

# Performance at MRCP(UK): when should trainees sit examinations?

C Pinheiro-Torres, P Tang and J Dacre

**ABSTRACT** – This paper analyses candidate performance in the three components of the MRCP(UK) examination to establish when they are most likely to pass. Using data from the 2010 and 2011 MRCP(UK) examinations, pass rates of candidates who gained their primary medical qualification (PMQ) in 2005 or later were analysed. Results from a total of 22,827 candidates were included in the study: 12,517 (54.8%) from Part 1, 5,545 (24.3%) from Part 2 written and 4,765 (20.9%) from the Part 2 practical assessment of clinical examination skills (PACES). The results show that candidates are more likely to pass Part 1 and Part 2 written 12–24 months after graduation and to pass Part 2 PACES 25–36 months after graduation. When we consider the training programme for physicians in the UK, successful candidates are likely to be in foundation programmes or early core or specialty training when they achieve success. At the moment, some candidates are dissuaded from taking the examination during their foundation programme, but our data show that their likelihood of success is highest during this period of training. The analysis also shows that for candidates who fail their first attempt, delaying their next attempt by one diet significantly increases the likelihood of them passing at their next attempt.

**KEY WORDS:** examination pass rates, foundation trainees, medical training, MRCP(UK)

## Introduction

The Membership of the Royal College of Physicians (MRCP(UK)) examination comprises two written components (Part 1 and Part 2 written) and one clinical skills assessment with real patients, known as the Part 2 practical assessment of clinical examination skills (PACES). Part 1 is a single-best-answer test that assesses candidates on a broad spectrum of medical and clinical science knowledge. After passing this component, candidates can sit Part 2 written (another single-best-answer test) or Part 2 PACES in either order. The Part 2 written paper tests the ability to apply clinical skills, while Part 2 PACES assesses the observed practical application of clinical and communication skills.

In August 2009, it became a mandatory requirement for trainees in core medical training in the UK to have acquired full MRCP(UK) accreditation prior to progression into specialty training year 3 (ST3), which has reduced the period in which

trainees can pass the full MRCP(UK) examination. Trainees now have approximately 48 months between obtaining their primary medical qualification (PMQ) and entering ST3, and many recruiters require completion of the MRCP(UK) examination before a formal job offer is made, further reducing the time available by about six months.

The General Medical Council (GMC) in the UK recently asked the medical royal colleges and faculties to enforce a limit on the number of attempts at each examination component. This is to ‘assure the public that [certificates of completion of training (CCTs)] are awarded only where doctors have met our standards and requirements for postgraduate medical education and training’.<sup>1</sup> As of September 2013, the Federation of Royal Colleges of Physicians of the UK will impose a limit of six attempts at each component of the MRCP(UK) examination. This has the potential to delay the progression of some trainees and will require more careful consideration of when the components of the examination should be taken. The analysis in this paper uses data from the MRCP(UK) examination results to try to determine the best time for candidates to sit the different components of the MRCP(UK) examination to enhance their chances of success.

## Methods

Results for a total of six diets per component of the MRCP(UK) examination during 2010 and 2011 were obtained from the MRCP(UK) database. Only results from candidates who had gained their PMQ in 2005 or later were analysed. A total of 22,827 candidates’ results were used for the study: 12,517 (54.8%) from Part 1, 5,545 (24.3%) from Part 2 written and 4,765 (20.9%) from Part 2 PACES.

To determine how long after graduation candidates were passing the different components, the number of months between graduation and attempting the components was computed using the difference between the date of a candidate’s graduation and the component. The time between graduation and attempting the components was categorised into three groups: 12–24 months, 25–36 months and  $\geq 37$  months. Attempts were counted from the first sitting, which may have been prior to diets that were used in the analysis. Only attempts in which candidates were entered and attended the component were considered in the analysis. Descriptive statistics were used to analyse the data on pass rates and the frequency of attempts to pass the components.

