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THE CLINICAL TEACHER

Situation, Me, Act, and Check (SMAC): A toolkit that helps students learn to Act Wisely in practice

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1 | INTRODUCTION

This article answers a question asked by many clinicians: 'There are students* in my workplace, what next?'. Experience-based learning (ExBL), the evidence-informed theory we have progressively developed over 20 years, has provided answers and raised new questions.[1–4] Our response has been to complement ExBL with an even finer-honed tool, which we introduce here. The acronym SMAC (Situation, Me, Act, and Check) summarises how clinicians can help students learn from encounters with patients.[5,6] Before elaborating on SMAC, the next paragraph and Box 1 summarise how ExBL helps create environments that favour clinical learning. While ExBL was developed to educate medical students, it is founded on principles that make it transferable, potentially, to students of any health profession.

2 | PROVIDING A FAVOURABLE LEARNING ENVIRONMENT: EXBL

It is likely you practise primarily to care for patients and secondarily to educate students. Maybe you do not even welcome students into your workplace in case this drains time and energy out of patient care. When researchers have timed clinician-educators practising with and without students, however, the small net increase in time was more than compensated for by the motivating effect of educating younger colleagues. Indeed, some clinicians found it hard to practise without students.[7–10] Another obstacle to creating learning environments is the fear that patients will become 'teaching fodder'. Research has shown that educating students does not have to be at patients' expense. In the hands of sensitive clinicians who ask patients' consent for students to participate, education has a neutral or even positive effect on care.[11] So, providing a favourable learning environment is a potential win-win for the triad of student, patient, and clinician.

SMAC (Situation, Me, Act, and Check) summarises how clinicians can help students learn from encounters with patients.

The small net increase in time is more than compensated for by the motivating effect of educating students.

*For brevity, we use the term 'student' to mean either pre-qualification student or postgraduate trainee.

When clinicians sensitively ask patients' consent for students to participate, education can have a positive effect on care.

Favourable learning environments are ones where clinicians form supportive working relationships that make it psychologically safe for students to participate in practice. In such relationships, clinicians delegate slightly more responsibility for patient care than students expect.[3] They make this safe by providing at elbow, arms-length, or even more remote support,[12] depending on how safety-critical the patient's situation is. Education in this zone of slightly more responsibility and slightly less support than students expect builds confidence and capability. It is more educational than either extreme: teaching students rather than involving them in practice; or tossing them in at the deep end to sink or swim. Box 1 turns these principles into practical suggestions.

3 | SMAC TOOL: HELPING STUDENTS LEARN REFLECTIVELY FROM EXPERIENCE

Having used ExBL tools presented in Box 1 to establish a psychologically safe learning environment, SMAC helps students learn *from* practice. While classroom teachers provide rules governing what *might* happen, wise clinicians help students learn from what *is* happening or *has* happened.

Wise clinicians help students learn from what is happening or has happened.

Clinicians practise wisely by assessing situations, assessing their capability to deal with these, choosing the wisest actions, taking into account any rules that are relevant, double-checking their actions, and evaluating the consequences. They become effective educators by demonstrating exemplary practice, drawing students into the talk of practice, listening, asking questions, giving tips, and sharing insights. SMAC (Figure 1) provides 'cognitive scaffolding' (a mental framework) for doing this.

As reported elsewhere, we developed SMAC by watching wise colleagues work, educating students, reviewing theory and evidence, and trialling/further improving SMAC.[6] The next section explains how

BOX 1 ExBL: why and how to create favourable learning environments

Principles

The goal of clinical education is to help students develop the *identity of capable practitioners*. Students need:

- Positive emotions, attitudes, and values—they need to feel at home in practice contexts.
- Practical knowledge and skills needed to care for patients.

Clinicians help students develop capabilities by *supporting their participation in practice*. That means actively involving students in interactions with patients; it requires, for example, programme leaders to be committed to give students well organised/resourced experiences. It requires clinicians and ancillary staff to behave supportively.

Students' participation progresses from:

1. *Observing* actively… to *rehearsing* doctors' tasks… to *contributing* to patient care.

Clinicians accelerate students' progression by identifying authentic tasks that let even the most junior ones participate in practice.

Clinicians turn moments of participation into durable 'real patient learning' by *supporting students' reflection* on those experiences.

