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Health Professions Council

Education & Training Committee 28th September 2006

CPD Audit Sample Size

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Executive Summary and Recommendations

Introduction

In July 2005 Council agreed the Standards for Continuing Professional Development (CPD) and to link re-registration to meeting those Standards. From July 2006 all registrants have been required to engage in CPD activities and to keep an up-to-date record of those activities in a CPD portfolio. At each registration renewal cycle, each registrant is required to sign the declaration that they continue to practise their profession, and have met the Council's Standards and pay the required fee.

The Council conducted an extensive consultation exercise in September 2004 before implementing the CPD scheme. The results of the consultation were published in the document entitled Continuing Professional Development ~ Key Decisions in summer 2005.

In the response to the consultation, the question was asked regarding the audit sample size, this is at appendix 1.

Recommendations

The Committee is requested to agree:

1. **the audit sample size for the first two professions:**

   Chiropodists & Podiatrists and,
   Operating Department Practitioners;

   based on the information in appendices 2 and 4 whether the sample size for the first two professions should be set at 100 audits per profession or whether the sample size should be based on 5% of the register, approximately 600 and 450 for chiropodists and podiatrists and ODPs respectively.

2. **to publish updated information on the HPC website regarding the audit sample size;**

3. **To agree a "next steps" approach if the audit sample size for the first two professions produces a high failure rate i.e. a high number of audited registrants failing to meet the Standards for CPD or failing to submit the profile when requested to;**

4. **If there is a high failure rate, the Committee is asked to consider whether for subsequent professions, the whole part of the register should then be sampled.**

Resource implications

The audit sample size will determine the following:

- The number of CPD officers required to process the profiles;

- The number of Partners (CPD Assessors) which will need to be recruited per profession;

- The number of Case Managers which will need to be recruited based in the number of possible CPD appeals. The existing number of Case Managers in the Fitness to Practise departments is 4. Within the 5-year plan it is anticipated that an additional Case Manager will be recruited (within the financial year 2008/9). The Case Managers take on the responsibility of CPD/Registration Appeals and other FTP case work.

Financial implications

The whole cost of the CPD operation will be borne by HPC as there is no fee payable by the registrant. Some of the costs include:

Staff Costs
Printing
Postage
Recruitment & Training of Partners (CPD Assessors)
Communication & website
Remuneration of Partners (CPD Assessors)

Background Papers

None

Appendices

The following appendices are enclosed for reference:-

1. Response to the CPD consultation regarding the audit sample size (Section 8 – Audit size)

Appendix 1

2. Report from the Statistical department of the University of Reading dated summer 2004.

Appendix 2

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3.   Points to note from the University of Reading Report & issues for discuss and decision

Appendix 3

4.   Estimated number of registrants based on 5% and 2½% sample size of the professions at the time of audit

Appendix 4

Appendix 1   **Response to the CPD consultation published in the Key Decisions document (summer 2005)**

Section 8 – Audit size

"**Our proposals**

'3.3 Sampling of CPD

The HPC proposes to audit a sample of registrants' CPD each year, rather than checking each and every registrant. We believe that this is safe to do because we trust that, as professionals, registrants will take responsibility for, and keep to, the Standards of CPD. By auditing a sample of registrants, rather than all registrants, we will keep the costs of assessment down and achieve better value for registrants' money.

We have had advice from the Statistical Service Unit of the University of Reading on how to conduct an effective audit of compliance with our CPD requirements. The advice was:

    i)   to choose separate random samples of registrants for each of the 12 professions we regulate. This is because each profession is effectively unique and therefore needs testing by itself; and

    ii)   to audit 5% for the first professions, thereafter we will then audit 2.5% of each profession, subject to a review of the initial audits. Samples of this size will allow us to be confident that we have a good picture of whether registrants are generally complying with our requirements or not, while keeping costs down to manageable levels. Statistical theory says that the larger the population we are checking, the smaller the proportion we need to sample to be confident that we have got an accurate picture of compliance. The levels of 5% and 2.5% are based on providing us with confidence about compliance for the numbers of health professionals on our register (about 150,000 in total). Of course, we will use different-sized samples if we find that the proportions we currently propose using are not working adequately in some way.

Question 9: What do you think of the proposed size of the audit sample?'

Your responses

Most people agreed with our proposed sample size. A handful felt that the sample was either too large or too small because of:

- our ability to deal with a large sample size;
- a small sample might be only a 'token gesture'; and
- the possible increased costs to registrants as a direct result of our assessments.

Several people suggested ways in which the sample size could be rated or split into levels. For example, Play Therapy UK proposed a sliding scale for the sample, with a higher number of new registrants being audited compared to more experienced registrants. The organisation observed that "the audit sample should be randomly drawn from all registrants using a stratified frame that takes into account the number of years of registration [and places] a greater emphasis on the newer practitioners".

