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Student: staff ratios for pre-registration midwifery programmes of education

:a scoping study

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Executive summary

This review has been commissioned by the Nursing and Midwifery Council (NMC) as part of their review of pre-registration midwifery education. The review examines evidence from the published and unpublished literature, from key informants in midwifery and other professions in the UK and midwifery in other selected countries (see appendix 1) about the relationship between the number of midwife teacher and the quality of education delivered. In particular the review focuses on the role of a mandated ratio between the number of staff and the number of students – the Staff: Student Ratio (SSR).

- Staff: student ratios have a controversial history within midwifery and were originally set by the English National Board for Nursing Midwifery and Health Visiting (ENB) in 1993 as a criterion for programme approval (nurse/health visitor teacher to students 1:15, 1:10 for midwifery and 1:12 for nursing).

- The 1:10 ratio was not set as a standard by the Nursing and Midwifery Council (NMC) when it took responsibility for the regulation and approval of training programmes. However the 1:10 ratio has retained some status as a reference point and has been used by Lead Midwives for Education (LMEs) as a benchmark to determine resources required and to ensure quality in midwifery programmes of education.

- Guidelines for the most effective SSR remain unclear and concerns about staff student ratios in midwifery education persist.

- The aim of the review is to explore the evidence base concerning the link between SSR and educational quality in order to determine the extent to which prescribed SSRs are used and was undertaken October- November 2007.

Methods

A multi method approach was adopted to identify diverse sources of evidence that could inform decisions about the issue of SSRs in midwifery education.

These included:

1 Communication with key informants to identify practice, opinions and sources of evidence about SSRs. Informants included international midwifery educators and regulators and UK midwifery key informants and regulators of other practice professions in the UK.

2 Review of the published literature.

3 Review of grey literature including unpublished sources and websites.

Section A: SSRs: the review of the published literature

- The extensive search for published literature revealed little evidence either within healthcare or indeed in higher education more widely. Direct formal evaluation or research on SSRs was essentially non existent.

- There also appears to be no research that has directly investigated and validated overall SSRs as a measure of quality in terms of any aspect of output, educational attainment or student experience. There is certainly no evidence for the value of SSRs independent of other quality indicators.

- The only research conducted in the UK relating to mandated SSRs for nursing and midwifery also highlighted some potential adverse consequences and limitations in the use of SSRs. These are reflected in the wider debate about SSRs in higher education.

- Considerable differences of opinion with regards to the status, value and meaning of SSRs between representatives of universities and unions were noted.

- While there may be some link between SSR and quality it is mediated by a complex series of relationships and it is difficult to discern the basis upon which a specific SSR applied across institutions could be used in isolation as an indicator or assurance of quality.

Section B: Key informants and regulators for midwifery

UK: Staff student ratios in midwifery

- In an NMC consultation in 2006 over 90% of respondents (n= 318) and six out of the ten Key Stakeholder Organisations (KSO) (appendix 2) agreed that the NMC should set a minimum ratio of practising midwife teachers to student midwives.

- SSRs are perceived by some educationalists as a useful guide to student quality and to enable them to obtain sufficient resources to adequately support students in practice.

- Some respondents felt SSRs were not a matter for the regulator but for individual HEIs to resource courses appropriately and others suggested that outcomes and measurable benefits, rather than inputs and ratios, were more useful quality indicators.

- All educationalists (n=4) interviewed felt that the 10:1 ratio was an important benchmark: although they identified a number of issues and problems associated with a fixed ratio. No evaluation of SSR had been undertaken by any institutions and a ratio of 1:10 may be detrimental to midwifery education, ultimately pricing it out of universities.

- The Council of Deans were not unsympathetic to the views and issues raised by the educationalists but felt it inappropriate for a regulator to set a quality 'standard' in terms of an input (SSR) rather than the required outputs i.e. the competencies of qualifying students.

- The Royal College of Midwives (RCM) wanted a degree of flexibility in any SSR to allow others who teach midwives to be included, yet felt midwifery should be taught by qualified midwives to ensure quality and a meaningful clinical interface.

- Many felt the 1:10 ratio was historic and not based on good evidence.

- Other potential dangers associated with a fixed ratio included:
  - the inhibition of innovation in teaching and learning with use of learning technologies and interdisciplinary education.
  - a fixed ratio is apt to be regarded as a target and not a minimum.
  - there could be adverse consequences for institutions where there is considerable funded research activity and high proportions of research active clinical teachers.

UK: Other Healthcare Professions

We contacted the Health Professions Council, medical, dental, optical, chiropractic, osteopathic and pharmaceutical regulators in the UK, members of UK Alliance of UK Health Regulators on Europe (AURE), and the following issued guidance on SSRs for the practical components of training or clinical practice:

Regulator	Response
General Chiropractic Council	Clinical training varies between 6:1 and 10:1
General Osteopathic Council	Ratios of 10:1 are outlined for practical sessions and clinic sessions

(Royal) Pharmaceutical Society	RPSGB does have a student: staff ratio in the accreditation criteria for an MPharm

- However the different context for other healthcare education was noted suggesting ratios cannot simply be compared.

- Some HEIs and professional bodies set SSRs for some professions despite no SSRs being set by the regulator:
  - Physiotherapy at Keele sets a student staff ratio for teaching of 12:1
  - British Acupuncture Council – SSR shall not fall below 1:10.
  - College of Occupational Therapists' sets an upper limit of 15:1

- Overall while not universal and not comparable between professions reference to SSRs and the link to quality and the nature of education that can be provided is common among health care professions.

- The use of a benchmark or SSR figure by regulators for clinical practice is not universal but is also quite common.

Student staff ratios in wider professions in the UK: Case of Law

- In law SSR is a popular regulatory mechanism: Both the Solicitors Regulatory Authority (SRA) and the Bar Standards Board set staff student ratios for their programmes:
  - SSR of 12.5: 1 on the Legal Practice Course (for larger providers 18:1).
  - Barristers also have 12.5:1 ratio. Bar Standards Board is keen to increase the ratio to 16:1. This move is controversial.

- SRA providers not asked to evaluate the impact of SSRs on the programme but most providers report that the SSR requirement had a positive impact on the course when first authorised as it enabled them to secure the appropriate staffing.

- No evidence that the SSR has a positive impact on the students.

- The use of SSRs is however currently under review by the SRA and from September 2009 they will not prescribe an SSR because of the difficulties encountered.

Nursing and midwifery education in other countries

A number of midwifery organisations in countries outside the UK were contacted. Countries where midwifery education and practice most closely resembled that of UK were selected by the NMC (see appendix 1). For those countries where we received a response the results were as follows:

Australia	In Victoria ratio of 1:8*
Canada	No ratio set (Manitoba)
Denmark	No ratio set
Finland	No ratio set
Ireland	No ratio set
Japan	No ratio set
South Africa	No ratio set
Sweden	No ratio set

*But now moving away from ratio – because there is no evidence to support it

Thus no regulators (apart from Victoria in Australia - who are now moving away from it), set an SSR in midwifery education.

Section C: Beyond student staff ratios: Performance indicators in education

- Performance indicators are multi-variable and contain many factors other than student staff ratios.
- A narrow focus on teaching rather than learning may:
  - give focus to the education system and on quantitative measures of time spent teaching rather than quality indicators of the process.
  - overlook the multi-dimensional nature of the teaching learning experience, e.g. the student's perceptions of effective clinical teaching; the level and ability of the student to engage with or use critical thinking; the student teacher relationship re engagement with teaching and learning.
- All performance indicators (including SSR's) must be interpreted as part of a coherent set of input, process, and output indicators and not as an independent variable.
- But more sophisticated and complex systems (e.g. HEFCE indicators) give little indication of the specific content and direct quality of practice education – that is the production of safe and competent practitioners.
- The "Tuning Project", emphasises the essential requirement for competency based curricula so that mutual recognition of qualifications becomes easier across Europe. Nursing (but not midwifery) has been part of the second phase of this project. Examples of some variables considered in relation to education /competencies and outcomes of Nurses include:
  - Who teaches students in practice on a daily basis?
  - Do the nurse teachers/lecturers do any teaching in the practice areas?
  - Is it a requirement that the practice area is assessed before students go there?
  - Is the ratio of students/patients /types of staff considered?

