melanoma. cfDNA also provides a method for detecting BRAF mutations. This project aimed to ascertain BRAF mutation status in cfDNA through digital droplet PCR (ddPCR) of plasma samples from patients with melanoma. We aimed to assess the relationship between cfDNA BRAF positivity and disease relapse and progression.

Methods Plasma from 100 patients with active or recently resected melanoma was obtained during previous work. 85 samples had cfDNA extracted. Tissue BRAF status was known for 57 samples. cfDNA was extracted from 1–2 ml plasma with the QIAamp circulating nucleic acid kit (QIAGEN®) following manufacturer protocol, eluting cfDNA into 100µL. cfDNA was quantified with SYBR green quantitative real-time PCR (Life Technologies), based on an 87bp GAPDH gene amplicon. ddPCR™ was performed using the Bio-Rad QX200 Droplet Generator™ and Droplet Reader as per manufacturer protocol. Analysis was performed with Bio-Rad QuantaSoft Version 1.7.4.

Results Median yield of cfDNA extracted from 85 samples was 1.97 ng/ml when eluted into 100µL. This was well-correlated with previous cfDNA extraction yields from this sample set (Pearson's $r=0.6687$, $p<0.0005$), where a 200µL elution volume was used. 74 samples yielded >10,000 droplets and were included for analysis. 12 samples contained BRAF mutant positive droplets. A 74% concordance rate between tissue BRAF mutation status and the presence/absence of cfDNA BRAF mutant positive droplets was found. 7/18 tissue BRAF mutant samples contained BRAF mutant droplets, in comparison to 2/32 tissue BRAF wild-type samples. The presence of BRAF mutant positive droplets was significantly different between the tissue BRAF mutant and tissue BRAF wild-type groups ($\chi 2$ 8.3145, $p=0.004$).

Fractional abundance of BRAF mutant droplets in the samples containing mutant droplets ranged from 0.07–0.74%. When comparing BRAF mutant droplet-containing samples and samples without BRAF mutant droplets, there was no significant difference in rate of relapse ($\chi 2$ 0.0948, $p=0.758$), nor mortality rate ($\chi 2$ 3.3959, $p=0.654$).

Conclusion cfDNA provides a non-invasive snapshot of the tumour genome and any potential therapeutic targets held within. This work demonstrates that a very low volume of cfDNA can be used to detect BRAF mutations in patients with melanoma through ddPCR.

Previous work assessing BRAF status in cfDNA has used larger volumes of cfDNA. Though our concordance rates are comparable with other studies, it is possible that using a smaller amount of cfDNA in our ddPCR has resulted in some samples being below the limit of detection for ddPCR.

Longitudinal study is warranted to monitor cfDNA BRAF status and mutant fractional abundance, and whether this better correlates with relapse of disease and disease progression.

8 GENERAL SURGICAL FOUNDATION DOCTOR OPTIMISATION OF DAILY PRACTICE

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10.1136/postgradmedj-2019-FPM.8

Introduction Traditionally the role of a surgical foundation year 1 (FY1s) doctors consisted of long working hours, multiple on call shifts and little to rest however, the introduction of European working time directive now means that FY1s are constricted to 48 hours per week on average and various other regulations that junior doctors should abide by yet the same quantity of daily tasks remains the same. In this study we looked at the difficulties FY1s now face in their daily working day and if some of these issues could be resolved by implementing some structural changes.

Methods The study was conducted in three cycles, each lasting five days (Monday to Friday). Cycle 1 included shadowing of Surgical FY1s on wards for five consecutive days observing daily routine (arrival, lunch and departure time), task completion, communication and handovers. Following this multiple interventions were made to the structure of their daily practice to improve productivity and performance. These improvements were measured in cycle 2 (as the new model was scaffolded into place) and cycle 3 (strictly observed).

Results In cycle 1 we observed that 100% of F1s arrived to work on time, there was no set times for lunch and all of the FY1s lunches were interrupted. There was no structure for handovers and 100% of F1s stayed at work beyond there contracted hours. In second cycle, 100% of F1s had lunch between the hours of 12pm-1PM on 3/5 days and 75% on the remaining two days. 75% of F1s had uninterrupted lunches on all 5 days. Morning and afternoon handovers were completed every day. In cycle 3 the results remained as high. There was no significant difference in number of tasks between week 1, 2 and 3.

Conclusion Through the implementation of daily structure and other interventions involving the multidisciplinary team we improved the quality of F1s working day and increased the efficiency of service delivered on the surgical ward.

9 LOW FIDELITY SIMULATION IN A HIGH FIDELITY WORLD

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10.1136/postgradmedj-2019-FPM.9

Introduction All aspects of medical training have experienced an exponential acceleration in the application of technology for learning needs.[1] Research promotes the use of high fidelity models and ever more complex training methods with organisations keen to adopt and implement new technology. Models are utilised to minimise potential risks to patients through bedside learning and refine established technique.[2] Simulation practice can also be used to develop non-technical skills pertinent to safe clinical practice.[2–4] Simulation training can be employed from early stages of undergraduate education through to use in professional postgraduate exams giving a large scope of use in a multiplicity of environments.[1 4 5]

Methods Forty Foundation Year 1 Doctors were taught clinical skills utilising Low fidelity part task training models. Four clinical skills were selected from pre-determined postgraduate curricula. Self assessment pre and post procedure were recorded with qualitative feedback sought as a secondary measure.

Results Global increases are seen across 4 sampled clinical skills. Participants self-reported increased confidence and competence. A high value was placed upon trainees perceived value in training.

Conclusion Fidelity has been shown to play an integral role in simulation.[4] The authors conclude that simple part task

trainers, low fidelity models, still have a valuable part to play in medical education. They remain cost effective, adaptable and accessible training tools in the era of increasing complexity.[1 5] Simulation provides a safe space to develop both technical and non-technical aspects.[3 4] Low fidelity simulation can be used to underpin the learning objectives of trainees through effective feedback in real time, access to repetitive practice and remain a feasible training tool for trainers and trainees alike.[2 4] High fidelity simulation should not be excluded completely however appears to be best suited to defined roles in more complex moulage.[1 4]

Take home message Technology has the ability to improve and evolve medical education. With the potential for increased feedback, self and peer assessment along with pragmatic assessment, simulation has firmly entrenched itself in medical education. Care should be taken however not to disregard lower fidelity models as they still provide proven effective learning, enable the teaching of non-technical skills and facilitate knowledge delivery.

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10 OSLER AS A ROLE MODEL FOR TODAY

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10.1136/postgradmedj-2019-FPM.10

If Sir William Osler were alive and practicing as one of our contemporary colleagues, would he be viewed as a role model by medical trainees and other physicians? Recently published literature has sought to define clinical excellence; this characterization of physician performance establishes a context upon which role models in medicine can be appraised. Building on this framework, we present rich anecdotes and quotes from Sir William Osler himself, his colleagues, and his students to consider whether Osler would have been regarded as a role model for clinical excellence today.

This manuscript illustrates convincingly that William Osler indeed personified clinical excellence and would have been appreciated as a consummate role model if he were alive and on a medical school's faculty today. However, a century has passed since his death, and he is not sufficiently visible today to serve as a role model to modern medical trainees and physicians. Moreover, we speculate that Osler himself would not want to be a role model for today's trainees, as he emphasized that medicine is best learned from teachers at the bedside – a place where he cannot be. Reanimating Osler through rich stories and inspiring quotes, and translating his example of clinical excellence into modern clinical practice, can remind us all to carry Oslerian virtues with us in our professional work.