- When? 'In the moment' of providing care and/or afterwards
- What? Situations, clinical actions taken, how patients and clinicians responded, and emotions, thoughts, and capabilities students learned from participating
- How? Help students talk, probe what they say, and express your own thoughts and feelings.

Practice

Prepare, plan, co-participate with students and improve the learning environment

Brainstorm with colleagues

- The range of patient care activities your unit conducts and what students could learn from them.

- How students could contribute to patient care in those activities.
- What training they need, and how observing and rehearsing will help them learn to contribute.
- Who will lead activities and how they will communicate with and be available to students.

Brainstorm how to ensure students participate

- Timetabling: how many students; how you will regulate numbers and notify students of opportunities and cancellations.
- What ID students should carry, their dress, the equipment they need, cloakroom facilities, refreshments, computer access and which learning resources (websites and books) will help them learn.
- Precise reporting instructions, departmental entry codes, contact numbers etc.

Welcome students, orientate them, and check the placement is running smoothly

- Expect students' arrival, meet them punctually and personally, make them feel welcome, give verbal and written information, and state what expectations you have of them, and they can have of you.
- If you must delegate students' orientation, choose a deputy who is keen, warm and knowledgeable.
- Observe how placements run, ask students, meet them periodically, and debrief at the end.

Relate well to students

- Relate in ways that make students feel they are colleagues with the right to participate in your practice.
- Explain/apologise for staff absences, workload pressures and other factors interfering with education.
- When demand exceeds capacity, give each student as much personalised workplace experience as circumstances permit; do not just default to large group teaching.
- Encourage students to participate in pairs rather than singly.

Directly support participation

- Follow the sequence: orientate, participate, debrief.
- Challenge students to do more than they think they can with a little less support than they want.
- Use the SMAC tools to hope students learn reflectively from the experiences you have provided.

to use it. Box 2 presents its principles. Figure 2 shows the SMAC 'spiral towards greater capability'.

3.1 | Using SMAC: helping students learn by 'thinking-aloud'

SMAC can be used in two ways: (1) BY A STUDENT: to structure their approach to any clinical situation; (2) BY AN EDUCATOR: to help a student learn reflectively from experience. This section presents SMAC as a series of questions and sub-questions that THE STUDENT could work through. Each is followed by an open question for THE EDUCATOR to ask, perhaps using selected sub-questions as prompts. So, for example, the educator might ask a student: 'What was the overall situation?' After hearing about the patient's situation, they might note that the student had not mentioned context and ask: 'What was going on in the practice context?'. They might probe further: 'What pressures did you (or the clinical team) experience?' The questions below are available in downloadable format as supporting information.

3.2 | Situation

STUDENT'S ANALYTICAL QUESTION: *WHAT IS HAPPENING HERE?*

SUB-QUESTIONS:

Who is the patient?

As a person?

As defined by their:

… present situation?

… main clinical problem?

… comorbidities?

What would they like me to do?

How would they like me to involve them?

Who else is involved, and what do they need and want?

Family?

Other clinicians?

What is going on in the practice context?

Pressures on me?

Possibilities for me?

