Trainee tracker: a healthcare IT system developed by and for clinical supervisors and trainees

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Authors: D. ap Dafydd, R. Williamson, D. Blunt; London/UK
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Aims and objectives

Trainee Tracker (TT) is a semi-automated online IT system intended to assist training providers at every level in their oversight of trainee progression.

For Educational Supervisors (ES), Training Programme Directors (TPDs) and regional trainee appraisal panels, monitoring of trainee progression is challenging for several reasons.

Certain sub-specialties, such as radiology, are heavy on summative assessment, taken over several years. The multi-site nature of many training programmes limits direct contact between ESs and their trainees. Training programmes are often large, comprising several dozen ESs and many more trainees. Typically a significant number are less than full time trainees (LTFTs). In their case, significant milestones such as their completion of training date are determined by laborious manual recalculation. Also, conventional trainee appraisal 'decision algorithms' are not easily applicable to LTFTs, making their appraisal complicated and subject to a rough estimate of their expected progression. On a larger scale, what is considered satisfactory trainee progression is subject to significant regional variation.

Presently no simple means exists enabling a global overview of multiple trainees and their relative standing with respect to curricular milestones. Given the varying pace of trainees, it is easy to imagine how a struggling individual might go unnoticed until their formal appraisal.
Methods and materials

TT was conceived of and developed through collaboration between radiologists and an independent IT company. Intended to be maximally intuitive and labour saving, its content and layout reflect a minimalist approach, incorporating only essential functionality. Its "agile" development is aligned with evolving attitudes to Healthcare IT software design (such as 'Code-4-health'). [1-4]
Results

Layout and functionality

The system's functions are divided into several 'tabs' (Figure 1), which are accessed from the main menu. These 'tabs' allow trainees to be grouped into cohorts (e.g. different years of training) and tracked in real time against training plans comprising multiple curricular milestones. Every milestone for each trainee in every cohort is then automatically recalculated according to their clinical time-table (e.g. LTFT).

The system enables trainers to view the milestone progression of every trainee on the scheme, together with the due dates and completion dates of each of their milestones (Figure 2). When a trainee completes a task, the trainee then updates that milestone on TT. If a trainee does not complete a task by the due date, TT automatically notifies the trainee and their supervisor by e-mail, first with an 'amber' alert and later with a 'red' alert.

The 'amber' alert signifies an approaching due date and reminds the trainee and supervisor to meet and update the trainee's records where applicable. A 'red' alert signifies a truly overdue milestone, potentially requiring an appropriate intervention, such as extension of training.

Its most helpful function is TT's ability to recalculate milestone due dates. This function can be applied to LTFTs, trainees who take a period of absence for any reason, have their training extended or part academic trainees. The system can accommodate multiple alterations to a trainee's work pattern and generate tailored time-scales for every milestone accordingly. By incorporating LTFT work-patterns, TT is able to produce recalculated milestone due dates and RAG labelling which allow for each trainee's circumstances.

Piloting

Over the past 18 months, TT has been successfully piloted on a large radiology training programme in the UK. All 30 trainees (including 7 LTFTs) from years 1 to 5 consented to participation and are being tracked against the 'Radiology Curriculum' training plan. All 20 ESs have received basic 'system user' training. The system was implemented at the training scheme’s annual local trainee appraisal process. Using TT, local appraisers could more easily establish each trainee's progression over the past year and thereby make fair and accurate outcome recommendations to the regional appraisal panel.
Over the course of this pilot, 8 trainees who were previously making satisfactory curricular progression had fallen behind and had received either an amber or red alert. Past trainees who struggle early in their training have tended to struggle throughout, however, in this relatively short period, 4 of those 8 trainees are again making satisfactory progression. This relatively strong recovery among these trainees partly reflects the early impact of TT. Because TT is able to identify struggling trainees quickly and informs them and their supervisors automatically, their training can be adjusted and refocused according to need at an earlier stage.

User Training

Once trained, it should take a 'system user' approximately 1 minute to make basic data updates. This level of training typically takes 5 to 10 minutes. Training a higher level trainer - such as a TPD - to enter new data and process it takes closer to 30 minutes.

Expansion

TT is now being incorporated at three other training schemes. The system has been demonstrated at the Royal College of Radiologists Annual Conference. After an enthusiastic response to a demonstration at the annual RCR meeting of TPDs, a formal RCR endorsement is expected, subject to approval by Health Education England. Next year, as an adjunct to e-portfolio, TT will be trialled at the regional Radiology trainee appraisal process. In anticipation of a later national roll-out a number of enhancements to the system are also underway. Ongoing costs to a subscribed training scheme would be approximately 13 euros per trainee per annum, covering support, licensing and hosting charges.

TT will be equipped with statistical data extraction capabilities, providing additional objective external appraisal of training schemes. It would allow extraction of other useful training data, such as numbers of LTFTs and data applicable to ES appraisal. It could help predict the number of trainees required in recruitment rounds for any given specialty. Ultimately, there is potential application to other specialties and careers in any country.
Fig. 1: Login page for TraineeTracker website

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Fig. 2: TraineeTracker home page. The left sided tabs enable entry of new data onto the system (e.g. names of trainees and educational supervisors). The right sided tabs enable processing of existing data (e.g. grouping trainees into years of training in the 'join trainees to a cohort' tab.

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**Fig. 3:** The 'Track all Trainees' screen enables a general overview of all trainees on a training scheme, together with each of their milestones and the completion status of those milestones, highlighted with a RAG rating.

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Conclusion

Trainee Tracker is a Healthcare IT system, enabling due date recalculation of trainee milestones depending on their work-patterns. It utilises an automated e-mail alert system to notify educational supervisors and trainees of approaching and elapsed due dates, in order to identify struggling trainees more promptly. It will considerably ease trainee, trainer and training scheme appraisal and standardise these processes nationally and provide governing bodies with valuable statistics.
References

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