Conclusions

- The appearance of SSRs in most approaches to measuring quality in higher education does suggest that it should not be lightly put aside.
- However, the lack of an evidence base and problems with defining SSR and how calculated are evident
- SSRs can only be meaningfully deployed as a *benchmark* in the context of a wider set of process and output variables whereby deviation from the benchmark might be understood and interpreted in context.
- To establish a benchmark figure considerable work is needed to establish a common methodology for calculating SSRs and for developing adjustments to allow for variations outside the control of individuals institutions.
- It is also important that the benchmark set is associated with the delivery of *quality* educational provision and does not simply reflect existing norms.
- The reason for this is primarily to ensure that there is widespread confidence in any figure given the significant 'value' that is currently placed upon the 1:10 ratio that has survived from the relatively brief period during which it was mandated by the ENB.

Introduction

The practising midwife teacher is regarded as essential to the education of new practitioners and in particular the process of integrating theory to practice. This review examines evidence about the relationship between the number of midwife teacher's and the quality of education delivered. In particular the review focuses on the role of a mandated ratio between the number of staff and the number of students – the Staff : Student Ratio (SSR).

The education of midwives has evolved rapidly since 1990 (Fraser 2000a) from being primarily a hospital-based post registration course for nurses, consisting of a period of apprenticeship and a final national examination, to today's three year degree programme for students who do not require a nursing background. Throughout this period there has been debate about the relationship between theory and practice, university and clinical practice; the key question being how best to ensure fitness for practice at the point of registration. Fraser's evaluation of Midwifery programmes (Fraser 2000b) concluded that they were producing fit-for-practice midwives but that there were weaknesses in the assessment of clinical practice, particularly in mentoring. The solution she proposed was closer involvement of academic staff in monitoring the assessment decisions and the use of portfolios of evidence to support the decisions made.

More recently the Nursing and Midwifery Council (NMC) has commissioned a report on Pre-registration Midwifery programmes (Moore and Way 2004). This report examined evidence from published research and focus groups. Several points were made about the assessment of clinical competence. There is still a perceived problem with mentorship and the three factors influencing students experience in clinical practice are summarised as climate (welcoming, enquiring and reflective culture), structure (clarity of learning opportunities) and attention (interested and skilled mentor). These three were seen as more important to the student's learning experience than the length of placement per se. Better assessment in clinical practice is seen as key to improving midwifery programmes and the grading of clinical practice is seen as one way to confirm its importance. Fraser (2000b) also recommended grading, as a safeguard to prevent unsafe practitioners achieving registration, since evidence from pass-fail assessments was not considered robust enough to remove a student from a programme.

Staff: Student ratios mandated by the regulatory body as a mechanism for ensuring that practice education is delivered with sufficient quality have a controversial history within midwifery (Ackerman 1995). SSRs were set by the English National Board for Nursing Midwifery and Health Visiting (ENB) in 1993 as a criterion for programme approval. At that time the following ratios were recommended; nurse/health visitor teacher to students 1:15, 1:10 for midwifery and 1:12 for nursing. The 1993 guidelines were introduced with a view to moving towards a more flexible approach in the use of SSR's (Roch 1995; Hallworth 1995).

The 1:10 ratio was not set as a standard by the NMC when it took responsibility for the regulation and approval of training programmes. However the 1:10 ratio has retained some status as a reference point and has been used by Lead Midwives for Education (LMEs) as a benchmark to determine the resources required and to ensure quality in midwifery programmes of education. Although the components of student staff ratios calculations have been examined (Ellis 1986, Murray et al 1994, 1995), guidelines for the most effective staff student ratio remain unclear and concerns about SSRs in midwifery education persist (Bharj 2006).

This scoping review has been commissioned by the NMC as part of their review of pre-registration midwifery education and specifically addresses the work stream related to setting a student: staff ratio (SSR). The aim of the review is to explore the evidence base concerning the link between SSR and educational quality in order to determine the extent of for use of prescribed SSRs. The evidence considered included empirical studies expert opinion and regulatory practice in midwifery and other disciplines. The study was undertaken October- November 2007 and used a number of methods to:

- Identify regulators in the UK who set a student: staff ratio, the rationale for setting this policy, the impact it has on programmes and any evaluation of such a policy
- Identify other midwifery/healthcare regulators outside the UK (see appendix 1 for countries considered) that set a student: staff ratio, the rationale for setting this policy, the impact it has on programmes and any evaluation of such a policy
- Identify which staff are included in the calculation of any regulated student: staff ratios
- Identify evidence on the effect of student:staff ratio on the quality of the delivery of programmes, the wellbeing of students, the production of safe and effective to practitioners and the ability to secure resources for the provision of educational programmes
- Identify any evidence on the effects of removal of a policy of student:staff ratios in relation to a reduction in the numbers of appropriately qualified teaching staff?
- Identify alternative approaches to determining quality output.

Methods

A multi method approach was adopted to identify current diverse sources of evidence that could inform decisions about the issue of student staff ratios in midwifery education. These included:

1. Communication with key informants to identify current practice, opinions and sources of evidence about SSRs. Informants included international midwifery educators and regulators and regulators of other practice professions in the UK
2. Review of the published literature
3. Review of grey literature including unpublished sources and websites.

Key informant communication

Key informants were identified through consultation with the NMC, through personal contacts and snowball sampling strategy, through searching websites, and literature. The NMC also sent out an email to heads of midwifery in UK Higher Education Institutions in September 2007 detailing the work being undertaken and asking for any grey literature or comments. We emailed other key informants in the UK and abroad directly. We collected and collated email responses and conducted telephone/face to face interviews with:

- A Council of Deans representative
- 1 Union representative
- 4 Midwifery educators in UK (3 heads of midwifery), 1 in Denmark, 1 in Sweden
- 1 Consultant Midwife in acute trust in England
- National Head of Teaching Enhancement in Law
- 1 Nursing and Midwifery regulator (EIRE)
- Secretary General International Confederation of Midwives

Review of grey and published literature, unpublished sources and websites

A search of the evidence base in published and unpublished sources was undertaken. For published work we searched the following databases: British Education Index, Australian Education Index, ERIC, Web of Science, CINAHL; ASSIA; CDSR (Coch), ACP Journal Club, DARE, CCTR, AMED, British Nursing Index , British Nursing Index Archive,

EMBASE, HMIC, International Bibliography of the Social Sciences, IPAB, MEDLINE, MWIC, PsycINFO. See appendix 3 for the search terms we used in each database.

Because of the scarcity of evidence we considered evidence from all sources. Evidence was analysed to determine it's strength with particular regard to the robustness research/evaluation research undertaken, and any divergent or supporting evidence including evidence about staff ratios in midwifery education in other countries and other professions.

How this report is organised

This report is organised into three sections. Section A: considers published literature. It asks what are SSRs, offers critiques of SSRs, and examines SSRs in health professions and in nursing and midwifery in the UK. Section B: Draws on the data from key informants. Section C looks beyond SSRs to examine performance indicators in education more generally, before the final section of summary and conclusions.

Section A: SSRs: the review of the published literature

The extensive search for published literature revealed little evidence either within healthcare or indeed in higher education more widely. Direct formal evaluation or research of implementing SSRs was essentially non existence although we found some evidence that might tangentially inform the debate. Our request to informants to identify for grey literature did not yield any references we did not already have.

What are staff student ratios?