EDUCATOR's OPEN QUESTION TO STUDENT: *WHAT IS [WAS] THE OVERALL SITUATION?*

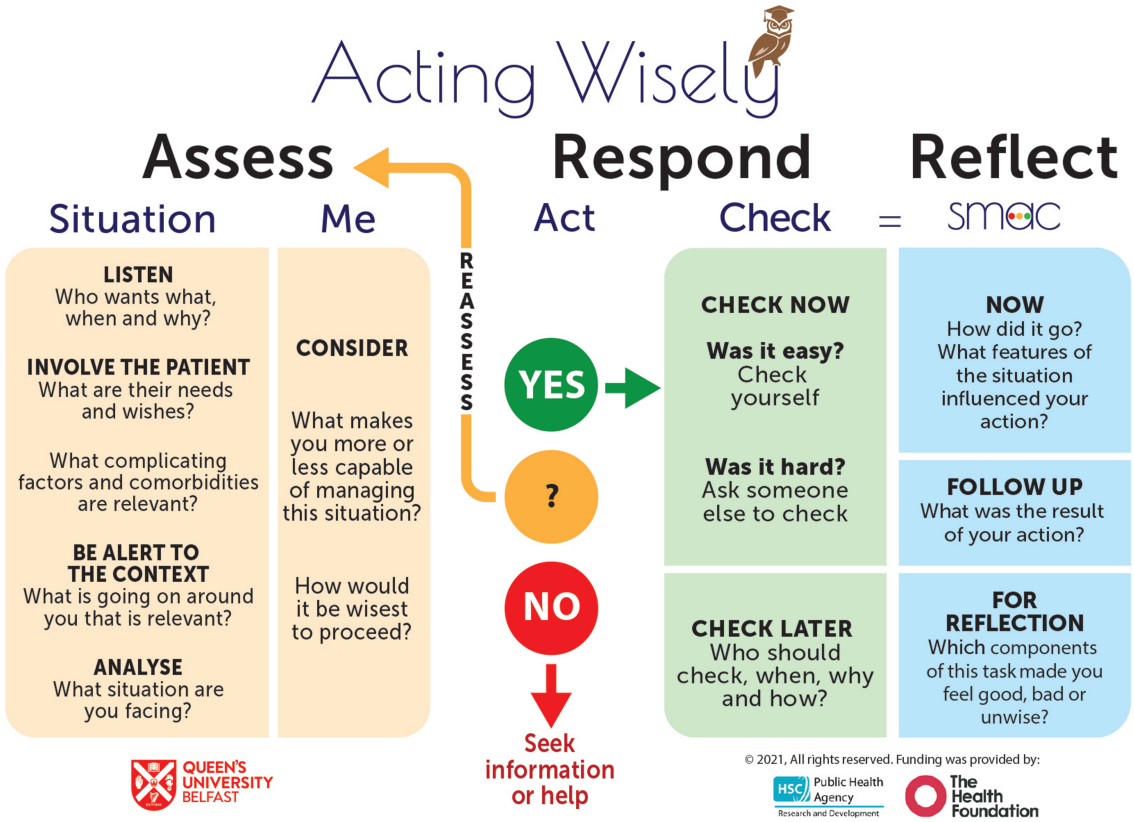

FIGURE 1 The Situation, Me, Act, and Check (SMAC) thought tool

BOX 2 SMAC: why and how to learn reflectively from experience

Situations

Patients present to services with situations to be addressed rather than neatly packaged diseases that follow standard rules. Contexts, comorbidities and psychosocial factors turn even straightforward situations into complex ones. To be situationally aware means approaching situations holistically and humanely.

Clinicians

Clinicians are complex too. They are often uncertain and disordered by the conditions in which they work. Non-reflective clinicians respond to this by being inappropriately confident and applying standard solutions to non-standard situations. Reflective clinicians try to understand unique features of every situation including quirks of the people involved and the ways they interact. Reflective clinicians are self-aware and tolerant of uncertainty as well as capable of identifying familiar patterns of disease.[13] They achieve this by 'conversing' with themselves and with situations. Psychologists call those conversations 'metacognitive monitoring'.[14]

Reflection in action

Monitoring leads reflective clinicians to act in artful ways, which no textbook or stock solution could match. They 'frame' each situation thoughtfully and search for appropriate ways to approach it. When we started developing SMAC, we chose to research insulin prescribing[6] because it presents the human as well as the pathophysiological complexity of practice. Reflective education is mediated by talk. Let us consider how a wise clinical supervisor might educate a student when they are called to prescribe insulin.

They might, for example, ask the student to ask the patient how they are and whether they would like to be involved in the prescribing decision. The student might also explore a nurse's concerns about the patient. Clinical supervisor and student might then discuss the patient's comorbidities, changing metabolic state, ability to eat, and how those variables influence the action to be taken. In the words of one of our research participants: 'I have learned that, in between a good and a bad decision, there is often a "valid decision", which can help manage patients safely. With insulin, a valid decision is often the only option.' Valid decisions are made conversationally—conversations help clinicians converse with patients' situations and with one another.

Acting

It can be tempting to make situations fit familiar ways of acting. Wise practice is the opposite: considering possible actions and choosing which is most appropriate in a particular situation. Figure 1 has traffic lights at its centre. Clinicians should learn to see a red stoplight when they are incapable of acting safely. The amber line encourages clinicians, when uncertain, to continue conversing with the situation and think whether wiser alternatives exists. In the context of surgical practice, this purposeful reflection has been described as 'slowing down when you should'. Regrettably, work pressure can make slowing down and stopping unaffordable luxuries.

