2015

Evaluation of Potential Supporting Evidence for Continuing Assurance of Practice in Dental Regulation

Professor Linda Prescott-Clements
Professor Erik Driessen
Professor Cees van der Vleuten
Dr Alex Haig
Mrs Lisa McGilvray
Dr Ceri Black

23 March 2015

Index

Acknowledgements

This comprehensive piece of work would not have been possible without the support of many individuals, who were happy to give their time and effort to ensure that the evidence base for any future system of continuing assurance for dental professionals in the UK is as robust as possible. The data collection from fieldwork sites was key to the research, without which the analysis could not have been performed. We acknowledge the following individuals from fieldwork sites who made a valuable contribution to this work:

Denplan Ltd: Henry Clover, Roger Matthews, Antoinette Weller, Anna Savage, Lucy Dakin, Katrina Feist and Linda Williams

Defence Dental Service:

Colonel Greg Heath and Surgeon Commander Christopher Redman

Health Education Kent, Surrey and Sussex:

Stephen Lambert-Humble and Iris Handy

NHS Education for Scotland:

Dr Ann Shearer, Lesley Ross, Pete Stephenson, David Rome and Dr David Felix

Rodericks Ltd: Shalin Mehra, Steve Brooks, Cathie Brady, Lizzie Hurst, Verity Hills, Georgina Phillips, and the practice managers at Rodericks Ltd.

Most of all we would like to acknowledge the time and effort of the many dental practitioners across the UK who submitted anonymised data for analysis, and who volunteered to be interviewed as part of this research.

We thank Margaret Rhodes, Craig McGilvray, and Gillian Johnston for reviewing this manuscript.

Finally, we would like to thank members of the Technical Group for their helpful suggestions.

List of Figures and Tables

Abbreviations

ACGME	Accreditation Council for Graduate Medical Education
AoMRC	Academy of Medical Royal Colleges
CBD	Case Based Discussion
CDS	Community Dental Service
CLA	Clinical Audit
CME	Continuing Medical Education
COPDEND	Committee of Postgraduate Dental Deans and Directors, UK
CPE	Continuing Professional Education
CPD	Continuing Professional Development
DCP	Dental Care Professional
DDS	Defence Dental Service
DEP	Dental Evaluation of Performance
DFT	Dental Foundation Training
ERIC	Education Resources Information Centre
GDC	General Dental Council
GDP	General Dental Practitioner
GDS	General Dental Service
GMC	General Medical Council
GPC	General Pharmaceutical Council
HDS	Hospital Dental Service
HEKSS	Health Education Kent, Surrey & Sussex
HMIC	Health Management Information Consortium
HTVT	Hygienist & Therapist Vocational Training
MSF	Multi-Source Feedback
NCAS	National Clinical Assessment Service
NES	NHS Education for Scotland
PDP	Professional Development Portfolio
PFB	Patient Feedback
RCC	Review of Complaints and Compliments
SDS	Salaried Dental Service
SEA	Significant Event Analysis
UKCEA	UK Conference of Educational Advisors

Executive Summary

Research Context and Approach

In order to maintain high standards of patient care and safety, it is essential that regulated health professionals can demonstrate that their knowledge and skills are kept up to date through professional development and that they remain fit for practise. Systems of periodic evaluation of continuing fitness to practise, often referred to as 'revalidation' or 'Continuing Assurance of Fitness to Practise', are being explored by professional regulators in the UK, including the General Dental Council.

This research contributes to the evidence base supporting policy development in this area, building on previous work conducted by the Picker Institute Europe in 2012, on behalf of the GDC, which identified the following evidence types as potential sources of evidence to inform a system of revalidation:

- Continuing Professional Development (CPD)
- Professional Development Plans (PDP)
- Clinical Audit (CLA)
- Multi-Source Feedback (MSF)
- Review of Significant Events[1] (SEA)
- Review of Complaints & Compliments (RCC)
- Case based Discussion (CbD)
- Patient Feedback (PFB)

The aim of this current research was to evaluate the extent to which these evidence types, individually and collectively, could contribute to a future system of Continuing Assurance of Fitness to Practise, by providing useful and usable information regarding practice and on-going competence, in the context of the GDC Standards and different practice types and workplace settings.

The research questions were:

1. What can the supporting evidence types individually and collectively contribute to a system of Continuing Assurance, in the context of evaluating practice in accordance with the GDC's Standards?
2. What are the strengths and weaknesses of each of the sources, as indicated by the fieldwork, in the context of evaluating practice in accordance with the GDC's Standards?
3. Individually by evidence type, what would maximise their usefulness and usability?
4. Could the supporting evidence types provide adequate information to make a robust recommendation and decision relating to Continuing Assurance?
5. What difference, if any, did work-place setting and format of supporting information make?
6. What could a systematic evaluation framework, for the purposes of Continuing Assurance, comprise?

The data obtained from three research methods: (i) rapid evidence reviews for each of the evidence types, (ii) the analysis of anonymised data from UK dental practitioners, corresponding to each of the evidence types, and (iii) semi-structured interviews with dental professionals, were triangulated in order to answer the research questions.

Using a purposive sampling strategy to ensure a range of variables were represented, we obtained 114 anonymised portfolios of data from five fieldwork sites in UK dentistry, each comprising data from a minimum of four of the evidence types[2]. The sample included all eight evidence types from

[1] Or 'Significant Event Analysis'

[2] Data represented as closely as possible a 5 year cycle.

different professional groups and types of dental practice. The evidence types most frequently included within a portfolio were PDPs (96%), CPD (71%), Patient Feedback (70%) and Clinical Audit (68%), with just over a third containing Case-based Discussion (39%). Evidence types less prevalent were Reviews of Complaints and Compliments (19%) and Significant Event Analysis (13%), and only 3% portfolios included Multi-Source Feedback (MSF).

In addressing the research questions, we have distinguished between the formative aims of a system of Continuing Assurance - to ensure Dental Professionals are engaged with professional development, keeping their knowledge and skills up to date, and the summative aims - identifying whether dental professionals are fit to practise.

Key themes across Evidence Types

- A comprehensive content mapping exercise was carried out to identify the degree to which the evidence collected in portfolios related to the GDC's Standards. It showed that multiple evidence types related to different standards and that certain evidence types demonstrated better coverage of some standards than others. The three evidence types demonstrating the best coverage of each of the Principles within the GDC Standards for the Dental Team is shown below.