The staff student ratio (SSR) in education is a quantitative formula designed for determining the allocation of resources (Murray et al 1996). It refers to the number of staff in relation to the number of students calculated by dividing the teaching load of the department by its equivalent full-time teaching only and teaching & research academic staff. So, fundamentally it is a measure of total number of students divided by the total number of staff**.** Other components potentially used in formulae include variations of the components of staff and students such as: WTE staff/students, average number of students, projected average number of students, student load, contact hours, clinical contact, annual leave and course/programme credits. Thus there are many ways to calculate the ratio and a lack of standardisation in components for the formulas used has been noted (Procter et al 1994).

Recently SSRs have been used in Higher Education league tables as a proxy measure of quality. The Times Higher Education Supplement (THES), reported staff-student ratios in UK universities, including a league table, selected elements of which are:

- Best ratio: 3.6, at the London School of Hygiene and Tropical Medicine
- Next best: 5.9, at Cranfield University
- UK average for universities and other HE institutions: 16.8
- University of Warwick is in 30th place out of 118 institutions with a SSR of 15
- The worst recorded score was Middlesex University with 26.4.

(THES May 7 2007)

Staff student ratios in nursing and midwifery in the UK

Midwifery education in the United Kingdom

Ratios were set by the English National Board (ENB) in 1993 at 15 students per nurse/health visitor teacher and 10:1 for midwifery. In 1994 the ENB commissioned a study to examine the methods used to calculate SSRs (Procter et al 1994, Murray et al 1994). Questionnaires were sent to all 108 nursing and midwifery colleges offering ENB validated courses. Ten semi-structured interviews were completed. Despite a low response rate (36%) the research concluded that there was no standard way of assessing SSR. Indeed, 17 different formulae were given by education managers as ways of calculating the SSRs for the pre- and post-registration nursing and midwifery programmes.

The study also revealed a number of issues and opinions which respondents highlighted. Respondents felt that the link between the SSR and the quality of the course/programme provided was tenuous. They felt it was necessary to undertake additional managerial processes such as, the development of notional parameters on teachers' workload and course/programme costings, in order to properly examine the quality of course/programme provision. Using SSRs as a funding mechanism inhibited staff deployment and economic viability of courses/programmes, within colleges of nursing and midwifery.

Other issues that emerged included:

- Potential advantages of a uniform approach to calculating SSRs to facilitate benchmarking
- Conversely a view that a 'one size fits all' approach failed to recognized diversity among education providers
- Potential inflexibility in management of programmes and use of resources
- Potential stifling of creativity
- Advantages in workload management
- Potential divisiveness where related disciplines had less favorable SSRs
- Limitation and inhibition of cross programme/interdisciplinary teaching
- Loss of economies of scale and inhibition of small specialist courses
- Difficulty convincing others within HE of the importance of clinical links and therefore the need for favourable SSRs.

This latter point is discussed in more detail below in key informant responses.

SSRs in other disciplines

Within nursing the perceived links between SSRs, learning outcomes and the ability to support practice learning in nursing were identified in a US study that compared colleges where faculty practice was expected and those that did not (Langan 2003). However we found no direct evaluations. In other health professions the picture is equally unclear.

A body of work examines the effect of class size, although this should not be confused with an overall SSR. There is significant evidence on the effect of class size on student outcome but limited explorations of its effects in Higher Education.

In Canada a recently conducted randomised controlled trial of medical students learning suturing techniques, found the optimal staff student ratio was 1 member of staff for 4 students. Higher ratios of staff to students resulted in no improvements in learning, and lower ratios of staff to students resulted in significantly less learning (Dubrowski & MacRae 2006). One key informant at interview also reported recent work which had established a ratio of 6:1 student/staff ratio for clinical skills teaching in a skills laboratory regardless of healthcare profession (although we were unable to locate the evidence that was cited to verify this).

Here in the United Kingdom there is considerable variation in duration and staffing of anatomy teaching of trainee doctors, according to the type of curriculum. One study found teaching was supported by a high proportion of part-time clinically qualified staff, giving an overall average staff/student ratio of 19.8 in a dissection class. Yet substantial variation in the level, content and depth of anatomical curricula across the country was identified and recommendations made for this to be quantified (Heylings 2002).

Also in the UK a nationwide survey of pharmacy education established the nature and content of contemporary teaching of extemporaneous preparation/dispensing in UK schools of pharmacy. Extemporaneous preparation (the process of modifying an authorised preparation from raw materials) is currently taught in all 16 UK schools of pharmacy, with all students gaining practical experience of this type of dispensing. Practical classes, which encompassed 62% of the total time spent on teaching extemporaneous preparations by all the schools, were the most popular mode of teaching used. Students spent on average 29.7 hours in practical classes which comprised between 26 and 50 students in the majority of cases, with a mean student/staff ratio of 11:5. All schools included registered pharmacists in their teaching

teams which comprised predominantly academic staff, teacher practitioners, laboratory assistants and technicians and postgraduate demonstrators (Chowdhury et al 2003).

There are studies which also suggest that class size is significant for more learning other than practical /practice skills. For example Becker et al (2001) examined the effects of class size and other class-specific variables (missing student questionnaires and attrition) on learning of economics. Beginning class size was significant and negatively correlated to learning. In part this was because students in larger classes were significantly more likely to withdraw before taking the post-test (Becker et al 2001).

Small group teaching offers students an opportunity to discuss and refine their understanding of complex issues, to problem solve and apply their knowledge to new situations, and to reflect on their attitudes and feelings. However, although small-group teaching offers many advantages, it also poses certain limitations. Teaching in small groups can be more costly because it requires a higher teacher-student ratio; small groups can easily be misused and can, therefore, become inappropriate; and some teachers find small-group teaching difficult-if not alien to them (Steinert 1996).

In nurse education one study rated teacher knowledge as most important followed by feedback and communication skills (Kelly 2007). In Hong Kong small-group student-centred learning activities were reported as creating an active, safe learning environment with beneficial opportunities for peer-peer interaction such as questioning, teaching and learning from dental students (Botelho & O'Donnell 2001).

There are other indicators that should also be considered; teaching methods, the entry points of students, financial resources or even the reputation of the academic institution can have an effect on learning outcomes. A Scottish study also found a positive correlation between the Teaching Quality Assessment (TQA) and Research Assessment Exercise (RAE) results. This was not however, fully verified when the results were disaggregated into specific cognate areas. With regard to entry points of students, there was a significant relationship to TQA results, which may be attributable to reputation effects rather than other factors (i.e. student staff ratios). Other performance indicators such as library spend, meanwhile, have little or no impact on teaching quality assessment scores (Drennan-Lynn 1999).

The Organisation for Economic Co-operation and Development (OECD) provides a comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. The indicators include resources (including SSR), access, student attainment and attrition (OECD 2006).

Critiques of SSR

Although the limited evidence presented so far lends some anecdotal support there appears to be no research that has directly investigated and validated overall SSRs as a measure of quality in terms of any aspect of output, educational attainment or student experience. There is certainly no evidence for the value of SSR independent of other quality indicators. The research conducted in the UK relating to mandated SSRs for nursing and midwifery also highlighted some potential adverse consequences and limitations in the use of SSRs. These are reflected in the wider debate about SSRs in higher education.

Earlier this year Universities UK (UUK) and Universities & Colleges Employers Association (UCEA) made the following joint statements about staff-student ratios:

> "There are significant variations in definitions and methodologies when calculating 'international average' SSRs. The OECD points out that, unlike other countries, the UK figures relating to the ratio of students to contact staff refers to public institutions only. In other OECD countries private tertiary institutions are also included."
>
> "In addition to this HESA's recent statistics reveal that the number of students in higher education has increased 2.1% from 2004/05 to 2005/06. There was a 2.6% increase in academic staff over the same time period."
>
> "The figures reveal that the number of students per member of teaching staff in the UK has decreased from 18.1 to 16.8 in the past two years. This does include atypical staff, whose hard work and contribution to the student experience is highly valued."
>
> "Through the Spending Review Universities UK has urged the Government to maintain the unit of funding for teaching and to provide more money for teaching infrastructure, such as buildings and equipment."