Checking

You can never be 100% sure that an action upon a complex situation will have the intended effect. Reflective practitioners double-check, there and then, that they have done what they intended and check later or ask someone else to evaluate the wisdom of their actions.

Supporting reflection on action

Learning does not end when we have taken an action: We learn best by knowing the effects of our actions. The term reflection-ON-action describes learning from experience. Wise clinical supervisors insist that students observe or participate in authentic practice fully enough to learn directly from it.

3.3 | Me

STUDENT'S ANALYTICAL QUESTION: *WHO IS THE 'ME' THAT IS FACING THIS SITUATION?*

SUB-QUESTIONS:

What makes me more or less capable of managing this situation?

… my capabilities

… my prior experiences

… my feelings

… the support available to me

… what is available or unavailable to me

EDUCATOR's OPEN QUESTION TO STUDENT: *HOW DO [DID] YOUR CAPABILITIES MATCH THE SITUATION AND CONTEXT?*

3.4 | Act

STUDENT'S ANALYTICAL QUESTION: *WHAT IS THE WISEST ACTION TO TAKE?*

SUB-QUESTIONS:

What options exist for me to manage this situation?

Which seems the wisest option?

How could I make that option even wiser?

Given my capabilities, the situation, and the context, should I?

1. Manage the situation directly in the wisest way?
2. Reassess?
3. Seek information or help?

EDUCATOR'S OPEN QUESTION TO STUDENT: *WHAT ACTION WILL [DID] YOU [THE TEAM] TAKE AND WHY DOES [DID] THAT SEEM THE WISEST OPTION?*

3.5 | Check

STUDENT'S ANALYTICAL QUESTION: *WHAT CHECKS ARE NEEDED?*

SUB-QUESTIONS:

Have I made any obvious slips?

Is a later check needed; if so, why, when, and by whom?

If so, have I ensured this will happen?

EDUCATOR'S OPEN QUESTION TO STUDENT: *HOW WILL [DID] YOU CHECK THE WISDOM OF YOUR ACTION?*

4 | ROUNDING OFF A SMAC CONVERSATION: LEARNING POINTS AND BEHAVIOURAL COMMITMENTS

No reflective conversation is complete until the person facilitating it has heard a student answer two questions: what have you learned; and what will you do on future occasions? (Figure 2).

4.1 | What have you learned?

Because we hold logical memory verbally, putting learning points into words helps us remember them. In practice, this means asking students to express one or more of them simply, clearly, and very specifically and, ideally, write them down.

4.2 | What will you do on future occasions?

Committing to behave in specific ways in future makes us more likely to do so. Educators do this by asking students to make specific, measurable, achievable, realistic and time-bound (SMART) commitments and write these down too.

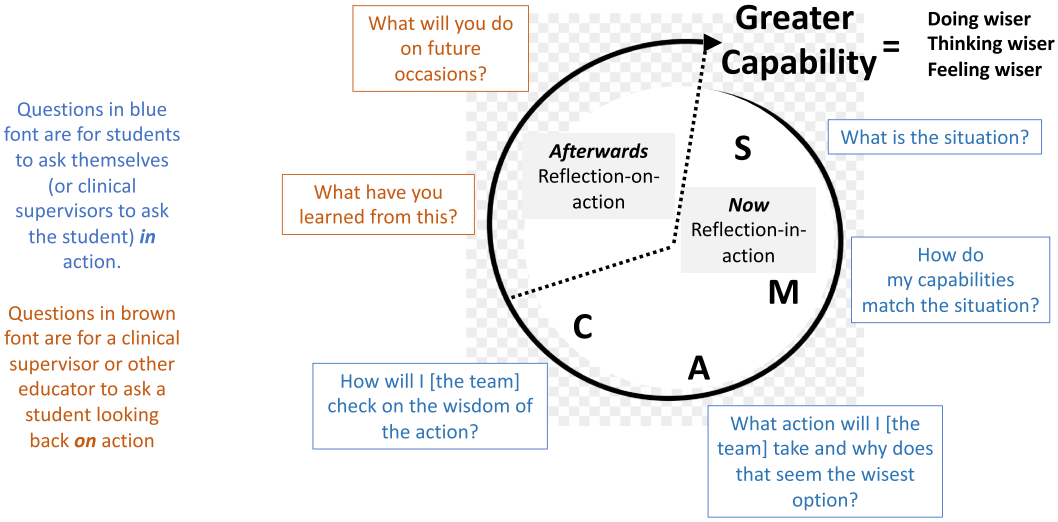

FIGURE 2 The Situation, Me, Act, and Check (SMAC) spiral of reflective conversation between clinician and situation

Committing to behave in specific ways in future makes us more likely to do so.