Portfolio-based evidence showing strongest relationship with GDC Standards

GDC Standards Principles	CPD	PDP	CLA	MSF	SEA	PFB	RCC	CbD
1. Put patients interests first	✓					✓		✓
2. Communicate effectively with patients				✓		✓		✓
3. Obtain valid consent[3]			✓			✓		
4. Maintain and protect patients' information	✓		✓					✓
5. Have a clear & effective complaints procedure	✓	✓					✓	
6. Work with colleagues in a way that is in patients' best interests	✓			✓				✓
7. Maintain, develop & work, within your professional skills and knowledge	✓			✓				✓
8. Raise concerns if patients are at risk	✓	✓			✓			
9. Make sure your personal behaviour maintains patients confidence in you and the profession				✓		✓		✓

- Interviews with dental professionals revealed that their motivation for the collection of any of the evidence types was often that it was a formal requirement, either by the GDC (for CPD), their employer for example.

[3] Only two evidence types showed a strong relationship

- Better quality evidence was derived from practitioners working within highly structured environments, such as the Defence Dental Service or those in training posts, and where standardised templates and guidance were available.
- Links between different evidence types within a portfolio were not commonplace, suggesting a lack of integration and the collection of evidence types in isolation. Where links were clearly established between different evidence types in a portfolio, engagement with professional development was evident.
- There is a lack of understanding regarding some evidence types and how best to implement them, in particular Multi-Source Feedback, Case-based Discussion and Significant Event Analysis.
- The usefulness of the evidence for Continuing Assurance could be increased if some of the evidence types were collected differently, using tools developed which reflect the GDC Standards and targeted at the level of the individual practitioner rather than at the practice-level.

Results

RQ1: What can the supporting evidence types individually and collectively contribute to a system of Continuing Assurance, in the context of evaluating practice in accordance with the GDC's Standards?

RQ2: What are the strengths and weaknesses of each of the sources, as indicated by the fieldwork, in the context of evaluating practice in accordance with the GDCs Standards?

RQ3: Individually by evidence type, what would maximise their usefulness and usability?

RQ5: What difference, did work-place setting and format of supporting information make?

Continuing Professional Development (CPD)

CPD evidence may relate to any of the GDC's Standards. The research showed that GDC recommended CPD topic areas are dominant in the evidence analysed. The quality of CPD evidence in terms of usefulness for formative and summative aims of Continuing Assurance varied widely, and the evidence from practitioners in highly structured environments such as NES training posts or the Defence Dental Service appeared to include more CPD activities than others, and of better quality, perhaps as a result of the structured templates used. (RQ1)

Although the usefulness of CPD records may be limited with regard to the summative aims of Continuing Assurance (as they are currently mostly certificates of attendance / participation, and attendance doesn't guarantee learning), in certain formats where CPD evidence moves beyond a list of event titles and includes rich qualitative feedback such as reflective accounts, relevance to practice and links to PDP entries, this evidence may be a useful indicator that an individual practitioner is engaged with professional development (i.e. formative aims of Continuing Assurance). (RQ2, RQ3).

Mechanisms by which the usefulness and usability of CPD could be enhanced for continuing assurance purposes, include relevance to the individual practitioner, addressing an identified

learning need, reflection, and educational impact. These elements should be emphasised in guidance for dental professionals. (RQ3, RQ5).

Professional Development Plans (PDPs)

Most portfolios included a PDP, although the quality and content varied widely ranging from the poorly structured to highly comprehensive plans clearly linked to other sources of evidence and incorporating self-reflection. PDPs were often part of a management or supportive process such as appraisal or review. PDPs can include evidence reflecting almost any area within the GDC Standards, and is particularly representative of Standard 7.3: Update and develop your professional knowledge and skills throughout your working life. (RQ1).

PDPs have the potential to provide good evidence to support the formative aims of Continuing Assurance, if they include clear objectives, relevance to practice, action plans, and are focused upon demonstrating active engagement with professional development. Evidence supporting the role of PDPs (individually) for the summative purposes is less clear, and under such circumstances a selective approach to maintaining a plan may be taken. (RQ1, RQ2, RQ3)

The usefulness of PDPs for Continuing Assurance could be enhanced through the provision of structured templates reflecting the GDC's Standards, and guidelines regarding their completion. The usefulness of PDPs for practitioners could be enhanced through the provision of support mechanisms such as coaching or peer support, and appraisal. (RQ3).

There appeared to be more structure and qualitative content in the PDPs from those working in highly structured environments such as NES training posts or the Defence Dental Service. (RQ5).

Clinical Audit

Clinical Audit evidence included standardised audits on record keeping or radiograph quality, and some bespoke audits usually completed by individuals working within more structured environments e.g. NES training posts. Clinical Audit evidence often related well to certain standards within GDC Principle 3: Obtain valid Consent, and Principle 4: Maintain and protect patients' information. (RQ1, RQ2, RQ5)

As clinical audit compares practice against agreed standards or benchmarks performance against peers, there is potential for it to contribute towards the summative aims of Continuing Assurance for relevant GDC Standards. However, data would need to be practitioner-specific rather than at the team level, and criteria for acceptable performance would need to be described. The potential for Clinical Audit evidence to support the formative aims of Continuing Assurance is good where details of sampling, analysis, reflection, action plan and re-audit are included. (RQ1, RQ2, RQ3)

The usability of Clinical Audit for practitioners could be enhanced through the provision of standardised templates, guidance and access to performance standards or benchmarking data. (RQ3).

Multi-Source Feedback (MSF)

Very little MSF evidence was available in the portfolios, suggesting it may not be widely undertaken within dentistry at present, and there was some confusion as to what constitutes MSF. The research literature on the use of MSF in dentistry is scarce, although research in the context of medical revalidation has indicated MSF may be a valuable source of information if implemented carefully,

providing insight into areas otherwise difficult to assess, such as 'Professionalism' and 'Teamwork'. (RQ1, RQ2).

Although studies have demonstrated that MSF could identify poorly performing doctors, there are risks to validity and sources of bias which would require careful consideration if used for summative purposes. MSF evidence may provide valuable insight for the formative aims of Continuing Assurance if tailored to the GDC's Standards, designed to be rich in feedback, and embedded within a wider system demonstrating an individual's engagement with professional development. (RQ2, RQ3).

The usability of MSF could be enhanced through the provision of a standardised tool (including web-based formats), detailed guidance for practitioners and support processes e.g. coaching. (RQ3).

The limited data available meant that it was not possible to evaluate the implications of workplace setting or format on MSF evidence in dentistry. (RQ5).