Along similar lines, the Department of Health (England) suggested that the relative size of each of the professions should be a factor in determining the sample size, while others proposed that a higher proportion of self-employed registrants should be audited. The Royal College of General Practitioners commented that "The Council should consider weighting the sample towards those who are likely to be professionally isolated, e.g. the self-employed, and those who are in direct contact with patients and for whom patient safety is a key issue". Finally, other people suggested that registrants who take part in the CPD schemes of professional bodies should be audited less frequently than those who do not. Some people asked how we would choose the first professions to be assessed, and for further explanation of why the audit sample size will drop from 5% to 2.5% when all professions are assessed.

Key decisions

Decision 11

We confirm that we received professional advice on this issue when drawing up the proposals, and we will not change the random nature of the sampling process or the audit sample size.

Appendix 2 **Report from the Statistical department of the University of Reading dated summer 2004.**

Sample Size Determination for a Survey on Continuing Professional Development for the Health Professions Council

Colin Grayer
6 August 2004

Introduction

The Health Professions Council (HPC) is responsible for registering and regulating the members of 12 health professions. One task that the HPC is planning to perform is the monitoring and approval of Continuing Professional Development (CPD) undertaken by registered health professionals (registrants), in order to ensure that they are keeping up satisfactorily with changes and improvements within their profession.

The HPC intends to monitor CPD by selecting a sample of registrants and requiring them to submit details of CPD that they have undertaken in the past year. These details will then be vetted by an appropriate professional body, and a decision will be taken whether or not the registrant has met the standards for CPD. Thus there will be a Yes/No decision for each registrant in the sample. The cost of vetting is estimated to be £60 per registrant, and it is therefore too expensive and time-consuming to vet the CPD of all professionals registered with HPC.

The results of the survey should enable the HPC to:
- Determine whether there is evidence that some members of a profession do not meet the CPD standards for that profession.

- Estimate the percentage of members that do not meet the CPD standards for that profession.

The purpose of the present study is to recommend the size of sample that is needed. As there are 12 different professions involved, generally with different standards for CPD, it seems reasonable to treat each profession separately and to choose a random sample of registrants from each. The HPC does not require to produce estimates for all the professions combined.

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Finding evidence of non-conformance to CPD

By taking a suitably sized random sample of a population (all the registrants in a particular profession) we can obtain evidence (but not necessarily proof) that some members of that profession are not conformant to CPD standards. Clearly, if any member of the sample is found to be non-conformant, then there must be non-conformance in the profession. But if all the members in the sample are conformant, we cannot say that the profession is conformant, but only that we have no evidence of non-conformance, and that the level of non-conformance is likely to be below a given percentage. The larger sample that we take the more likely it is that we will find non-conformance (if it exists in the profession), or (if all members of the sample are conformant) we obtain a decrease in the likely level of non-conformance. However, increasing the sample size costs money, and beyond a certain point the gains become rather small.

To determine a suitable sample size, HPC needs to decide on the maximum level of non-conformance that it is prepared to allow to go undetected. For example, it may decide that up to 3% non-conformance is acceptable, and then the sample size is chosen such that it is unlikely that the sample members would all be conformant if the actual non-conformance exceeds 3%. HPC also needs to decide what "unlikely" means: this is the risk of getting it wrong (i.e. accepting that the profession has less than 5% non-conformance when it actually has more). Conventionally this risk is often taken as being 5% (1 in 20 chance of being wrong), but other values can be chosen if more appropriate. Generally, decreasing the risk increases the sample size, and vice versa.

The following table gives the sample size required for various maximum acceptable levels of non-conformance, for risks of 5% and 10%.

Maximum acceptable non-conformance	5% risk	10% risk
1%	298	230
2%	149	115
3%	99	77
4%	74	59
5%	59	46
6%	49	38
7%	42	33
8%	36	28
9%	32	25
10%	29	22

Note that these sample sizes assume that the population size is large compared to the sample (at least 10 times the sample size). For smaller populations the sample size could be reduced, but the reduction is generally small unless the sample is a large proportion of the population. The sample sizes given above err on the cautious side, so it is probably sensible to use them even for the smaller professions.

Estimating the level of non-conformance

This requirement is somewhat different from that of the previous section, as here we are interested in how precisely the sample can estimate the actual level of non-conformance in a profession, regardless of whether there is evidence of non-conformance.

Generally, the bigger the sample the more precise is the estimate. So to determine the sample size, HPC needs to decide on the precision required. This is complicated by the fact that the precision also depends somewhat on the level of non-conformance found in the sample, estimates being more precise when non-conformance is near 0% (or 100%) than when it is around 50%.