5 | HOW TO USE THE TOOLS IN PRACTICE

Here are some ways we have used ExBL and SMAC. (See also Box 3).

5.1 | Situation 1: ExBL creating conditions to use SMAC

You are asked to take over the education of medical students who spend a week in your unit. Until now, they were told to go onto the wards and take histories from patients. ExBL tools help you optimise the learning environment by welcoming students and organising for a junior doctor on the ward to introduce them to patients. You schedule a session each Friday when each student talks about a patient they saw and what they learned from this. You use the *Me* tool to ask students how capable they felt and what might make them more capable.

5.2 | Situation 2: SMAC *in* action

You are assessing a very sick patient in the emergency department (ED). You ask the student with you to speak to the paramedic who brought the patient to hospital. The three of you use the *S*ituation tool to pool your assessments. You use the *Me* tool to help the student decide if they are capable of telephoning the patient's daughter, anxiously waiting for news. You use the *Act* tool to brainstorm, with all present, how to act most wisely.

5.3 | Situation 3: SMAC *on* action

You decide to motivate a group of students by asking them, in pairs, to seek out a sick patient whose situation is relevant to a specific topic (e.g., giving intravenous fluids) and put themselves in the shoes of a doctor renewing the patient's prescription. When you meet the group the following week, you question each pair using the *S*, *M*, *A*, and/or *C* tools as appropriate and then ask students individually, having heard all their peers' experiences, to verbalise (a) a learning point and (b) something they will do in their future practice.

5.4 | Situation 4: An SMAC case study

The following, more detailed, vignette describes a real example of how we used our tools. We have disguised the situation and used pseudonyms.

Sinead, a senior medical student, was helping a foundation trainee, Aisling, care for Brian, a person with diabetes recently admitted to the Acute Medical Unit. Brian's prior assessment in the ED had delayed his evening insulin dose. Shortly after he gave himself the delayed dose, Niall (a nurse) measured Brian's blood glucose, found it was high, consulted ward guidelines, and bleeped Aisling several times, asking her increasingly insistently to prescribe extra insulin. Aisling was hectically busy, wanted to avoid a confrontation with Niall and feared losing face if she called her grumpy senior house officer (SHO) to discuss such a simple request. She

BOX 3 Why we developed SMAC and what we have learned

Who 'we' are

TD is a doctor and former diabetes specialist. HG is a junior doctor studying for a PhD in medical education. CL is a medically qualified PhD student. FF-W is a nurse with expertise in empowering professionals and people with diabetes to learn and practise. HR is a postdoctoral GP and RC a postdoctoral paediatrician. We are all practitioners, educators and researchers.

Why we developed SMAC

It was because competency-based education, simulation and OSCEs have shifted the emphasis from experiential learning *within* practice to preparing *for* practice. While those advances have been important in their own ways, people have learned to do a job by doing a job since the dawn of time. Medical graduates, perhaps more than other trainee health professionals, find themselves unprepared because they are inexperienced.[15] SMAC shifts the focus back to experiential learning—and formalises its important counterpart, reflection on experience. We wanted to empower and motivate patients, students and clinical supervisors.

Why we chose Schön's approach to reflective learning

Models of reflective learning abound, each with its own strengths. Schön's seminal book, *The Reflective Practitioner*,[13] perfectly describes the dilemma facing health professions education today: the 'high hard ground' of universities is unable to solve the 'messy' problems practitioners face every day in the 'swampy lowlands' of practice. Schön's simple model of reflection in action and reflection on action perfectly fits the way we practise and learn, and encourage others to do.