Improvements in scores from re-sit components were analysed with an independent samples *t*-test that compared the performance change by re-sit result. Performance changes for the re-sit were analysed for candidates who passed or failed the re-sit attempt. Each group was further analysed by whether the

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re-sit attempt was consecutive (attempted at the next available diet) or delayed (attempted after missing out one diet). The difference between percentage scores from the previous attempt and the re-sit were calculated for each group and used for comparison on the attempt result. Only candidates who failed their previous attempt and then attempted the component again were used for the analysis.

## Results

### Pass rates for the MRCP(UK) examination

Figure 1 shows the pass rates for the different components of the MRCP(UK) examinations and the number of months after graduation for all attempts. Across the three components, the pass rates were highest for candidates attempting Part 1 and Part 2 written shortly after graduation (12–24 months). The highest Part 1 pass rate (57.5%) was achieved by candidates taking the component on their first attempt between 12 and 24 months after graduating (Table 1). The pass rate was lowest when candidates attempted the component on multiple occasions  $\geq 37$  months after graduation. The pass rate for Part 2 written follows the same pattern as for Part 1, with candidates achieving the highest pass rate on their first attempt between 12–24 months after graduation (see Table 1). The pass rate fell as candidates attempted the component later in their postgraduate medical training. Less than 1% of the Part 2 PACES candidates attempted this component within 24 months of graduation. The pass rate was highest (72.7%) for candidates who took the component 25–36 months after graduation and on their first attempt (see Table 1).

### Attempting Part 2 PACES before achieving Part 2 written

Only 347 (7.3%) candidates who gained their PMQ in 2005 or later sat the Part 2 PACES component in 2010 and 2011 without having first passed the Part 2 written component. The pass rate for these candidates was 57.6%. In comparison, the pass rate for the candidates who had already passed Part 2 written when attempting Part 2 PACES was 71.9%.

### Number of attempts to completion

The mean number of attempts taken by candidates to pass each component of the MRCP(UK) examination is shown in Table 2. Candidates took on average between one and two attempts to pass each component of the MRCP(UK) examination. For candidates who passed, the maximum number of attempts was nine for Part 1 and seven for both Part 2 written and Part 2 PACES. The pass rate for multiple attempts is shown in Fig 2. As the number of attempts increased, the pass rate across all three components of the MRCP(UK) examination decreased.

### MRCP(UK) examination improvement for re-sit attempt

The mean difference in percentage scores between candidates re-sitting a component in a consecutive or delayed diet for all

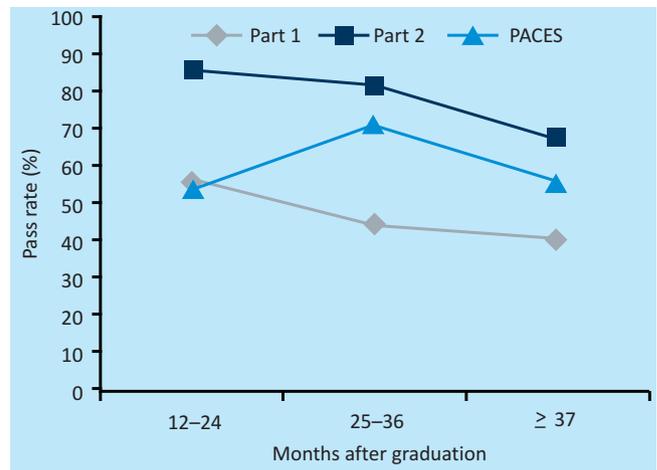


Fig 1. Pass rate for all attempts at the Part 1, Part 2 written and Part 2 practical assessment of clinical examination skills (PACES) components of the MRCP(UK) examination by the number of months after graduation.