The views of the University and Colleges Union regarding student: staff ratios are discussed in their report *Further Higher Better,* which states:

> "Over the past three decades, the student:staff ratio in UK higher education has increased from 9 students to 1 teacher, to 19 students to 1 teacher. This is a rise of more than 100%. Over a five year period to 2003, OECD data show the student: teaching staff ratio in UK higher education fluctuating at around 18:1. This was consistently higher than the mean ratio for OECD countries, of 15:1, and was also considerably higher over that period for the United States of America (USA), Germany and Japan". (UCU 2006).

As can be seen from the statements above, there are considerable differences of opinion with regards to the status, value and meaning of student staff ratios between representatives of universities and unions. Clearly from the evidence considered so far while there may be some link between SSR and quality it is mediated by a complex series of relationships and it is difficult to discern the basis upon which a specific staff student ratio applied across institutions could be used in isolation as an indicator or assurance of quality. We now move on to consider informal evidence gleaned from our informants.

Section B: Key informants and regulators for midwifery

UK

Staff student ratios in midwifery

The NMC undertook a consultation earlier this year. One question in the consultation related specifically to SSRs. Respondents were asked "Do you agree the NMC should set a minimum ratio of practising midwife teachers to student midwives?" Over 90% of respondents (n=318) and six out of the ten Key Stakeholder Organisations (KSO) (see appendix 2 for list of KSOs) agreed that the NMC should set a minimum ratio of practising midwife teachers to student midwives. A few respondents suggested that the actual ratio should be one practising midwife teacher to ten student midwives; that the ratio should not be above 10:1; or that there should be a ratio of 12:1.

One KSO said they would

> "support a teacher student ratio of 1:10, to include an analysis of the time spent within the clinical area, and omitting those midwife teachers who may be designated into roles such as management and research where direct student support is not a major part of their role."

They noted that this will have a significant impact on the student benchmark price which would need to be reviewed.

Two other KSOs suggested that outcomes and measurable benefits, rather than inputs and ratios, are more useful indicators. One of these cited the position in Scotland where clinical staff are encouraged to teach on education programmes, as well as Practice Education Facilitators and others. Strictly speaking they are not teaching staff so would not count within a teaching ratio. They believe that:

> "It should be possible to quality assure programmes in such a way that the NMC can be assured that students are being taught by correctly skilled staff."

On the issue of resources one KSO referred to the huge resource implications for higher education institutions, and another stated that staffing resources are a matter for higher education institutions to determine, not the NMC. Although one KSO considered the setting of ratios to be good practice, they stated that the proposal would need to be considered in the light of resources and the prioritisation of their allocation.

Other comments made by KSOs were that if teachers are expected to undertake clinical practice this would help to ensure that there are enough teachers to provide education programmes, and that if a standard is set, then it should also apply to nursing. One KSO suggested that it would be useful to have some benchmarks surrounding mentorship support.

Midwifery key informant evidence

In this scoping study emails, interviews and discussions with key informants in the UK revealed much about SSRs in midwifery education in the UK and confirmed many of these issues highlighted in the NMC consultation.

Midwifery Educationalists

Of the four midwifery educationalists we spoke to, the existing ratios in their institutions varied from 9:1 to 16:1. Most calculated these at the number of student midwives divided by the number of Whole time equivalent (WTE) midwifery lecturers. In all four cases only midwives were included in the SSRs. The rationale for these SSRs was seen to be historical and the ENB Policy of 10:1 midwives reflected the different route midwifery took (to nursing) in not employing clinical teachers, thus requiring a higher SSR to allow midwives to stay close to practice and to support students in practice. Not setting an SSR was seen to be detrimental to the quality of a programme and nursing was used as an example:

> "This is most obvious in my opinion in nursing. Many of the problems which currently beset pre-registration nursing is because of a lack of understanding about the professional practice needs when the course is taught largely by non nurse teachers. The removal of an SSR or the failure to recognise and support it does not enhance the quality and provision of the programme".

Some argued that the more favourable SSRs in midwifery (than nursing) reflected the need for midwives to be autonomous practitioners in antenatal, labour and postnatal care, with a very prescribed skill set, which was perceived as different to nursing practice.

However despite the positive affirmation of SSRs, responses identified a number of problems related to a fixed ratio. It was felt that smaller schools of midwifery may need different ratios as the resourcing for 50 students may not be very different than 15, and therefore it was not possible to put a number on SSRs. Other schools with many geographically distant sites, perceived that they had more demands placed on their midwifery lecturers' time because of the practice support requirements and the time taken to travel to, from and between practice sites.

There was talk of the need for realism by two key informants and a fear that if the NMC set a ratio of 10:1 "we may end up shooting ourselves in the foot", making midwifery education in HE unviable. All said ideally they would like a ratio of 10:1 to ensure quality educational provision particularly the support required in clinical practice, but wondered in reality if it were affordable. For some there was a real sense of dilemma:

> "take the ratio away and you will have a real reduction in standards and quality, keep the 10:1 and we could price midwifery out of the market".

One key informant, highlighted a question on the NMC monitoring form, which asks whether there are enough lecturers to deliver the programme, yet was unsure what criteria would be used to determine this. None could identify an evaluation of the policy in their institution but all felt it contributed to the quality of the programme:

> "There has been no formal evaluation but it is recognised that without our current level of midwife teacher, the provision of our programme would be of a much poorer quality and the issues to public protection would be much greater".

Thus SSRs were seen to be a useful guide, but not the whole picture. What was seen as most important was the amount of time midwifery lecturers were required to put into practice to support students and ensure quality and fitness for practice. This was identified as 20% of lecturers' time or a day per week. Two informants also mentioned new guidelines in 2008 that require a grade or mark (as opposed to the current system

of pass/fail) for students practice placements. The university will not allow practice mentors to give a university grade / mark.

Two institutions cited the introduction of a system of tripartite interviews in practice, with the lecturer, the student and the practice mentor. This was perceived to improve quality by supporting mentors to fail students if necessary. However this had obvious implications for resourcing in terms of midwifery lecturers' time. The requirement to contribute to inter-professional education whilst welcomed was also perceived to have additional resourcing demands, which were not always met.

One interviewee identified that recent cuts in HE institutions delivering healthcare programmes, had substantially impacted on their midwifery programme. Over the past 2 years their WTE had changed from 6.4 midwifery lecturers to 4.6, with minimal reduction in student numbers. The remaining midwifery lecturers were working at full tilt to continue to deliver quality programmes to students which was felt to be detrimental to their own health. In these circumstances the link lecturing role, valued by both students and midwives was one of the first things to go, with a perceived detrimental impact on quality outcomes and fitness to practice.

Educationalists were aware of the Council of Deans opposition to a set SSR, and one used medicine as an example of where adequate resourcing (in this case without an SSR) of a programme was evident and was perceived to be supported by the CoD, whereas the teaching support in nursing and midwifery was perceived to be under threat:

> "I would point to medicine as an example. Although they do not have an SSR as such, the cost enables them to staff their programmes with the highest quality of practitioners and a significant contribution is made from practice. The removal of such would be strongly resisted by medicine and I do not see the Council of Deans or others seeking to reduce the teaching support to students of medicine so why do they seek to do so in midwifery and nursing?"

In summary although they identified a number of issues and problems associated with a fixed ratio all educationalists interviewed felt that the 10:1 ratio was an important benchmark:

> "I am firmly of the opinion that if the SSR were to be removed, a safeguard in midwifery would be lost and our programmes decimated. Shared teaching has not been shown to benefit smaller professional groups and merely leads to diminution in their grounded knowledge, experience and expectation all of which weakens our professional and practice values and denies women appropriately qualified midwives".

Two of those interviewed were pragmatic and said whilst they would like a ratio of 10:1 they felt this may in the end be detrimental to midwifery education, ultimately pricing themselves out of universities.

