below to add any further comments that may help to explain

4. Seren Programme

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme will help you decide if medicine is a career for you. Do you agree with this statement?	<ul style="list-style-type: none">• Strongly agree• Agree• Neutral / I don't know• Disagree• Strongly Disagree

Thank you for taking the time to fill out the questionnaire

Appendix 5.2 Interviews – students

a. Medical careers

- 1. Why do you want to be a doctor?**
- 2. What do you know about medicine as a career?**
- 3. What factors have influenced you to / not want to do medicine? Why?**
- 4. Where are you in your application? Which universities are you applying to? Why? How well do you know the application process?**
- 5. Are you confident in getting accepted? Why?**

b. Seren Programme

- 1. What do you think of the Seren Programme? Why?**
- 2. Besides the Seren Programme, what other sources of support have you got?**
- 3. How has the Seren Programme affected you personally?**
- 4. Besides helping you with your applications, how else has the Seren Programme affected you?**
- 5. Has the Seren Programme met its aims? Why?**
- 6. How would you improve the Seren Programme for future students?**
- 7. What advice would you give future students?**

Is there anything else that has not been discussed?

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the programme.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

School (please circle as appropriate)

- **Ysgol y Creuddyn**
- **Ysgol Aberconwy**
- **Ysgol Dyffryn Conwy**

- **Ysgol Eirias**
- **Ysgol John Bright**
- **Ysgol Brynhyfryd**
- **Denbigh High School**
- **Ysgol Dinas Bran**
- **Ysgol Glan Clwyd**
- **Prestatyn High School**
- **St. Brigid's School**
- **Other: _____**

3. Medical careers

Can you see yourself being a doctor? Why?.

Can you think of any obstacles preventing you from becoming a doctor?

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about medicine as a career?	0 1 2 3 4 5 6 7 8 9 10
How much do you know about the medical school application process?	0 1 2 3 4 5 6 7 8 9 10
How likely are you to apply to medical school?	0 1 2 3 4 5 6 7 8 9 10
How confident are you of getting accepted into medical school?	0 1 2 3 4 5 6 7 8 9 10
How much support do you feel that you are getting in applying into medical school?	0 1 2 3 4 5 6 7 8 9 10

In applying into medical school, where do you think support may come from?

4. Seren Programme

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot/ most certainly)
How useful is the Seren Programme over all?	0 1 2 3 4 5 6 7 8 9 10

The Seren Programme has helped you decide if medicine is a career for you. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme has been useful in increasing your chances of getting into medical school. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree

Besides the above, how else has the Seren Programme affected you personally?

What does the Seren Programme mean for you? List 3-5 words.

Please use the space below to add any further comments that may help to explain

Thank you for taking the time to fill out the questionnaire

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the programme.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

Which school does your child attend? (please circle as appropriate)

- **Ysgol y Creuddyn**
- **Ysgol Aberconwy**

- Ysgol Dyffryn Conwy
- Ysgol Eirias
- Ysgol John Bright
- Ysgol Brynhyfryd
- Denbigh High School
- Ysgol Dinas Bran
- Ysgol Glan Clwyd
- Prestatyn High School
- St. Brigid's School
- Other: _____

3. Medical careers

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about medicine as a career?	0 1 2 3 4 5 6 7 8 9 10
How much do you know about the medical school application process?	0 1 2 3 4 5 6 7 8 9 10
How confident are you of your child getting accepted into medical school?	0 1 2 3 4 5 6 7 8 9 10
In applying to medical school, how much support do you feel that your child is getting?	0 1 2 3 4 5 6 7 8 9 10

Please list some ways that you are supporting your child.

Do you know of any other sources of support with applying to medical school?

--

Please use the space below to add any further comments that may help to explain

--

4. Seren Programme

What does the Seren Programme mean for you? List 3-5 words.

--

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10

The Seren Programme will help your child decide if medicine is a career for him / her. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme will increase your child's chances of getting into medical school. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree

Please use the space below to add any further comments that may help to explain the above responses.

Thank you for taking the time to fill out the questionnaire

Appendix 6.2 Interview – parents

- 1. Are you confident that your child will get accepted into medical school? Why?**
- 2. What do you think of the Seren Programme? Why?**
- 3. Besides the Seren Programme, what other sources of support has your child got?**
- 4. Besides helping your child with their applications, how else has the Seren Programme affected them?**
- 5. Besides helping your child decide if medicine is for them and/or their application into medical school, how has the Seren Programme affected you personally?**
- 6. Is the Seren Programme useful? Why?**
- 7. Is the Seren Programme an appropriate use of resources? Why?**
- 8. Can you think of any other untapped resources that could help the Seren Programme?**
- 9. How would you improve the Seren Programme for future students?**

Is there anything else that has not been discussed?