Reviews of Significant Events / Significant Event Analysis (SEA)

Few Reviews of Significant Events were included in the portfolios and the quality of the evidence was variable. Consequently, this evidence reflected relatively few of the GDC Standards, and those were dependent upon the nature of the 'event' and highly variable across practitioners. As the occurrence of significant events can't be predicted, and the severity or focus of events is highly variable, standardisation of this evidence for summative purposes is likely to be difficult. (RQ1, RQ2)

Significant Event Analysis has the potential to contribute to the formative aims of Continuing Assurance, when a robust approach is taken to the review process i.e. comprehensive analysis, reflection and action plan. Such an approach could include high quality feedback, demonstrate insight, and a commitment to professional development and providing high standards of care. SEA evidence limited to an incident log with no analysis or follow-up is unlikely to be useful. (RQ1, RQ2, RQ3, RQ5)

The usefulness and usability of SEA evidence could be enhanced through the provision of templates and guidance regarding the format and approach needed in order to produce good quality feedback. (RQ3)

Patient Feedback

Most Patient Feedback had been collected using standardised tools, often including qualitative feedback from patients as well as quantitative ratings on performance. There is some potential for patient feedback to contribute to the summative aims of Continuing Assurance, particularly if tailored towards the GDC's Standards, using valid and robust design and implementation conditions. (RQ1, RQ5). There is evidence that patient feedback tools used within the medical profession have produced positively skewed results and therefore the 'cut-off' score would need careful consideration. There are also a number of potential sources of bias which would need to be eliminated, such as personal characteristics of the practitioner or the patient base. (RQ2, RQ3, RQ5).

Patient feedback may be more effective for a formative approach to Continuing Assurance as it has the potential to provide rich feedback to practitioners covering several important areas within the GDC Standards, and through the inclusion of relevant questions, could demonstrate a committed to patient centred care. (RQ1, RQ2).

The usefulness and usability of patient feedback could be enhanced through the provision of a tool reflecting GDC Standards, which obtained practitioner-specific feedback rather than evidence at the

practice level, and for which the results could be benchmarked against peers in a similar clinical or practice context. The usability of patient feedback could also be enhanced through the provision of implementation guidelines (addressing different clinical contexts), and access to web-based formats to support administration. (RQ3).

Reviews of Complaints and Compliments

Only 19% of portfolios included Reviews of Complaints and Compliments evidence, and the quality was variable with many being a simple logs of complaints without any detailed analysis or reflection. The better quality evidence was usually associated with more highly structured environments and the use of standard templates. (RQ5).

The high levels of variation in complaint severity or content inevitably makes standardisation for the summative aims of Continuing Assurance difficult. However, high quality reviews of complaints and compliments, including detailed root cause analysis, reflection and any relevant action plan could be useful for the formative aims of Continuing Assurance. (RQ1, RQ2, RQ3, RQ5).

The usefulness of reviews of complaints and compliments, and the usability of this evidence for practitioners could be enhanced through the provision of guidance on the process needed in order to maximise the quality of this evidence, and templates may also be helpful. (RQ3).

Case-Based Discussion (CbD)

Case-based Discussion evidence was found to be either 'formal' CbD involving the presentation of a case and recorded discussion with peers or an assessor (with or without assessment), or 'informal' CbD involving general discussions with peers which were not necessarily recorded in a structured manner. The 'formal' CbD evidence was mostly submitted from more structured environments such as NES training posts or the Defence Dental Service. (RQ5).

Although practitioners considered informal CbD to be useful, without a structured record it is difficult to envisage how this could be used as evidence within a system of Continuing Assurance. Formal CbD evidence was more valuable, often being associated with high quality feedback, and reflecting many of the GDC Standards. If this approach is transferable to those not in a structured or training environment, there is strong potential for it to be useful for Stage 1 Continuing Assurance. (RQ1, RQ2, RQ5).

The usefulness and usability of CbD could be enhanced through the provision of a CbD tool reflecting GDC Standards, designed to prioritise high quality feedback, implemented in a supportive environment, e.g. with peer support or coaching. (RQ3).

The Collective Use of Evidence Types

The overall strength of the evidence types for Continuing Assurance exists in their combined use, rather than as individual 'stand-alone' sources of information. Although all potential evidence types reviewed in this study have some potential to contribute to the formative aims of Continuing Assurance, the results from this research suggest the use of a combination of Clinical Audit, Multi-Source Feedback, Patient Feedback and Case-based Discussion evidence, to inform a robust PDP and drive the completion of relevant CPD activities is likely to be the most useful approach. (RQ1, RQ2)

The key to any future system will be to maintain as much flexibility as possible, to ensure that Dental Professionals from all practice types and workplace settings are able to submit evidence which addresses the different areas within the GDC Standards. Our study has shown that many examples of evidence, and tools currently used by practitioners address a number of areas within the GDC

Standards already. However, the usefulness of Patient Feedback, PDPs, Multi-Source Feedback, and Case-based Discussion, could be enhanced further through the design of tools or templates specifically for Continuing Assurance, and appropriate guidance. (RQ1, RQ3).

RQ4: Could the supporting evidence types provide adequate information to make a robust recommendation and decision relating to Continuing Assurance?

There is currently insufficient evidence to state whether the evidence types could provide information to make a robust summative decision on fitness to practise. Further research is needed within dentistry in order that this can be evaluated.

Our research indicates that the evidence types have strong potential with regard to the formative aims of Continuing Assurance. Implemented collectively within a supportive environment, it is likely that the evidence types could support a formative dimension of Continuing Assurance of Fitness to Practise, i.e. practitioners' engagement with professional development, if the quality of evidence was high.

Recommendations include:

- A PDP structured around the GDC Standards, including detailed professional development objectives, how learning needs were identified, relevance, activities and reflections on progress. There should be clear links between PDP entries and other evidence types.
- The regular review of PDPs, within a supportive environment.
- CPD which is relevant and addresses a learning need, and reflection on educational impact and changes to practice following the activity.
- Clinical Audit evidence including a reflection on the results, an action plan and re-audit cycle.
- Multiple rounds of MSF and Patient Feedback using tools designed to reflect the GDC Standards, and incorporate rich feedback for practitioners.
- CbD evidence relevant to the clinical context, including rich qualitative feedback.

Research Question 6: What could a systematic evaluation framework, for the purpose of Continuing Assurance, comprise?

The development of a robust systematic evaluation framework for Continuing Assurance in dentistry is not yet possible, as further research into the use of evidence types in this context is required. However, based on the evidence obtained through each of the research methods in this study, we envisage that the most useful approach to an evaluation framework may include:

- The triangulation across multiple evidence types. It is envisaged that the use of a combination of Clinical Audit, Multi-Source Feedback, Patient Feedback and Case based Discussion evidence to inform a robust PDP and direct the practitioner to the completion of relevant CPD activities would be the most useful combination of evidence types in the context on Continuing Assurance.

- The development of a system primarily focused upon the formative aims of Continuing Assurance[4], i.e. a review of a portfolio comprising multiple evidence types to determine whether

[4] As recently supported in Southgate L and Van der Vleuten CPM (2014). A conversation about the role of medical regulators. Medical Education 48 (2) p215-218.

a practitioner is fully and habitually engaged with professional development, keeping their knowledge and skills up to date.