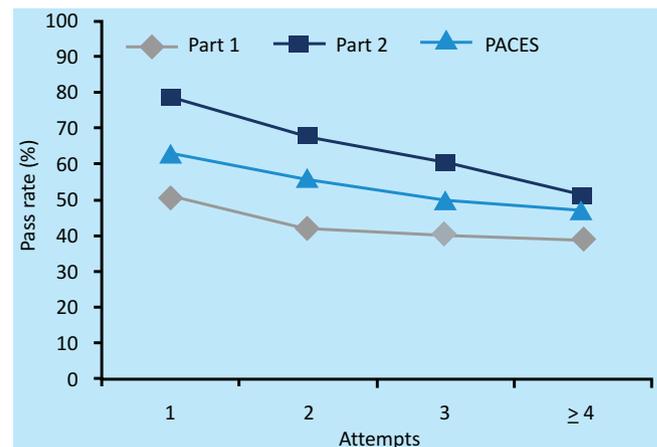


Fig 2. Pass rates by attempts for the Part 1, Part 2 written and Part 2 practical assessment of clinical examination skills (PACES) components of the MRCP(UK) examination.

Table 1. Percentage pass rate by attempts and months after graduation for the Part 1, Part 2 written and Part 2 practical assessment of clinical examination skills (PACES) components of the MRCP(UK) examination.

Examination component	Time after graduation (months)	Pass rate (%)		
		First attempt	$\geq 2$ attempts	All attempts
Part 1	12–24	57.5	45.5	56.1
	25–36	44.9	43.9	44.4
	$\geq 37$	42.9	38.0	40.3
Part 2 written	12–24	86.0	64.3	85.7
	25–36	81.9	79.4	81.6
	$\geq 37$	71.2	59.6	67.6
Part 2 PACES	12–24	54.5	50.0	54.3
	25–36	72.7	57.1	71.1
	$\geq 37$	57.5	53.0	55.5

MRCP(UK) components is shown in Table 3. Across the three components, improvement in performance was greater for candidates who delayed their re-sit by one diet compared with those who re-sat at the next available diet. This was true for candidates who passed and those who failed the re-sit.

An independent samples *t*-test (two-tailed) was conducted to compare the mean difference in percentage scores for consecutive and delayed attempts. A statistically significant improvement in the mean difference in percentage scores was seen in delayed attempts for passing ( $p < 0.001$ ) and failing ( $p < 0.001$ ) candidates on Part 1 and passing candidates on Part 2 written ( $p = 0.004$ ). This indicates a significant improvement in scores for candidates who attempted their re-sit by delaying a diet. The differences for candidates who failed Part 2 written and those who passed and failed Part 2 PACES were not statistically significant.

### Discussion

Analysis of the Part 1 and Part 2 written results suggests that candidates taking these components of the MRCP(UK) examinations 12–24 months after graduation are more successful at passing than other candidates. As time between graduation and the component increases, the pass rate decreases, favouring those earlier in their training. As shown by Stanley *et al.*,<sup>2</sup> well-prepared and organised candidates perform better at the three components of the MRCP(UK) examination. It may be that candidates

who pass the components in their first attempt and within 12–24 months of graduation are more organised. No data on the amount of preparation candidates put into the components are recorded, so any assumptions are speculative. However, it is likely that organised candidates have revised thoroughly and have a clear plan for progression that allows sufficient time to complete the subsequent components before the end of core medical training year 2. We are aware that candidates in some areas of the UK are advised not to take the MRCP(UK) Part 1 and Part 2 written components during their foundation programme. Our analysis provides evidence that candidates are most likely to pass the Part 1 and Part 2 written components within 12–24 months after graduation. This is within the time-frame for the foundation period and suggests that candidates are most likely to pass the earlier components of the MRCP(UK) examination if they attempt them during foundation year 2.

In terms of the Part 2 PACES component, candidates were more likely to pass on their first attempt if it was 25–36 months after graduation. Candidates who entered Part 2 PACES early were least likely to pass, which highlights the importance of developing knowledge and skills in a clinical setting before taking this component. The reduction in pass rate for Part 2 PACES candidates attempting the component  $\geq 37$  months after graduation suggests that these candidates are less organised and prepared. It is possible that these candidates feel more pressure to obtain full MRCP(UK) status, as many may be applying for ST3 positions simultaneously. In addition, candidates are more likely to pass Part 2 PACES after having passed Part 2 written.