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the programme.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

Which school does your child attend? (please circle as appropriate)

- **Ysgol y Creuddyn**
- **Ysgol Aberconwy**

- **Ysgol Dyffryn Conwy**
- **Ysgol Eirias**
- **Ysgol John Bright**
- **Ysgol Brynhyfryd**
- **Denbigh High School**
- **Ysgol Dinas Bran**
- **Ysgol Glan Clwyd**
- **Prestatyn High School**
- **St. Brigid's School**
- **Other: _____**

3. Medical careers

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about medicine as a career?	0 1 2 3 4 5 6 7 8 9 10
How confident are you of your child getting accepted into medical school?	0 1 2 3 4 5 6 7 8 9 10

4. Seren Programme

Questions	Please circle your answer from 0 (not at all) to 10 (most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10

The Seren Programme has helped your child decide if medicine is a career for him / her. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme has increased your child's chances of getting into medical school. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
How useful is the Seren Programme overall?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme an appropriate use of resources. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree

What does the Seren Programme mean for you? List 3-5 words.

Besides helping your child into medical school, how else has the Seren Programme affected you personally?

Please use the space below to add any further comments that may help to explain

--

Thank you for taking the time to fill out the questionnaire

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the programme.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

School (please circle as appropriate)

- **Ysgol y Creuddyn**
- **Ysgol Aberconwy**

- Ysgol Dyffryn Conwy
- Ysgol Eirias
- Ysgol John Bright
- Ysgol Brynhyfryd
- Denbigh High School
- Ysgol Dinas Bran
- Ysgol Glan Clwyd
- Prestatyn High School
- St. Brigid's School
- Other: _____

3. Medical careers

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about medicine as a career?	0 1 2 3 4 5 6 7 8 9 10
How much do you know about the medical school application process?	0 1 2 3 4 5 6 7 8 9 10
In applying to medical school, how much support do you feel that your students are getting?	0 1 2 3 4 5 6 7 8 9 10

Are there any means of support that you are able to provide to your students?

Do you know of any other sources of support with applying to medical school?

--

4. Seren Programme

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme has helped your students decide if medicine is a career for them. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme has increased your students' chances of getting into medical school. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
How much resources does your school allocate to the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
How useful is the Seren Programme overall?	0 1 2 3 4 5 6 7 8 9 10

<p>The Seren Programme an appropriate use of resources. Do you agree with this statement?</p>	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
---	---

What does the Seren Programme mean for you? List 3-5 words.

Can you think of any other untapped resources that could help the Seren Programme?

Besides helping your students apply to medical school, how has the Seren Programme affected you personally?

Please use the space below to add any further comments that may help to explain

Thank you for taking the time to fill out the questionnaire

Open-ended questions - school staff

- 1. Are you confident that your students will get accepted into medical school? Why?**
- 2. What do you think of the Seren Programme? Why?**
- 3. Is the Seren Programme useful? Why?**
- 4. Is the Seren Programme an appropriate use of resources? Why?**
- 5. How has the Seren Programme supported your students?**
- 6. How has the Seren Programme met the needs of your students?**
- 7. How have you been supported in delivering the Seren Programme?**
- 8. Besides helping your students decide if medicine is for them and/or their application into medical school, how has the Seren Programme affected you personally?**
- 9. Can you think of any other untapped resources that could help the Seren Programme?**
- 10. How would you improve the Seren Programme for future students?**

Is there anything else that has not been discussed?

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the program.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

Organization / locality affiliated with (please fill in) _____

3. Seren Programme

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme has helped students decide if medicine is a career for them. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme has increased students' chances of getting into medical school. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
Do you think the Seren Programme has met the needs of the students?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
How well have you been supported in delivering the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
How useful is the Seren Programme overall?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme an appropriate use of resources. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree

	<ul style="list-style-type: none"> • Strongly Disagree
--	---

What does the Seren Programme mean for you? List 3-5 words.

Can you think of any other untapped resources that could help the Seren Programme?

Besides helping students apply to medical school, how has the Seren Programme affected you personally?

Are there other effects of the programme, beneficial or otherwise?

Please use the space below to add any further comments that may help to explain

--

Thank you for taking the time to fill out the questionnaire

Open-ended questions - Seren facilitators

- 1. Is the Seren Programme useful? Why?**
- 2. Is the Seren Programme an appropriate use of resources? Why?**
- 3. What makes the Seren Programme work?**
- 4. How has the Seren Programme met the needs of the students?**
- 5. How have you been supported in delivering the Seren Programme?**
- 6. Besides helping the students decide if medicine is for them and/or their application into medical school, how has the Seren Programme affected you personally?**
- 7. Can you think of any other untapped resources that could help the Seren Programme?**
- 8. How would you improve the Seren Programme for future students?**

Is there anything else that has not been discussed?