- Overall review criteria which prioritise the quality of evidence, and the demonstration of active engagement with professional development across all areas within the GDC Standards. Using such an approach, a 'Red Flag', or other indication that assurance cannot yet be provided, may constitute a lack of quality evidence or engagement with learning (in addition to direct evidence of poor performance), for example a portfolio with limited content, no evidence of habitual engagement, or of poor quality.
- Flexibility around which evidence can be used by practitioners to support Continuing Assurance, to facilitate the process across different practice types and settings, and consideration of feasibility for practitioners working within different workplace settings and non-patient facing roles.
- Guidance for practitioners regarding the most useful evidence types to address different areas within the GDC Standards (from a "toolbox" of options).
- The development of tools and templates for evidence types, constructed around the GDC Standards, to ensure consistency.
- Practitioners should have access to sufficient support mechanisms in order to be able to collect good quality evidence, and gain maximum benefit from doing so in terms of their professional development. Support may include peer support / coaching, in addition to comprehensive guidance and clear guidelines.
- Some of the GDC Standards may be evidenced objectively via either a declaration (e.g. GDC Standard 9.3 "*Inform the GDC if you are subject to criminal proceedings or a regulatory finding is made against you anywhere in the world*"), or via certificates (e.g. GDC Standard 1.8: "*You must have appropriate arrangements in place for patients to seek compensation if they have suffered harm*").

1. Introduction

The GDC is exploring the implications and regulatory potential of developing a process for periodically evaluating whether the practitioners on its registers continue to be up to date and fit to practise, based on supporting documentary evidence. The GDC sets out its generic standards for all dental professionals in its guidance *Standards for the Dental Team*, and fitness to practise is based on the standards.

This research builds upon research undertaken for the GDC in 2012 by Picker Institute Europe, which identified eight sources of evidence that could potentially be used to develop a scheme of revalidation (Continuing Assurance of Fitness to Practise)[5].

This present study further evaluates the relevance and usability of the evidence types recommended in the Picker study, by analysing anonymised data drawn from a purposive sample of evidence specially compiled into anonymised portfolios from five fieldwork sites in UK dentistry.

2. Aims of the Research

The aim of this research was to:

(i) evaluate the extent to which the eight potential sources of supporting evidence (Table 2), can systematically provide useable and useful information regarding an individual registrant's practice and on-going competence, in the context of the GDC's Standards, and their scope and field(s) of practice, and from which evaluation could be made for continuing assurance purposes; and

(ii) design an evidence evaluation framework, that could be utilised across all professional groups and all practice types and settings, for the purposes of any future scheme of continuing assurance.

The research was carried out using existing data from a range of dentists and Dental Care Professionals (DCP's), from five fieldwork sites located across the UK (section 3.1).

Table 2: Evaluated evidence types

Evidence Types
Continuing Professional Development (CPD)
Professional Development Plans (PDP)
Clinical Audit (CLA)
Patient Feedback (PFB)
Review of Complaints and Compliments (RCC)
Multi-Source Feedback (MSF)
Review of Significant Events (SEA[6])
Case-Based Discussion (CBD)

[5] Picker Report: Evaluation of Potential Evidence Types for Revalidation Stage 1. General Dental Council 2012.
[6] Also known as 'Significant Event Analysis'

2.1 Research Questions

The research questions were:

1. What can the supporting evidence types (Table 2) individually and collectively contribute to a scheme of continuing assurance, in the context of evaluating practice in accordance with the GDC's Standards?
2. What are the strengths and weaknesses of each of the sources, as indicated by the fieldwork, in the context of evaluating practice in accordance with the GDC's Standards?
3. Individually by evidence type, what would maximise their usefulness and usability?
4. Could the supporting evidence types provide adequate information to make a robust recommendation and decision relating to continuing assurance?
5. What difference, if any, did work place setting and format of supporting information make?
6. What could a systematic evaluation framework, for the purposes of continuing assurance, comprise?

3. Methodology

3.1 Research Methods and Approach

A mixed methods approach was taken, combining quantitative and qualitative data from primary and secondary sources. A wide range of existing data compiled within specially gathered portfolios of anonymised evidence (raw data), a rapid review of peer reviewed and grey sources of literature, and interviews with a sample of dental professionals, were triangulated to answer the research questions.

The content of the portfolios was analysed to identify:

- the extent to which the evidence types related to the GDC's Standards (content mapping),
- the quantity and format of evidence within each dataset,
- the quality of feedback associated with evidence types, and
- observable links between different evidence types within a dataset.

Methods included secondary data analysis - both inductive and deductive thematic analysis. *Inductive* thematic analysis was primarily used to identify themes. A *deductive* approach was taken to explore issues that might impact on the potential for a source of evidence to be used for Continuing Assurance. Data was also compared across certain contextual variables such as practice-type and workplace setting. All data was fully anonymised by practitioners and/or fieldwork sites prior to being submitted for analysis. Informed consent to use the data for the research was obtained from practitioners in advance.

Fieldwork sites were included where a minimum of four evidence types could be provided for a range of practitioners and where that data could be anonymised at source.

The fieldwork sites were:

- Defence Dental Service (DDS): a mix of training post holders and those in clinical practice
- Denplan Ltd: Excel quality programme participants
- Health Education Kent Surrey & Sussex (HEKSS): practitioners involved in postgraduate dental training

- NHS Education for Scotland (NES): practitioners in training posts
- Rodericks Ltd dental practices

3.2 Fieldwork: Data Collection and Sample

The data sample covered dental practice type (comprising General Dental Practice, hospital-based practice, salaried dental service, and Defence Dental Services), mode of provision (private, NHS and mixed) and geographic area, including all four countries of the UK.

To obtain a final sample of a minimum of 100 datasets, each comprising at least four of the eight evidence types, fieldwork sites were initially requested to submit details of the scope of evidence from as many practitioners as possible, so that a purposive sample to address all possible variables could be selected.

Following a review of the initial data, 114 datasets were selected for analysis which covered each of the evidence types and variables as widely as possible (Tables 3.2a-c).