The results presented are based on all candidates sitting the MRCP(UK) examination, which means that some may not be training in the UK. However, the evidence clearly shows that candidates are more likely to pass Part 1 and Part 2 written 12–24 months after graduation and more likely to pass Part 2 PACES 25–36 months after graduation. Candidates in medical training in the UK are likely to be in foundation year 2 and core medical training year 1 at this stage.

The pass rates for all MRCP(UK) examinations are highest for candidates on their first attempt, with the pass rate declining after successive unsuccessful attempts. However, this does not mean the likelihood of passing the components declines with the increasing number of attempts. The components are designed to pass qualified candidates and to fail those who do not meet the standards. Previous research on re-sits for components of the MRCP(UK) examination by McManus and Ludka<sup>3</sup> showed that performance tends to increase with the number of attempts before reaching a plateau around the tenth attempt at Part 1. The study found that increase in performance reaches a maximum level of achievement that correlates with performance on the first attempt. Candidates who score significantly below the pass mark on their first attempt should be made aware of this maximum level of achievement, as well as the extent of improvement above the norm that will be required of them to have any likelihood of passing the three components of the MRCP(UK) examination.

For those candidates re-sitting the different components of the MRCP(UK) examination, the evidence suggests a greater

**Table 2. Number of attempts for candidates who passed the Part 1, Part 2 written and Part 2 practical assessment of clinical examination skills (PACES) components of the MRCP(UK) examination.**

Examination component	Mean (range)
Part 1	1.56 (1–9)
Part 2 written	1.23 (1–7)
Part 2 PACES	1.49 (1–7)

**Table 3. Difference in percentage scores between previous and next attempt at the Part 1, Part 2 written and Part 2 practical assessment of clinical examination skills (PACES) components of the MRCP(UK) examination.**

Examination component	Result of re-sit	Timing	Difference in score (%)
Part 1	Passed	Consecutive	9.3
		Delayed	11.7
	Failed	Consecutive	3.4
		Delayed	6.2
Part 2 written	Passed	Consecutive	6.6
		Delayed	7.8
	Failed	Consecutive	2.1
		Delayed	2.6
Part 2 PACES	Passed	Consecutive	14.8
		Delayed	15.5
	Failed	Consecutive	1.6
		Delayed	2.8

improvement in performance when candidates delay by a diet before reattempting the Part 1 and Part 2 written components. This is most likely attributed to the additional time candidates have to acquire more knowledge and skills before the next attempt. Candidates who have failed a component should make their next attempt only when fully prepared rather than rushing to re-sit during the next available diet. This is especially true for candidates who have failed by a large margin, as any increase in performance is limited by the maximum level of achievement.

A wealth of research has investigated factors that improve success rates in undergraduate and postgraduate medical examinations. Academic factors, such as previous examination results and learning style,<sup>4</sup> and non-academic factors, such as ethnicity, sex,<sup>5</sup> ambition<sup>6</sup> and seeking advice from recently successful colleagues,<sup>7</sup> have all been shown to impact on success in examinations.

Overall pass rates for the MRCP(UK) examination have been reported for a number of years. Previous research has shown that white candidates have a higher success rate in all three components of the examination,<sup>8</sup> women are more likely to pass Part 2 PACES<sup>8</sup> and graduates of some medical schools in the UK<sup>9</sup> have higher pass rates for Part 1, including pre-admission qualifications as a control variable.

Our results show that well-prepared and organised candidates are more likely to pass the three components of the MRCP(UK) examination, as pass rates at first attempts are highest. Candidates should give ample consideration to their career progression, mapping out their attempts at each component and giving due consideration to each effort. Our data suggest that candidates who take the written components of the examination during their foundation years have a high chance of success. This study shows that candidates need to be somewhere between the tor-

toise and hare: do not slow the pace of taking the components of the examination, but ensure you are steady and wise enough to win the race!

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