Council of Deans

We interviewed a spokesperson from the Council of Deans (CoD) who represented their views, and although some educationalists suggested there was not a unanimous CoD voice, it is taken here to represent the dominant CoD view. Whilst saying that they are not unsympathetic to the views and issues raised by the educationalists, their view was that:

> "…it is inappropriate for a regulator to set a quality 'standard' in terms of an input, such as a student-staff ratio, rather than the required outputs in terms of the competencies of qualifying students".
>
> "If such a standard is adopted and it is at a level requiring any enhancement of current staffing levels, some universities would seriously consider whether or not to continue to provide midwifery education."

It was felt that it was inappropriate therefore for the NMC to establish a particular SSR, and one of the dangers would be that if the standard could not be met approval to deliver courses would be withdrawn and thus a number of universities who were struggling to meet a 10:1 SSR could loose midwifery education. Thus echoing the fears of some educationalists above.

CoD also suggested it was an outdated measure in view of developments in learning and teaching methods and technologies:

> "The concept of a student-staff ratio is now outdated in higher education as the support for student learning now involves very many other factors, as well as the availability of teaching staff."
>
> "A decision to adopt a student staff ratio as a quality standard will have serious resource consequences which might divert funding away from non-staff teaching and learning resources, which would adversely affect the total student learning experience."

It was seen to be up to individual heads on midwifery to argue for resources and recognised that midwifery required greater resources than nursing, particularly in light of the fact that midwifery cohorts tended to be small. If these resources were not forthcoming it was suggested it should be pursued with the trade unions or through other grievance procedures.

In England the funding for midwifery is more than for nursing, whilst in Scotland it is the same. Figures from the Spokesperson at the CoD suggested the benchmark prices for nursing and midwifery were established in 2002 when JM consulting undertook work to determine the prices for nursing, midwifery and allied health professions. This was followed by subsequent negotiations between universities UK the Department of Health and this became the basis for the final agreement which was that funding was based on an SSR for nursing of 14:1 and a ratio of nursing to midwifery prices was that midwifery SSRs could be no better than 12.2:1 Anything better than 12.2 SSR in midwifery, would not reflect the price differential between nursing and midwifery. JM consulting is currently reviewing these prices.

Midwife in practice

A consultant midwife in a large teaching trust was included in the key informants contacted. From their perspective they felt that since education moved to HEIs the education link to practice was not so strong, and in their trust they see few link lecturers in practice, and felt what had suffered was the assessment of students, with mentors in practice largely assessing on their own, which in their view, meant that one or two midwives had gone through and passed the course who perhaps shouldn't have done and with stronger support from the HEI this may have been avoided. They felt overall that the 1:10 was a good model but appeared not to be achievable. Some lecturers managed one day a week in practice but they felt this may reflect an uneven workload for lecturers, with those with heavier HEI responsibilities unable to get to practice as

often. From their perspective, if the SSR were changed to, for example, 1:15 they were not sure what difference it would make to them or the students as they were not seeing many midwifery educationalists in practice anyway. Overall however, the consultant midwife did feel that the UK had a better model of managing theory and practice than in Europe for example, where students were not in practice as regularly.

Unions

A spokesperson at the Royal College of Midwives was interviewed and represented their views. These views represented feedback received by the RCM from midwifery educationalists thus mainly supporting an SSR in midwifery. The RCM support a ratio but recognise there are difficulties. Their spokesperson suggested that if there was no mandated SSR, this may be 'too soft' an option which can then be easily ignored, and if a figure is recommended then people will aim to achieve it. The RCM were realistic about SSRs and wanted a degree of flexibility in any SSR to allow others who teach midwives to be included, yet feel it is important that midwifery should be taught by qualified midwives, to ensure quality and a meaningful clinical interface. The 1:10 ratio was felt to be historic and not based on good evidence:

> "We support an SSR but take into account that there is a need to gather evidence to see what that SSR might be."

The RCM had evidence from midwifery educationalists of them not being able to support a 1:10 ratio, and of educationalists having to work very long hours to support students with insufficient resources, to the detriment of members' health.

An RCM publication (Valuing Practice: A springboard for midwifery education: 2003) was also examined and some evidence of the college's position vis a vis SSRs was found. Recommendations included:

> "Universities work with their service colleagues to identify a base for educationalists within the clinical setting and that time in clinical practice in clinical practice as with medical colleagues is a recognised part of the working week."

> "A midwife involved in education should have a minimum of a 20% practice role. This could be a day per week practising in the maternity services, and will vary according to the care provision" (page 10).

Unison was contacted but we were unable to find a convenient time to speak.

Other Healthcare Professions

During the course of this scoping study we sent emails to health professions (i.e. medicine and pharmacy in the UK and in addition we also canvassed the views of the nine UK health regulators who form the Alliance of UK Health Regulators on Europe (AURE). AURE was formed in 2002 to raise awareness and support for their concerns regarding the EU Proposed Directive on *"Recognition of Professional Qualifications"* which proposed that healthcare professionals from any EU country would be permitted to work for up to four months per year, every year, in the UK without being registered with a UK regulator.

We contacted members of the AURE group of professions by email and telephone and their responses were as follows:

Table1: UK Alliance of UK Health Regulators on Europe

Regulator	Response
General Chiropractic Council	Chiropractic clinical training varies between 6:1 and 10:1 and must be carried out under the supervision of individuals registered with the General Chiropractic Council (GCC).
General Dental Council	Do not hold data on staff student ratios.
General Medical Council	Unable to comment
General Optical Council	Do not hold data on student staff ratios
General Osteopathic Council	Ratios of 10:1 are outlined for practical sessions and clinic sessions – see below.
(Royal) Pharmaceutical Society[1]	RPSGB does have a student:staff ratio in the accreditation criteria for an MPharm

The Royal Pharmaceutical Society of Great Britain commented:

> "The context for pharmacy education is different from that of nursing and midwifery. This different context is important - you cannot simply compare the ratios. The RPSGB does have a student:staff ratio mentioned in the accreditation criteria for an MPharm, whether or not the Schools of Pharmacy want to increase the amount of contact below a minimum is up to them. Each School of Pharmacy may give a different answer."

> "With regard to the practical component of training - the preregistration year, there should always be a ratio of 1 Pharmacist to 1 Preregistration Trainee Pharmacist in a given training site. Different sectors of practice operate in different ways. Nursing does not have the same commercial community sector that we have - for us a community Pharmacist who is the tutor must work full-time along side their Preregistration Trainee Pharmacist. In hospital, there will always be a Pharmacist supervising the Preregistration Trainee Pharmacist, but the tutor may not have day-to-day interaction."

As the General Medical Council were unable to comment views from the BMA were sought:

> "There is a significant body of opinion amongst our members which believes the RAE has impaired medical schools' ability to deliver the kind of education now recommended by the GMC (i.e. small groups, self-directed learning, special study modules etc.), creating a pressure to revert back to large lecture-based teaching formats. This pressure is multiplied by the effects of increased medical student numbers on staff : student ratios. Although the numbers of clinical academic staff are now stabilising and have even increased in recent years, the proportionate increase required to maintain current ratios will require between 500 – 1000 additional clinical teachers".

[1] Pharmaceutical Society of Northern Ireland and Royal Pharmaceutical Society of Great Britain.

In Osteopathy[2] teaching practical skills in clinical education has some guidelines for SSRs.

> "Provision for students to view and assess their own osteopathic practical skill performance through the use of video recording and playback is ideal, but certainly regular tutor feedback in this area is critical. It is important that teaching and supervision in practical osteopathic technique skills is performed by suitably qualified osteopaths, usually registered with the GOsC. The experience of the members of the benchmarking group representing the academic community suggests that the student to tutor ratio during practical sessions would normally be no greater than 10:1".
>
> "The collective experience of the members of the benchmarking group representing the osteopathic academic community, and the intention to achieve best practice, indicates that these factors would be addressed by providing the following:
>
> - a dedicated clinic facility with appropriate provision for the discussion of patient cases, such as adequate availability of private 'breakout' rooms/areas
> - a clinical supervision ratio of one tutor to a maximum of five students being supervised while interacting directly with their patients at any point in time. The total number of students assigned as a group to one tutor during a clinic session would not normally exceed 10."
>
> (Osteopathy QAA benchmark statement 2007).