Table 3.2a: Datasets by practice type

Fieldwork Site	GDS			HDS	SDS	Military	DCPs
	NHS**	Private	Mixed				
Defence (DDS) (28)	0	0	0	0	0	28	4
Denplan Ltd (37)	0	11	26	0	0	0	0
HEKSS (4)	0	0	4	0	0	0	0
NES (29)	0	0	0	17*	12*	0	11
Rodericks Ltd (16)	3	0	10	0	0	0	3
Total	**3**	**11**	**40**	**17**	**12**	**28*** **	**18**

* *11 Datasets were from practitioners who had spent 6 months in a HDS post and 6 months in a SDS (CDS) post, ** There was no setting that was 100% NHS provision but all provided at least 90% NHS commissioned dental services,* *** *4 of which are DCPs*

Table 3.2b: Datasets by geography

Fieldwork Site	England	N. Ireland	Scotland	Wales
Defence (DDS)	27	0	1	0
Denplan Ltd	29	1	6	1
HEKSS	4	0	0	0
NES	0	0	29	0
Rodericks Ltd	16	0	0	0
Total	**76**	**1**	**36**	**1**

Table 3.2c: Datasets by mode of delivery (as declared by fieldwork sites prior to analysis)

Practice Type	N	Evidence Type							
		CPD	PDP	CLA	PFB	RCC	MSF	SEA	CBD
GDS (mixed)	40	17	39	39	34	32	1	28	27
GDS (private)	11	1	11	11	9	11	0	11	11
GDS (NHS)	3	3	3	3	3	0	0	0	0
Defence	24	24	23	21	12	11	6	8	20
HDS	17*	17	17	6	17	0	0	0	17
CDS (SDS)	12*	12	12	4	12	0	0	1	12
DCPs	18	18	18	3	1	3	0	14	14
ALL	**114**	**81 (71%)**	**112 (98%)**	**83 (73%)**	**77 (68%)**	**57 (50%)**	**7 (6%)**	**62 (54%)**	**90 (79%)**

* *11 Datasets were from practitioners who had spent time in both HDS and SDS (CDS) posts*

3.3 Data Analysis

Grading and mapping

All evidence was reviewed and graded in terms of the strength to which it related to the GDC's Standards;

0 = No coverage
1 = Weak (relevant content was very limited in quantity, or topics corresponded only tentatively)
2 = Good (multiple examples of data present with clear relevance to the standard)
3 = Excellent (the majority of data demonstrates direct relevance to the standard)

A score was awarded for each evidence type within each portfolio, enabling the coverage of evidence across individual GDC Standards to be determined and compared across practice type or workplace setting. Results are presented as either mean scores for each evidence type across all portfolio data, or frequencies of datasets allocated each rating 0-3.

Feedback Analysis

The extent to which the evidence provided feedback in some form was also assessed. The presence of quantitative and qualitative feedback was noted and graded on the 0-3 scale as above to provide a measure of strength of feedback.

Links between evidence

Portfolios were also analysed for links between evidence types, as a potential indicator of professional development and 'engagement' in the learning process, and contribution to continuing fitness to practise. For example, whether any of the CPD activities undertaken correspond to entries within a PDP or if results from a Clinical Audit or MSF lead to a PDP entry or CPD activity.

Although a degree of calibration between three of the researchers (LPC, ED and CvdV) took place prior to the analysis, a limitation of the study was that all the analysis (and allocation of strength ratings) was carried out by a single researcher.

3.4 Rapid Evidence Reviews

Rapid Evidence Reviews of available peer reviewed and grey literature were carried out, using a systematic approach and using the Medline, ERIC, EMBASE, Cochrane and HMIC databases, followed by a search of the Grey Literature using Google's Advanced search facility. This was to explore the utility, usability and feasibility of the evidence types, in the context of revalidation/continuing assurance of fitness to practise. Following trial searches, it was agreed that the rapid review for 'Patient Feedback' and 'Reviews of Complaints and Compliments' would be combined due to a high degree of overlap in the literature.

The results from each of the search strategies are summarised in Table 3.4.

Table 3.4: Rapid Evidence Review search results

Evidence Type	Database Search		Grey Literature		Final Sample for Review
	Initial Hits	Retained	Initial Hits	Retained	
CPD	626	41	4	3	44
PDP	167	51	4	0	51
Clinical Audit	605	78	4	4	82
MSF	176	95	20	11	106
PFB & RCC	476	34	4	3	37
SEA	31	14	4	3	17
CbD	25	15	1	1	16

3.5 Practitioner Interviews

The dental professionals submitting anonymised portfolios of evidence were also invited to take part in subsequent telephone interviews.

Twenty four semi-structured interviews were undertaken with practitioners drawn from different workplace settings and practice types, to explore feasibility issues associated evidence gathering. As all data had been pre-anonymised, no associations could be made between a practitioner and their own portfolio. Interview transcripts were fully anonymised by the researcher prior to citation in the report. The full report and analysis of practitioner interviews is included in the Technical Appendices.

4. Evidence Types

4.1 Data Collected

The purposive data sample was obtained, based on the evidence types within each portfolio as reported by each fieldwork site (Section 3.2, Tables 3.2a, 3.2b and 3.2c). Following detailed analysis, it became evident that the evidence within some could not be classified as the type originally stated. The profile of the data sample following analysis is shown in Table 4.1a.

Table 4.1a: Evidence types by variables post analysis

Evidence Variables	N	Evidence Type							
		CPD	PDP	CLA	PFB	RCC	MSF	SEA	CBD
GDS (mixed)	40	17	37	37	37	8	1	1	1
GDS (private)	11	1	11	9	11	0	0	0	0
GDS (NHS)	3	3	2	3	3	0	0	0	0
Defence Dental Services	24	24	23	20	11	11	2	7	15
Hospital Dental Service	17*	17	17	6	17	0	0	0	17
Salaried Dental Service	12*	12	12	4	12	0	0	0	12
Dental Care Professionals	18	18	18	3	0	3	0	7	11
ALL	**114**	**81 (71%)**	**109 (96%)**	**78 (68%)**	**80 (70%)**	**22 (19%)**	**3 (3%)**	**15 (13%)**	**45 (39%)**

* *11 Datasets were from practitioners who had spent time in both Hospital and Salaried Dental Service posts*

The analysis found that there was less Multi-Source Feedback (MSF), Case Based Discussion (CbD), Review of Significant Events (SEA) and Review of Complaints and Compliments data actually submitted than initially claimed by fieldwork sites. Reasons included the different perspectives as to what constitutes each evidence type across fieldwork sites, or misclassification of evidence types e.g. records of observed performance (Dental Evaluation of Performance 'DEP's) as MSF . The majority of portfolios contained PDPs and CPD. Although 71% of the sample submitted CPD, it is highly likely that the remaining participants also have CPD evidence because of its mandatory nature, but may not have been included where it was not held or easily accessible by the fieldwork site. The volume of data submitted in each portfolio varied greatly and the majority of evidence received direct from the fieldwork sites was electronic (either individual data files or scanned copies of paper evidence). A smaller number were received in hard copy.

4.2 Evidence Types and the GDC Standards

In order to understand the extent to which each of the existing types of evidence related to the GDC's Standards, we performed a comprehensive mapping exercise whereby entire datasets for each evidence type were reviewed against each individual GDC Standard. They were awarded a strength ratings according to how well they related to the Standard: 0 = no coverage; 1 = weak coverage; 2 = good coverage and 3 = excellent coverage (further details in Section 3.3).