The following table gives approximate 95% confidence intervals of non-conformance for various sample sizes and non-conformance levels in the sample. A confidence interval shown as x%-y% means that there is a 95% probability than the actual level of conformance is between x% and y%. Again, the values in the table assume a large population size compared to the sample size; these confidence intervals will be a bit conservative (i.e. slightly too wide) if the population size is relatively small.

Sample size	Sample non-conformance					
	0%	10%	20%	30%	40%	50%
20	0%-14%	1%-32%	6%-44%	12%-55%	19%-64%	27%-73%
40	0%-8%	3%-24%	9%-36%	17%-47%	25%-57%	34%-66%
60	0%-5%	4%-21%	11%-33%	19%-44%	28%-54%	37%-63%
80	0%-4%	4%-19%	12%-31%	21%-42%	29%-52%	39%-61%
100	0%-3%	5%-18%	12%-30%	21%-40%	30%-50%	40%-60%
120	0%-3%	5%-17%	13%-29%	22%-39%	31%-49%	40%-60%
140	0%-3%	5%-17%	14%-28%	23%-39%	32%-49%	41%-59%
160	0%-2%	5%-16%	14%-28%	23%-38%	32%-48%	42%-58%
180	0%-2%	6%-16%	14%-27%	23%-38%	32%-48%	42%-58%
200	0%-2%	6%-16%	14%-27%	23%-37%	33%-47%	43%-57%

Conclusions and Remarks

The chosen sample size should be the greater of those needed to satisfy the two requirements. Generally it appears that a sample size of 80 to 100 gives reasonable detection of non-conformance and precision of estimating the level. However, a smaller sample size could be used if lower levels of detection and precision are acceptable. Increasing the sample size above 100 gives relatively little improvement.

Note that the sample sizes given here are the number of responses required. If there is likely to be some non-response, then the sizes should be increased accordingly (e.g. if 20% non-response is expected, 100 should be increased to 125). HPC may consider following up non-respondants in some way, since they may tend to be non-conformant or special in some other way.

Respondants that are found to be non-conformant should be encouraged to improve, but should not be singled out for punishment as they are likely to be only a small fraction of non-conformant members, and this may make people wary of the survey in following years. It is a good idea, however, to ask them to re-submit the CPD questionnaire next year to monitor progress. Note that they should not be included as part of the random sample next year, since they are not randomly chosen and may bias the results.

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Appemdix 3   **Points to note from the University of Reading Report &
                      issues for discuss and decision**

Points to note from the University of Reading report:

The larger sample that we take the more likely it is that we will find non-conformance (if it exists in the profession), or (if all members of the sample are conformant) we obtain a decrease in the likely level of non-conformance.
HPC needs to decide on the maximum level of non-conformance that it is prepared to allow to go undetected
HPC also needs to decide what "unlikely" means: this is the risk of getting it wrong (i.e. accepting that the profession has less than 5% non-conformance when it actually has more).
Generally it appears that a sample size of 80 to 100 gives reasonable detection of non-conformance and precision of estimating the level.

Appendix 4   Estimated number of registrants based on 5% and 2½% sample size of the professions at the time of each audit

Profession	Date of first audit	Number of Registrants as at November 2005	Number of Registrants at the time of audit	Estimated sample size at the time of audit
Chiropodists & podiatrists	July 2008	11,000	12,128 as at July 2008	**606** (5% sample size)
ODPs	October 2008	8,000	8,820 as at October 2008	**441** (5% sample size)
Orthoptists	August 2009	1,300	1,504 as at August 2009	**38** (2.5% sample size)
Paramedics	August 2009	11,200	12,966 as at August 2009	**324** (2.5% sample size)
Clinical Scientists	September 2009	3,700	4,284 as at September 2009	**107** (2.5% sample size)
Prosthetists & Orthotists	September 2009	900	1,042 as at September 2009	**26** (2.5% sample size)
Speech & Language Therapists	September 2009	10,400	12,069 as at September 2009	**302** (2.5% sample size)
Occupational Therapists	October 2009	27,000	31,256 as at October 2009	**781** (2.5% sample size)
Biomedical Scientists	November 2009	21,000	24,311 as at November 2009	**608** (2.5% sample size)

Profession	Date of first audit	Number of Registrants as at November 2005	Number of Registrants at the time of audit	Estimated sample size at the time of audit
Radiographers	February 2010	23,000	27,957 as at February 2010	**699** (2.5% sample size)
Physiotherapists	April 2010	37,000	44,975 as at 2010	**1,124** (2.5% sample size)
Arts Therapists	May 2010	2,000	2,432 as at 2010	**61** (2.5% sample size)
Dietitians	May 2010	6,000	7,293 as at 2010	**182** (2.5% sample size)

NOTES:

- Assuming 5% increase in registrant numbers per profession per year (column 4)
- 5% sample size for the first two profession (CH and ODPs)
- 2.5% sample size for the remaining professions