Why we used insulin prescribing as a target for our work

Foundation trainees do 70% of all prescribing in UK hospitals. Prescribing insulin is one of the riskiest tasks done by any doctor (taking frequency, likelihood and potential severity of harm into account). It urgently needs to be improved. By using SMAC to improve it, we learned a great deal about the complexity of everyday clinical tasks. SMAC has already improved the experiences of students, patients, doctors, pharmacists and nurses.

Where the phrase Act Wisely comes from

Returning to Schön, reflective practice in the swampy lowlands can be thought of as taking the wisest actions when complex, interacting factors pull a practitioner in many different directions at the same time. We adopted the name 'Act Wisely' for the programme of work whose main tool is SMAC.

How we learned to involve patients

Because all people with diabetes have to be able to care for themselves, we started from the assumption that SMAC should involve patients in every prescribing decision. This led us to train people with diabetes to conduct reflective conversations in which students learned with and from patients.

How we implemented Act Wisely

We bid repeatedly for research and development funds; advocated; engaged Northern Ireland's five healthcare Trusts, medical school and deanery into a collaboration; and encouraged clinicians to participate. We included Act Wisely in the undergraduate medical and early postgraduate medical, pharmacy, and nursing programmes.

From where does Act Wisely get its energy?

Like any programme, Act Wisely needs relentless advocacy to keep it alive, but it has a surprising ability to release energy from clinicians, who are tired of bureaucracy and like to celebrate their professionalism by sharing it with patients and fellow clinicians.

prescribed extra insulin. Brian became hypoglycaemic overnight and was furious because he had known the prescription was unnecessary.

Sinead took up the offer of a reflective discussion, which one of us conducted over Zoom.

- *Situation*: The chain of events started with Niall being anxious he would be blamed if Brian came to harm. Bleeping Aisling repeatedly forced her hand to prescribe more insulin rather than allow the adequate dose given earlier to take effect.
- *Me*: Sinead, who was aware that fluctuations in blood glucose do not necessarily cause harm, felt she would have been capable of discussing the situation with Brian and Niall, resisting pressure to prescribe and calling the grumpy SHO if Brian's health demanded it.
- *Act and Check*: Sinead suggested an alternative action: Niall could have monitored Brian's blood glucose and let Aisling know if it remained above 20 mmol/L on two occasions an hour apart and/or Brian became ill, in which case an additional dose was needed.

Sinead learned from this experience that taking a moment to find out from Brian why the blood glucose was high could have alleviated Niall's anxiety, prevented everyone involved feeling terrible and increased their confidence in one another. She committed herself to

- Involve patients in management decisions whenever possible
- Resist pressure to take one action when she is confident that an alternative is wiser
- Call for help if she cannot resolve interprofessional tension and/or come up with a wise action plan.

Her learning points were

- The value of contingency plans in patients' notes
- That fear of losing face might prevent her from calling for help when she really needed it
- The value of a doctor, nurse, and patient working as a single team rather than individuals.

6 | SUMMARY

Any wise clinician can help any health professions student learn from any patient in any clinical situation by:

- Supporting students' participation in practice
- Helping students learn reflectively from experience

'Supporting' *students* means relating to them, helping them feel legitimate, and giving them access to patients. 'Participation' means motivating students by asking them to take slightly more responsibility than they expect with slightly more independence than they want.

'Supporting' students means relating to them, helping them feel legitimate, and giving them access to patients.

Students are motivated by having slightly more responsibility than they expect with slightly more independence than they want.

SMAC supports students' reflection in action (during patient care) and on action (afterwards).

- *Reflecting-in-action* means students use SMAC to help them analyse situations that arise in practice, analysing themselves in relation to those situations, choosing the wisest actions and double-checking actions and effects.
- *Reflection-on-action* means educators use SMAC to help students analyse situations after the event, identify one or more learning points and make one or more SMART commitments to future behaviour.

Those wanting to access the large body of theoretical and empirical science that gives ExBL and SMAC their validity may access our publications; a few are cited in the references below and others on the Act Wisely website.[5] This website provides other tools, information about workplace learning and a bibliography of our published work.

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CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

ETHICS STATEMENT

Ethical approval for the many projects that contributed to our research programme is identified, study-by-study, in earlier articles, synthesising that work into this pedagogic model did not create any new requirement for ethics approval.

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ENDNOTE

[1]For brevity, we use the term 'student' to mean either pre-qualification student or postgraduate trainee.

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