The extent to which the evidence types related to each of the GDC Standards is presented in two ways: (1) the number of datasets of each strength rating, i.e. frequency and (2) an overall strength rating (mean score) for each evidence type.

As a result of the high volume of data, only a selection of the graphs for individuals GDC Standards are included in this report, along with aggregated data presented for each Principle within the GDC Standards. All graphs are available in the Technical Appendices.

4.2.1 Principle 1: Put Patients' Interests First

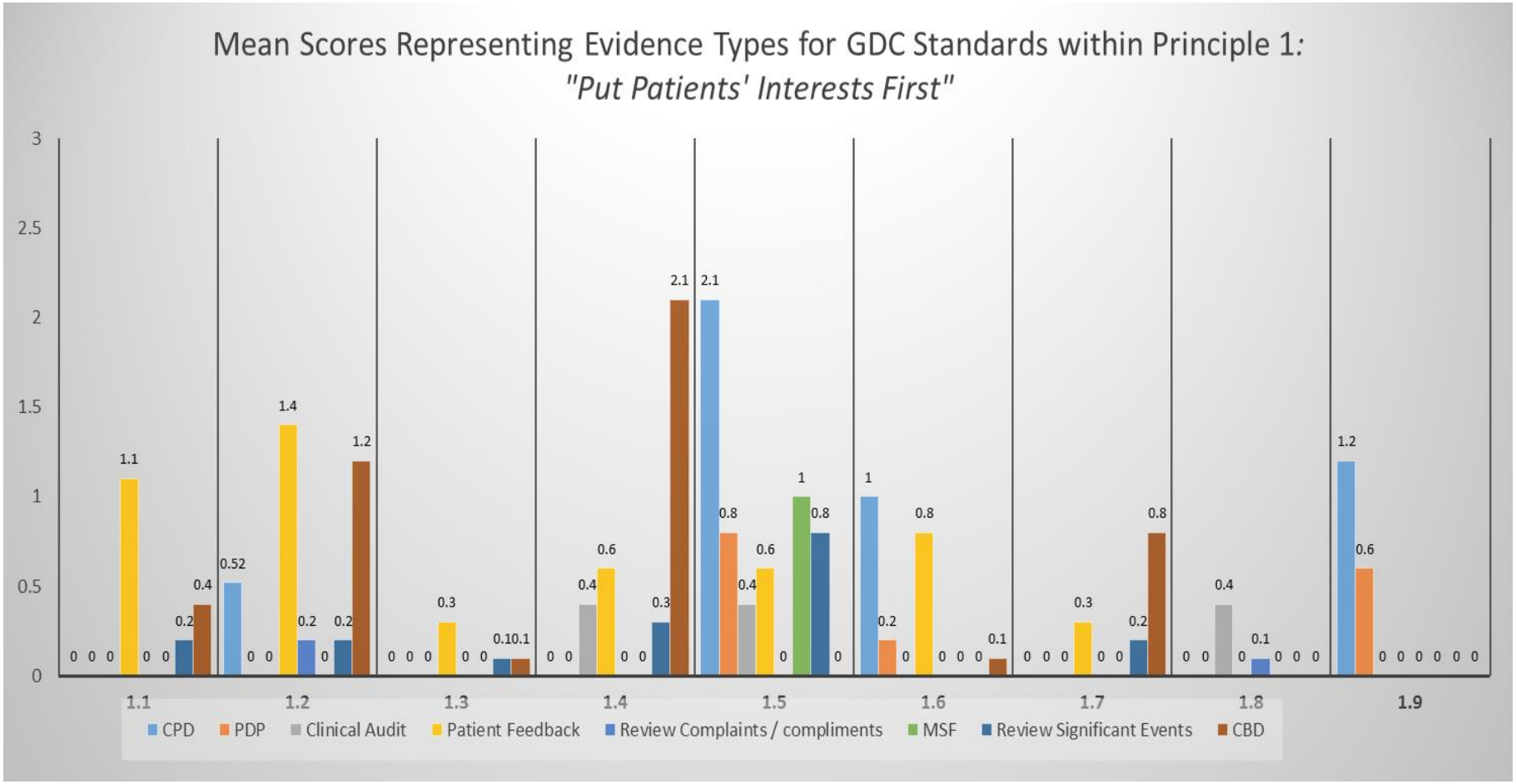
The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types within portfolios relate to the nine standards within Principle 1 are presented in Graph 4.2.1a.

Analysis of the portfolios indicates that the evidence gathered relates most closely to the following Principle 1 Standards:

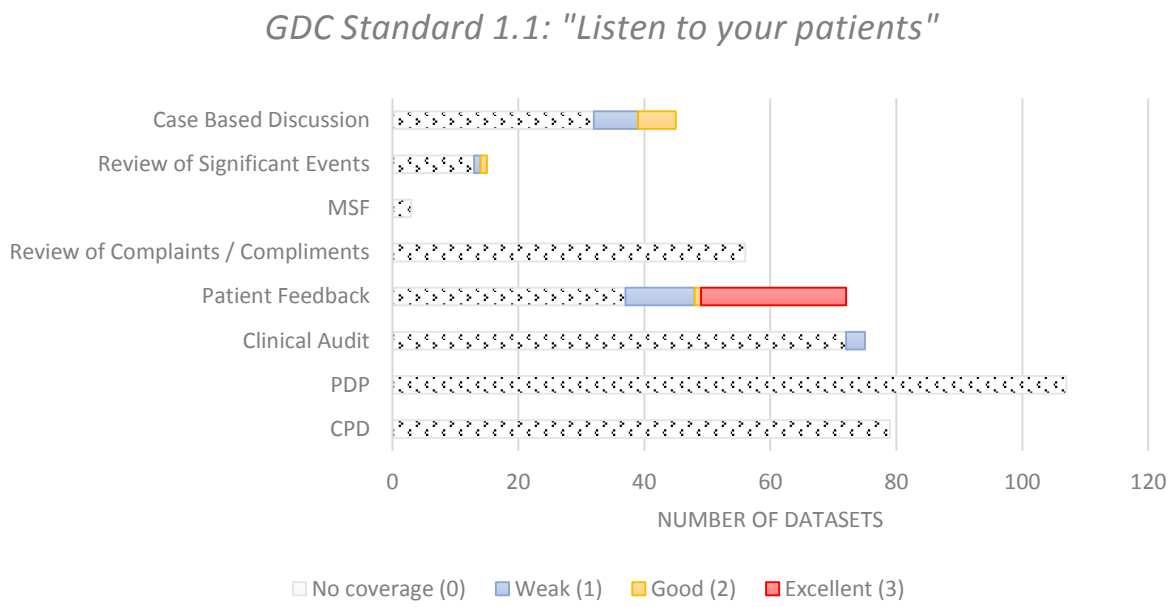
1.1 Listen to your patients
1.2 Treat every patient with dignity and respect at all times
1.4 Take a holistic and preventative approach to patient care which is appropriate to the individual patient
1.5 Treat patients in a hygienic and safe environment

The frequency and strength of evidence are presented individually in Graphs 4.2.1b – 4.2.1e.