Our scoping study also revealed that some professions whilst not having set SSRs with the regulator have used SSRs in Higher education providers. For example, in physiotherapy at Keele a student staff ratio for teaching 12:1 was identified[3]. The British Acupuncture Council in their Guidelines for Acupuncture Education (April 2000) suggest:

> "For the 200 hours of personal management of patients, it is recommended that the educational value of this supervision is best served by a ratio of not more than four students to one supervisor"[4].
>
> In professional training for work and organisational Psychology, The Psychological Society of Ireland in 2006 suggested they would resource the programme through " Staff / student ratio shall not fall below 1 full time staff member to 10 students"[5].

Thus we see that while not universal and not comparable between professionals' reference to SSR and the link to quality and the nature of education that can be provided is common among health care professions. The use of a benchmark or SSR figure by regulators is for clinical practice is not universal but is also quite common.

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[2] http://www.qaa.ac.uk/academicinfrastructure/benchmark/statements/Osteopathy07.asp

[3] http://www.keele.ac.uk/depts/pt/courses/undergrad/BSc%20Hons%20Physiotherapy%20Final%20Progamme%20Specification.pdf

[4] http://www.acupuncture.org.uk/content/resources/Guidelines_for_Education_Use-2.pdf

[5] http://www.psihq.org/DOCUMENTS/WO06.PDF

Student staff ratios in wider professions in the UK: Case of Law

In addition to the above health professions we also sought the views of the Law regulators. In law SSR is a popular regulatory mechanism: Both the Solicitors Regulatory Authority and the Bar Standards Board set staff student ratios for their programmes. For example, our response from the solicitors' regulation authority (SRA) suggests that at present they do:

> "stipulate that there should be a student to staff ratio (SSR) of 12.5: 1 on the Legal Practice Course (it differs for larger providers 18:1). The providers when calculating the ratio take into account full time, part time and fractional appointments and this has proved difficult for the SRA to monitor and evaluate because it also depends on whether they are dedicated to teaching on that course".

However:

> "We do not ask the providers to evaluate the impact of the SSR on the programme however the course is monitored each year by a panel of assessors who check that the course is appropriately resourced and staffed. I think that most of the providers would report that the SSR requirement had a positive impact on the course when they were first authorised as they it enabled them to secure the appropriate staffing numbers. I have no evidence that the SSR has a positive impact on the students".

The use of SSRs is however currently under review:

> "…I believe that from September 2009 the SRA will not prescribe an SSR because of the difficulties encountered above. However, validation panels will still consider the adequacy of the teaching and learning resources including the number and qualifications of the staff that will be involved with the teaching of the course".

Barristers also have 12.5:1 ratio. There is considerable practice assessment of students in relation to criteria and also academic feedback. But the Bar Standards Board is still keen in their review of the Bar Vocational Course to increase the ratio to 16:1. This move is controversial.

- As a result of the issues outlined above, in 2007 the Solicitors Regulation Authority (Solicitors Regulation Authority 2007) carried out a consultation with solicitor firms, academic institutions and a range of various other respondents including Law Society and the Government Legal Service on proposals for developing the Legal Practice Course (LPC).

On the whole, key informants put forward many areas where they felt the SRA should set out mandatory requirements. Key informants thought that the SRA should set down mandatory requirements for entrance and assessment criteria, staff student ratio, notional learning hours (with a set amount for skills), minimum class contact hours, monitoring regime and grading criteria, basic skills and pervasive subjects, physical resources, a set period for completion, providers disclosing exact course content, compulsory attendance for small and large groups session work, consistency in training regulations and course length.

Providers (i.e. education providers) thought that the SRA should set down mandatory requirements for:

- staff student ratio (five providers wanted this set out by the SRA)
- notional learning hours, including a set amount dedicated to skills (three providers wanted this)
- specified minimum class contact hours
- Written Standards/Outcomes and assessment requirements
- physical resources i.e. accommodation, library, IT provision
- set period for completing the compulsory LPC and electives
- compulsory attendance for small and large groups session work
- all providers to disclose certain information in a specified form, i.e. minimum learning hours, staff/student ratio, proportion of previous year's students who had, and went on to gain, training contracts
- subjects to be studied
- prescriptive regulations for minimum required level to be achieved.

One of the providers who wanted staff/student ratios and resource provision set down did state that they did not want requirements to be global – rather, that *"the SRA should make a determination as to what is appropriate for a particular course."*

One provider did not want a requirement on how many teaching hours must be face-to-face, and another, although they wanted minimum written standards for essential content coverage, did not want the SRA to set learning strategies. Only one provider respondent wanted the current regulatory requirements to continue.

This very short review of SSR's in Law serves only as an illustration; nonetheless it does demonstrate some of the aforementioned tensions in the evaluation of education outcomes.

Nursing and midwifery education in other countries

The NMC asked us to look at a number of counties outside the UK, and selected those which most closely resembled the midwifery education / professional practice of midwives in the UK (see appendix 1 for list of countries). Background information on the situation in those countries can be found in adjunct document (see report supplement)

To take forward the work, we searched and found (where possible) contact names and organisations for the countries selected by the NMC. The identified contact person in each country was either telephoned or emailed. Follow up email and telephone calls were necessary. The responses from each country are as follows:

Table 2: Country responses re SSRs in midwifery

	Country	Set SSRs?	Comments
	Australia	In Victoria ratio of 1:8	Now moving away from ratio – no evidence to support (see below)
	Belgium	-	No response
	Canada	No ratio set (Manitoba)	Individual HEI's decide (see below)
	Denmark	No	See comments below
	Finland	No	See comments below
	France	-	No response
	Germany	-	No response
	Ireland	No	SSR abolished 2002 (see notes below)
	Italy	-	No response
	Japan	No	See comments below
	Netherlands	-	No response
	New Zealand	-	No response
	Nigeria	-	No response
	Norway	-	No response
	South Africa	No	See comments below
	Spain	No clarification	See comments below
	Sweden	No	See comments below
	Switzerland	-	No response

In the course of our study we elicited more detailed information from midwifery regulators and midwifery / nursing associations in the 18 countries we contacted. In Australia, where nursing and midwifery are regulated in each of 6 states and two territories, we received a response from the state of Victoria:

> "The 8:1 ratio has been in place in Victoria for a number of years and at present Victoria is the only state apart from the Northern Territory that has this requirement for undergraduate supervision. The Nurses Board of Victoria have been recently challenging the reason for this ratio as we have not been able to find any evidence to support it except for some historical anecdotal evidence that it commenced with the idea that an 8 hour day with 8 students would theoretically allow the supervisor an hour with each student. We have recently

> moved away from this ratio but interestingly education providers quite like it and continue to use it. We are now requesting the education provider to justify any ratios they may use in terms of complexity of the placement, type of placement, year of the course etc. We are now also requesting that any clinical models are explained and justified i.e. ratios, preceptor model 1:1, 'buddies' for an number of students with an overall supervisor who is responsible for the final clinical review based on the 'buddy' and other feedback etc."

In Canada**,** nursing and midwifery are regulated in each of the 10 provinces and 3 territories; we contacted all territories and provinces and received the following response from Manitoba territory:

> "In Manitoba, the College of Registered Nurses Manitoba (CRNM) does not set any staff to student ratios for nursing students. It would be up to the educational institution, in consultation with the clinical setting, to decide (plus, ratios would differ for clinical supervision depending on where the student is in their program)."

In Denmark and Finland the responses we received suggested like Manitoba, they also did not set an SSR:

> "Denmark do not set a student staff ratio. The government in Denmark use a system called a 'taxometre' which is effectively a financial tariff that is received by institutions in receipt for successfully training midwifery students (i.e. more success equals more income). Quality assurance is maintained by external censorship by the Ministry of Education and they supervise exams and lectures. Midwifery education is financed by the state. Student fees are paid and students receive a full maintenance grant."

