

Doctors learning by research

The modern day medical professional needs to be able to work successfully in a team to ensure that the provision of a full range of care is provided to meet the wide needs of patients. However, traditional team skill training, that is much beloved of many Business School curricula, is expensive, time intensive and difficult to align alongside the clear mission statement of delivering patient care. Recent calls have highlighted the need for trainee doctors to engage with research practice. Being an active researcher improves the quality of care by doctors. The nature of modern research requires team working. This is the very same skill will benefit newly qualified doctors.

1 Running header: research during medical training

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24 Key words: team skills, research training, curriculum, non-technical skills, research experience,

25 **Background**

26 The modern day medical professional needs to be able to work successfully in a team to ensure
27 that the provision of a full range of care is provided to meet the wide needs of patients. However,
28 traditional team skill training, that is much beloved of many Business School curricula, is
29 expensive, time intensive and difficult to align alongside the clear mission statement of delivering
30 patient care.

31 **Context**

32 Recent calls have highlighted the need for trainee doctors to engage with research practice. Being
33 an active researcher improves the quality of care by doctors. The nature of modern research
34 requires team working. This is the very same skill will benefit newly qualified doctors.

35 **Innovation**

36 The proposed innovation is to place research experience at the very heart of a contemporary
37 medical curriculum. By engaging with modern collaborative research practice at the start of their
38 medical training, clinicians will embrace the learning potential that is acquired through an
39 expertise in working effectively with others.

40 **Implications**

41 Developing opportunities for research practice throughout the medical curriculum will ensure that
42 the trainee doctors of today will become reflective medical practitioners of tomorrow.

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54 The ability to work closely with other professionals is clearly a valuable skillset for an effective
55 doctor (1), and yet it is surprisingly difficult for the development of this skillset to be prioritized
56 in formal medical education programs. Notable initiatives have incorporated some elements of
57 non-technical skill development in the curriculum but Directors of Medical Education Programs
58 are frequently exhorted to include “more” of a range of topics in the curriculum without suggestion
59 as to what should be removed to make way for it. Here, we propose a way in which this vital
60 skillset can be acquired in a relatively straightforward fashion – incorporating research experience
61 within training programs.

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63 In a landmark paper “Every doctor a scientist and a scholar” (2) The British Medical Association
64 makes the radical proposal that *all* doctors should be active researchers and that medical students
65 actively engage in scientific research during their training. While there is a solid evidence base
66 linking an active research culture and positive patient outcomes (3), what has the already
67 overburdened medical student got to gain by carrying out research projects? Here we argue that it
68 is not only the product of research outputs that leads to improved patient outcomes, but the *process*
69 by which research is undertaken that is important.

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71 The skills required for successful research include creativity, scientific knowledge, critique,
72 thoroughness, analysis and communication as an appreciation of how to work well in a team (4).
73 Clearly there are significant advantages to collaboration as it provides the researcher with a wider
74 knowledge base to work from, the ability to critically assess data and other’s research, and is likely
75 to have additional data collection benefit (5). From a clinical perspective “real” teamwork is

76 strongly correlated with reduced mortality rates in hospitals (6). However, the development of this
77 skillset is not straight forward and there are significant challenges to creating effective teamwork
78 skills (7).

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80 Scholars have known for some years that the key to successful teamworking involves a mental
81 shift such that sees a person's function divided into taskwork (the technical task) and teamwork
82 (how the group works together) with the latter largely consisting of activities relating to
83 communication and coordination. For teams to be effective, both tasks must be done well. The
84 difficulty in achieving the benefits of collaboration stems from a lack of attention to the teamwork
85 by over-focus on the task because groups typically feel they haven't got time to think about team
86 elements of their work (8). However, we have recently highlighted that engaging in a structured
87 research activity can produce wide-ranging set of team-based skills including experience of the
88 clinically important notion of real-team skills (9).

89
90 A Real Team is one that delivers above and beyond the abilities of the individuals within it through
91 the positive collaborative influence achieved by the interpersonal support of the team members.
92 Compared to pseudo-team members who lack the opportunity for social reflection during the team
93 task and thus show significantly lower levels of task satisfaction and reported higher levels of
94 errors, stress and injury. This is a vitally important distinction that has significant implications for
95 clinical practice. A long-term review of healthcare performance across a wide variety of trusts in
96 the UK showed that real-team activity predicts greater levels of innovation in patient care as well
97 as higher levels of service and patient length of stay in hospital (and associated costs) was
98 significantly shorter (10).

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100 The development of such skills need not occur solely in a face-to-face context and perhaps even
101 moving this type experience to at least contain an element of virtual interaction would be in
102 keeping with the way clinical practice is developing. Indeed, despite the universal and ubiquitous
103 use of the Internet that has driven a generation of students who are defined by their interaction
104 with it, literature is starting to emerge which clearly highlights the beneficial role that it can play
105 in effective learning of transferable skills in the modern-day clinical workforce (11).

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107 It is understandable that medical educational programs focus on the development of understanding
108 in topics such as anatomy or biochemistry as these are obviously essential. However, the limited
109 amount of time spent on the development of soft skills – especially teamworking – perhaps
110 reinforces a widespread self-image of doctors as being able to work without needing anyone else
111 around them. Very little clinical practice involves solo working and so doctors can find themselves
112 with insufficient grounding in the type of interpersonal skills required to ensure that medical
113 graduates become effective collaborators, researchers and medical doctors. Yet merely engaging
114 with research practice can allow medical trainees to develop the necessary social skills that will
115 enable them to be work effectively in groups.

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117 Our proposition is that team skills behaviors are vital additions to the modern-day medical skillset.
118 This concept is vital to enable ever more diverse medical teams to perform at the level they should.
119 At the very least, medical students should experience research activity and be given exposure an
120 environment that can form the basis for a shared understanding of what it is to be in a real team.

121 Not only will such research experience place medical students at the forefront of existing
122 knowledge but will give them to the necessary social skills to become more effective doctors.

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