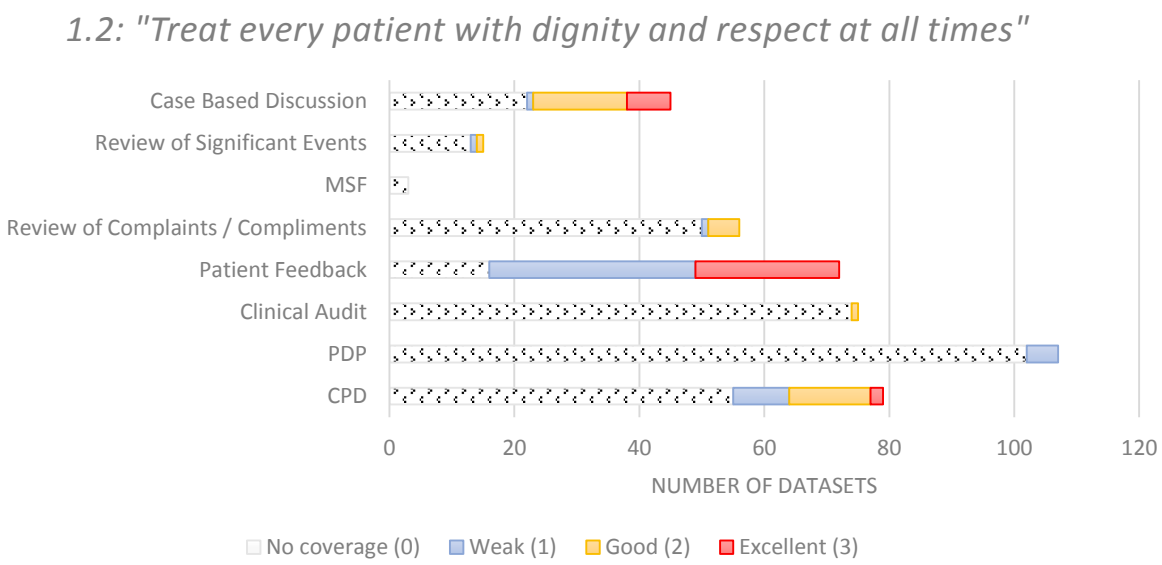
Graph 4.2.1a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Relating to Standards within Principle "Put Patients' Interests First"



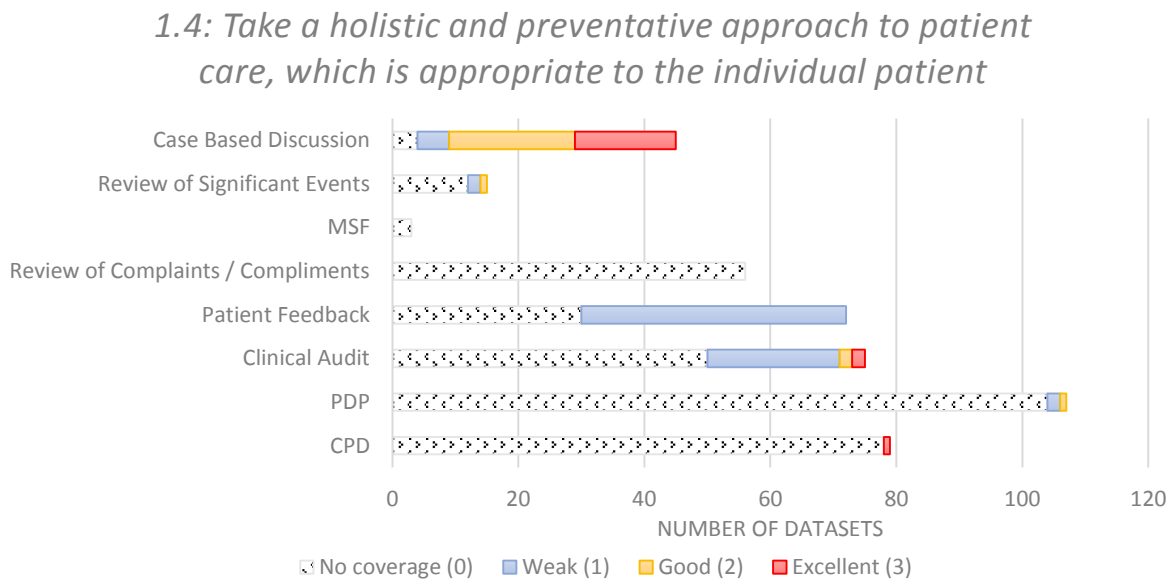
Graph 4.2.1b: ***The number datasets and strength of evidence supporting GDC Standard 1.1.***



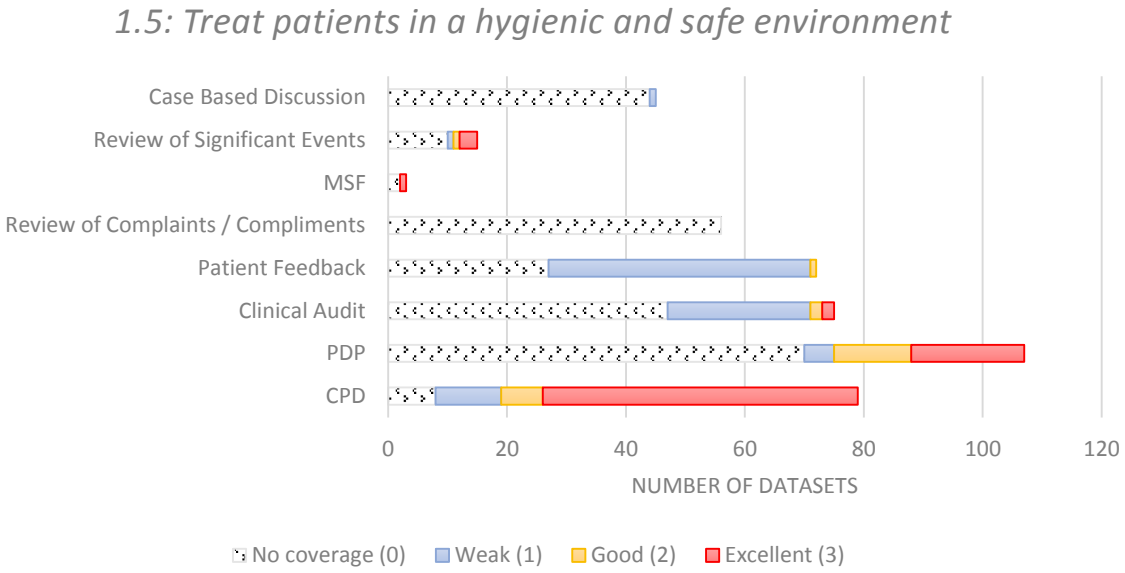
Graph 4.2.1c: ***The number of datasets and strength of evidence supporting GDC Standard 1.2.***