> "In Finland the student staff ratio is not defined. Midwifery is a separate qualification in Finland, although the midwifery students qualify to work also as nurses. The units have a right to determine how many students they will accept at a time. Practically, one nurse has only one student to mentor. To my knowledge, average students amount to 1-2 students per mentor at a time."

Our interview with a member of the regulatory team in Ireland also suggested they do not set an SSR. They previously had set an SSR, like England, of 15:1, but abolished it in 2002 as it was not longer seen to be practical and it is up to institutions to determine their appropriate teaching resource. When nursing and midwifery moved into HE all nursing and midwifery teachers retained their jobs, because of strong union representation. Some programmes were therefore currently perceived to be over resourced and staff here likely to be shed through natural wastage. This was felt to be one of the reasons that the SSR was able to be dropped with minimal opposition. Another respondent (educationalist) in EIRE however suggested there was an informal SSR of 18:1. An holistic approach to measuring quality is adopted in Ireland through a number of mechanisms, including student support and supervision in practice with each student having a named preceptor (An Bord Altranais 2005).

In Japan we contacted the Japanese Nursing association and a Japanese colleague accessed the Ministry of Health website, both suggested SSRs were not set in Japan:

> "The Japanese Nursing Association do not set a student staff ratio. Japanese midwifery students practise mainly in hospitals. They are supported by a ward based practical trainer (RM) and or an educational institution based teacher (RM) both of whom can provide mental support and opportunities for students to integrate knowledge and practice."

> "Nursing school must have the appropriate number of tutors and more than three of them should have the qualification of midwifery. 5. The number of students should be under 40 per class. However this restriction does not apply as far as there are good effects of teaching considering teaching methods or facilities."
> MoH website Japan.

Our contact in South Africa**,** an associate Professor in a University in Durban, suggested within country variation and some SSR indicators, but these are not regulated or sustainable:

> "Midwifery education is variable across the country. Midwifery is not taught in the same way in all schools across the country. E.g. in some provinces, midwifery is taught over two years. Most university schools of nursing have only one person teaching midwifery but the colleges may have two or three persons – but then their student numbers are greater – may be 50 or more students at one time. A student staff ratio in the class room of 1:20 is used compared to 1:4 in clinical situations. Only professional staff are included in the calculations. Although the class room ratio is often achieved the clinical ratio is not achieved. In reality the same teacher is responsible for teaching and supervising practice."

> "It is difficult to evaluate the impact of staff student ratios because the same person can be responsible for the supervision of up to 20 students in four different clinical settings therefore, it is very difficult to achieve quality clinical supervision. There has not been an evaluation of SSR's, although they are reviewed on a regular basis it has not been possible to produce a better solution, mainly because it is difficult to find suitable teachers and clinical supervisors. Although SSR's are supposed to help secure funding for resources in reality they do not. This is because total resources have not allowed for the appointment of additional staff. Rather than attaching significance to SSR's students are required to pass written examinations and practical examination to be considered safe and effective to practice. We believe pass rates / input from key informants about the quality of new practitioners are more effective than SSR's in determining quality output."

In Spain we were unable to get a clarified response from our contact in Spain, a University nursing school director, and received the following:

> "The student ratio is regulated by law. The Regional Health Authorities inform to the Ministry of Health of the number of positions they can offer. This number is based in the need of midwifes in each region and the budget possibilities, as they have to pay the education of the future midwifes. In this year, 355 positions have been offered in Spain for the Nursing Speciality of Midwifery".

Finally in Sweden we had responses from the Swedish Association of Health Professionals and an associate professor at a Swedish HEI, both suggesting no SSRs are sued in Sweden:

> "Sweden does not use staff ratio calculations in midwifery education. In clinical areas each midwife might have 2-4 students. All midwives appointed as supervisors have close contact with the University. At least once a year all midwives meet at their University to be updated of what's new in the education."
> Eva Szutkowska: Swedish Association of Health Professionals

> "In Sweden universities are independent and after a thorough peer review process some have been given the right to issue Midwifery Diploma after the Midwifery programmes, but there is no general national recommendation for student/teacher ratio. In Sweden SSR's are not used. Quality assurance is managed at a local level. At a national level, an evaluation/review of all programmes is undertaken by 'The High School Authority' (translation) every three years. In the last review, 2 programmes scored badly and have been asked to improve before the next one. Badly performing programmes run the risk of being closed."
> Margareta Larsson, Associate professor, Uppsala University, Sweden

Section C: Beyond student staff ratios: performance indicators in education

Following the recommendations of the Dearing report (National Committee of Inquiry into Higher Education 1997) the UK Government asked the funding councils to develop suitable indicators and benchmarks of performance in the higher education sector. Performance indicators currently cover:

- access to higher education
- disabled students
- non-completion rates for students
- outcomes and efficiencies for learning and teaching in universities and colleges
- employment of graduates
- research output.

(HESA 2007 – ref Higher Education Statistics Agency Performance indicators in higher education in the UK 2005/06 http://www.hesa.ac.uk/index.php/content/view/409/141/ accessed Nov 2007)

When proposals for performance indicators (PI) were put forward, there were concerns that publishing such indicators would encourage people to make comparisons between institutions which were so different from each other that they should not be compared.[6] The first indicators to be considered were those of access and progression. The major factors leading to differences between institutions in these areas were the subject mix at the institution and the entry qualifications an age of the students at the institution. Sector averages taking these factors into account were produced. More recently, a 'location' factor has been included for some of the access indicators, and other factors have been used for the employment indicator. The resulting values have been called benchmarks. The purpose of the benchmarks is to allow any discussion of the reasons for the differences to be carried out on an informed basis[7].

Rethinking student staff ratios

As can be seen from the discussion above performance indicators are multi-variable and contain many factors including student staff ratios. As a measurement they offer a 'broad brush' approach to understanding and evaluating learning outcomes. Although the Further and Higher Education Funding Councils in the UK have put considerable amount of effort into developing strategies such as performance indicators (PI's) they remain difficult to define because they are neither a fixed entity nor a definitive measurement of quality or excellence, they are merely a gauge or a pointer. This section will consider some of the issues generated by performance indicators (including the use of SSR') in nursing and midwifery education and offer some alternative frameworks for consideration.

Performance indicators such as clinical teacher effectiveness has been a popular area of study in nursing (Mogan & Knox 1987; Reeve 1994; Raingruber & Bowles 2000) and receive a high priority in nurse education in terms of teaching quality (Rogues 1988) and teacher accountability (Van Ort 1983). The over emphasis on teaching rather than learning however, often gives focus to the education system and on quantitative measures of time spent teaching rather than quality indicators of the process (Cowman 1996). A narrow focus on teaching may also overlook the multi-dimensional nature of the teaching learning experience, for example the student's perceptions of effective clinical teaching (Kelly 2007); the level and ability of the student to engage with or use

[6] (HESA 2006) HESA 2006 PIs 2004/05: Guide to PIs accessed Nov 2007 http://www.hesa.ac.uk/index.php/content/view/411/141/)
[7] (http://www.hefce.ac.uk/learning/perfind/2003/reports/intro.doc)

critical thinking (Forneris & McAlpine 2007) and finally the student teacher relationship in terms of engagement with teaching and learning (Gillespie 2002). These concerns were reflected in our interview with a representative of the Council of Deans when concern was expressed that focus on SSR might inhibit innovation and focus resources on teachers as opposed to learning technologies. This was also reflected in the study of ENB mandated ratios when concern was expressed about lack of flexibility an inhibition of innovation (Murray et al 2004).