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the program.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

Organization / locality affiliated with (please fill in)

3. Seren Programme

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme fits in with your school's core values. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme has helped students decide if medicine is a career for them. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
The Seren Programme has increased students' chances of getting into medical school. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
Have you noticed an increased application rates for medicine by applicants from Welsh state schools?	<ul style="list-style-type: none"> • Yes • No • I don't know
Have you noticed an increase in UCAT scores by applicants from Welsh state schools?	<ul style="list-style-type: none"> • Yes • No • I don't know

Have you noticed an increase in number of interviews being awarded to applicants from Welsh state schools?	<ul style="list-style-type: none"> • Yes • No • I don't know
Have you noticed an increasing number of medical school places awarded to applicants from Welsh state schools?	<ul style="list-style-type: none"> • Yes • No • I don't know
Do you think the Seren Programme has met the needs of the students?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
How useful is the Seren Programme overall?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme is an appropriate use of resources. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree

What does the Seren Programme mean for you? List 3-5 words.

Do you know of any other similar initiatives linked to your medical school? Please

Can you think of any other untapped resources that could help the Seren

How has the Seren Programme affected you personally?

Are there other effects of the program, beneficial or otherwise?

Please use the space below to add any further comments that may help to explain

Thank you for taking the time to fill out the questionnaire

Open-ended questions - university / widening access staff

- 1. What do you think of the Seren Programme? Why?**
- 2. Is the Seren Programme useful? Why?**
- 3. Is the Seren Programme an appropriate use of resources? Why?**
- 4. Do you know of any other similar initiatives linked to your medical school?
How does the Seren Programme compare?**
- 5. To what extent does the Seren Programme fit in with your school's core values?**
- 6. How has the Seren Programme met the needs of the students?**
- 7. Are there other effects of the programme, beneficial or otherwise?**
- 8. Besides helping the students decide if medicine is for them and/or their application into medical school, how has the Seren Programme affected you personally?**
- 9. Can you think of any other untapped resources that could help the Seren Programme?**
- 10. How would you improve the Seren Programme for future students?**

Is there anything else that has not been discussed?

School of Healthcare Sciences



An Evaluation of the Seren Programme for prospective medical school applicants: Mapping impact, sustainability and growth

1. Introduction and Guidance

The questionnaire is seeks to understand your perspective on the Seren Programme and medical careers. It asks some initial questions about your knowledge of the Seren Programme and medical careers before asking for your perspective and experiences with the program.

2. About You:

Gender (please circle as appropriate)

- **Male**
- **Female**
- **Prefer not to say**

Age (please fill in) _____

3. Seren Programme

Questions	Please circle your answer from 0 (nothing / not at all) to 10 (a lot / most certainly)
How much do you know about the Seren Programme?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme fits in with your organization's core values. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree
Does the Seren Programme fits in with your organization's aims in recruitment, and engagement with local communities?	<ul style="list-style-type: none"> • Yes • No • I don't know
Does the scheme lead to a perceived increase in the overall reputation of the hospital?	<ul style="list-style-type: none"> • Yes • No • I don't know
How useful is the Seren Programme overall?	0 1 2 3 4 5 6 7 8 9 10
The Seren Programme an appropriate use of resources. Do you agree with this statement?	<ul style="list-style-type: none"> • Strongly agree • Agree • Neutral / I don't know • Disagree • Strongly Disagree

What does the Seren Programme mean for you? List 3-5 words.

Do you know of any other similar initiatives linked to your hospital? Please list

Can you think of any other untapped resources that could help the Seren

How has the Seren Programme affected you personally?

Are there other effects of the program, beneficial or otherwise?

Please use the space below to add any further comments that may help to explain

Thank you for taking the time to fill out the questionnaire

Open-ended questions - hospital management

- 1. What do you think of the Seren Programme? Why?**
- 2. Is the Seren Programme useful? Why?**
- 3. Is the Seren Programme an appropriate use of resources? Why?**
- 4. Do you know of any other similar initiatives linked to your hospital? How does the Seren Programme compare?**
- 5. To what extent does the Seren Programme fit in with your organization's core values?**
- 6. To what extent does the Seren Programme fit in with your organization's aims in recruitment, and engagement with local communities?**
- 7. To what extent does the scheme lead to a perceived increase in the overall reputation of the hospital?**
- 8. Are there other effects of the programme, beneficial or otherwise?**
- 9. Besides helping the students decide if medicine is for them and/or their application into medical school, how has the Seren Programme affected you personally?**
- 10. Can you think of any other untapped resources that could help the Seren Programme?**
- 11. How would you improve the Seren Programme for future students?**

Is there anything else that has not been discussed?