All performance indicators (including SSR's) must be interpreted as part of a coherent set of input, process, and output indicators and not as an independent variable. (Vlãsceanu *et al* 2004). But the more sophisticated and complex systems such as the HEFCE indicators gives little indication of the specific content and direct quality of education that could be used to verify the fundamental quality of practice education – that is the production of safe and competent practitioners. The Tuning[8] project focuses not on educational systems, but on educational structures and content of studies. Whereas educational systems are primarily the responsibility of governments, educational structures and content are the responsibility of higher education institutions. As part of the methodology, Tuning has developed reference points for generic and subject-specific competences for, nine subject areas. The recent report on the second phase of "The Tuning Project" (González & Wagenaar, 2006), emphasises the essential requirement for competency based curricula so that mutual recognition of qualifications becomes easier across Europe. Nursing (but not midwifery) has been part of the second phase of this project, the first practice based discipline to be included. The following variables are considered in relation to education/competencies and outcomes of nurses:

Box 1: Factors considered by the Tuning Project

Tasks

Organisation legally responsible for the clinical education

Organise and monitor of the quality of learning in practice

Who teaches students in practice on a daily basis?

Do the nurse teachers / lecturers do any teaching in the practice areas?

Are there any other formal roles that are used to support students in practice?

What qualifications / experience are required to be:

a. nurse teacher / lecturer?
b. a teacher / lecturer of nurses in school / universities?
c. a teacher of nurses on a daily basis?
d. Is there a special training for the teachers?

Is it a requirement that the practice area is assessed before students go there? if yes who does this?

Is the ratio of students/ patients/ types of staff considered?

Are learning resources considered?

While the criteria considered do not explicitly identify a benchmark or standard to be used they do point to the wider range of topics which must be considered.

[8] http://www.tuning.unideusto.org/tuningeu/index.php?option=content&task=view&id=112&Itemid=139

Conclusions

There is no evidence to empirically validate the setting of a specific SSR at a programme level for midwifery or indeed any other activity. There is some indication that there is an association between teaching resource and teaching quality but not at a level that could be used to identify specific ratios or thresholds. However, the current informally recognised 1:10 ratio for midwifery in the UK is perceived as having some substantive value as a benchmark against which institutions can gauge their own staffing and a threshold for protecting standards. However looking across other settings and disciplines the 1:10 figure appears to be arbitrary and there is no specific basis to support this as opposed to (say) 1:8 or 1:12 as the reference point.

There are some strong advocates of SSRs, particularly in practice based disciplines in Higher Education Institutions such as pharmacy, nursing and midwifery. SSRs are perceived as a useful guide to student quality and to obtain sufficient resources to adequately support students in practice. Some respondents felt however that SSRs were not a matter for the regulator but for individual HEIs to resource courses appropriately, and others that outcomes and measurable benefits, rather than inputs and ratios, were more useful quality indicators. Others felt SSRs provided a useful indicator or standard but were worried about the impact on the student benchmark price.

There are other potential dangers associated with a fixed ratio, in particular the inhibition of innovation in teaching and learning with use of learning technologies and interdisciplinary education being particularly challenged by a fixed ratio, particularly if the ratio refers exclusively and solely to the inputs that students receive from *midwives* and is applied across all aspects of learning. Furthermore a fixed ratio is apt to be regarded as a target and not a minimum. There could be adverse consequences for institutions where there is considerable funded research activity and high proportions of research active clinical teachers. In such setting a large amount of staff time is devoted to activities other than teaching and ratios would tend to look excessively low. In these cases maintaining the ratio as a target is likely to adversely affect either teaching or research capacity if institutions unthinkingly attempt to move toward the required ratio.

The appearance of SSRs in most approaches to measuring quality in higher education does however suggest that it should not be lightly put aside. The lack of an evidence base and problems with defining SSR and how calculated were noted and the case of the Solicitors Regulatory Authority (SRA) is interesting. The SRA, a regulator in another (non-health) practice discipline plans to drop the use of SSRs from September 2009 because of the difficulties encountered in obtaining a standard definition and application. Thus it appears that SSRs can only be meaningfully deployed as a *benchmark* in the context of a wider set of process and output variables whereby deviation from the benchmark might be understood and interpreted in context. Some institutions may provide a more favourable student: staff ratio, whilst others may have a higher ratio which appears less favourable but is achieved by innovative use of resources which achieve high educational standards.

In order to establish a benchmark figure considerable work is needed to establish a common methodology for calculating SSRs and for developing adjustments to allow for variations outside the control of individuals institutions. It is also important that the benchmark set is associated with the delivery of *quality* educational provision and does not simply reflect existing norms. The reason for this is primarily to ensure that there is widespread confidence in any figure given the significant 'value' that is currently placed upon the 1:10 ratio that has survived from the relatively brief period during which it was mandated by the ENB.

Appendix 1: Midwifery Staff to Student Ratio Countries


Australia


Belgium


Canada


Denmark


Finland


France


Germany


Ireland


Italy


Japan


Netherlands


New Zealand


Nigeria


Norway


South Africa


Spain


Sweden


Switzerland

Appendix 2:Key stakeholder organisations (KSO) responding to NMC consultation 2006

Community Practitioners and Health Visitors Association (CPHVA)

Department of health (England)

Department of Health social services and Public safety in Northern Ireland

NHS Education for Scotland

Northern Ireland Practice and Education Council for Nursing and Midwifery (NIPEC)

Health Professions Wales

Royal College of Midwives (RCM)

Royal College of Nursing (RCN)

Scottish Executive Health Department

Welsh Assembly Government

Appendix 3: Literature Review: Search strategies

Ovid:

(CDSR (coch), ACP Journal Club (acp), DARE, CCTR, AMED 1985-, British Nursing Index (brni) 1994, -British Nursing Index Archive (bnib) 1985-, EMBASE (emez), 1980- HMIC 1919-, International Bibliography of the Social Sciences (ibss) 1951-, IPAB 1970-,Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations (prem) 1950-, Ovid MEDLINE(R) (mesz) 1950-, MWIC, PsycINFO (psyh) 1806-.

(ratio$ adj3 ((student$ or under-grad$ or undergrad$ or pupil$) adj3 (instructor$ or staff$ or lectur$ or teach$)))

Web of science 1945-

TS=ratio* SAME ((TS=student* OR TS=under-grad* OR TS=undergrad* OR TS=pupil*) SAME (TS=instructor* OR TS=staff* OR TS=lectur* OR TS=teach*))

CINAHL 1982-

ratio* N3 ((student* OR under-grad* OR undergrad* OR pupil*) N3 (instructor* OR staff* OR lectur* OR teach*))

ratio* N3 student* N3 instructor*
ratio* N3 student* N3 staff*
ratio* N3 student* N3 lectur*
ratio* N3 student* N3 teach*
ratio* N3 under-grad* N3 instructor*
ratio* N3 under-grad* N3 staff*
ratio* N3 under-grad* N3 lectur*
ratio* N3 under-grad* N3 teach*
ratio* N3 undergrad* N3 instructor*
ratio* N3 undergrad* N3 staff*
ratio* N3 undergrad* N3 lectur*
ratio* N3 undergrad* N3 teach*
ratio* N3 pupil* N3 instructor*
ratio* N3 pupil* N3 staff*
ratio* N3 pupil* N3 lectur*
ratio* N3 pupil* N3 teach*

British education index 1975-, Australian education index 1979- , ERIC 1966-

(Ratio OR ratios) NEAR (student OR students OR under-graduate OR undergraduate OR under-graduates OR undergraduates OR pupil OR pupils) NEAR (instructor OR instructors OR staff OR staffing OR lecturer OR lecturers OR teacher OR teachers)

AND

Fund OR funding OR resource OR bid OR sponsorship OR quality OR safe OR qualified

ASSIA 1987-

KW=ratio* WITHIN 3 ((KW=student* OR KW=under-grad* OR KW=undergrad* OR KW=pupil*) WITHIN3 (KW=instructor* OR KW=staff* OR KW=lectur* OR KW=teach*))

KW=Fund OR KW=funding OR KW=resource OR KW=bid OR KW=sponsorship OR KW=quality OR KW=safe OR KW=qualified

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