Graph 4.2.1d: ***The number of datasets and strength of evidence supporting GDC Standard 1.4***



Graph 4.2.1e: ***The number of datasets and strength of evidence supporting GDC Standard 1.5***



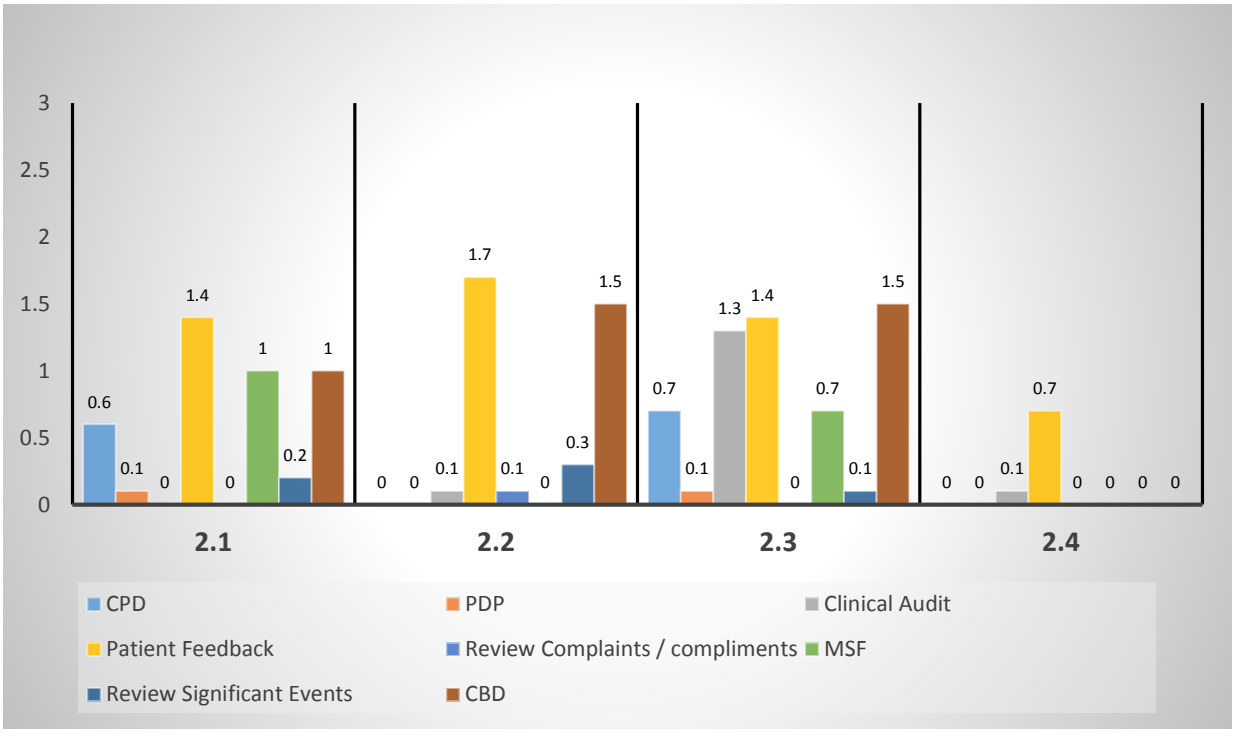
4.2.2 Principle 2: Communicate Effectively with Patients

The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types cover the four standards within Principle 2 are presented in Graph 4.2.2a. Analysis of the portfolios indicates that the evidence gathered relates most closely to the following Principle 2 Standards:

2.1: Communicate effectively with patients – listen to them, give them time to consider information and take their individual views and communication needs into account.
2.2: Recognise and promote patients' rights to and responsibilities for making decisions about their health priorities and care.
2.3 Give patients the information they need, in a way they can understand, so that they can make informed decisions.

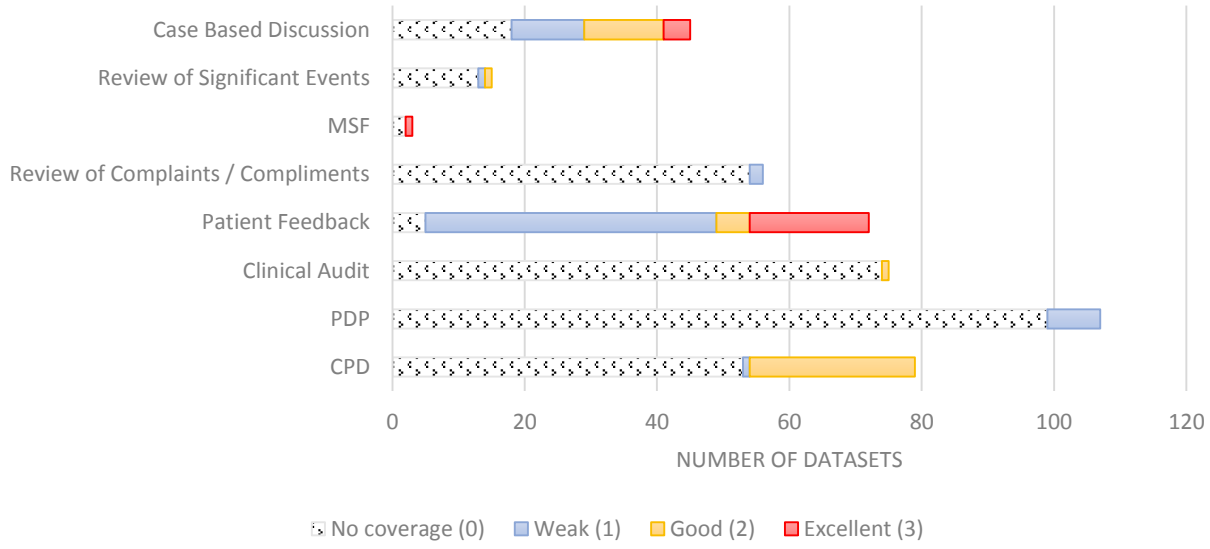
The frequency and strength of evidence are presented individually in Graphs 4.2.2b – 4.2.2d.

Graph 4.2.2a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 2 "Communicate Effectively with Patients"



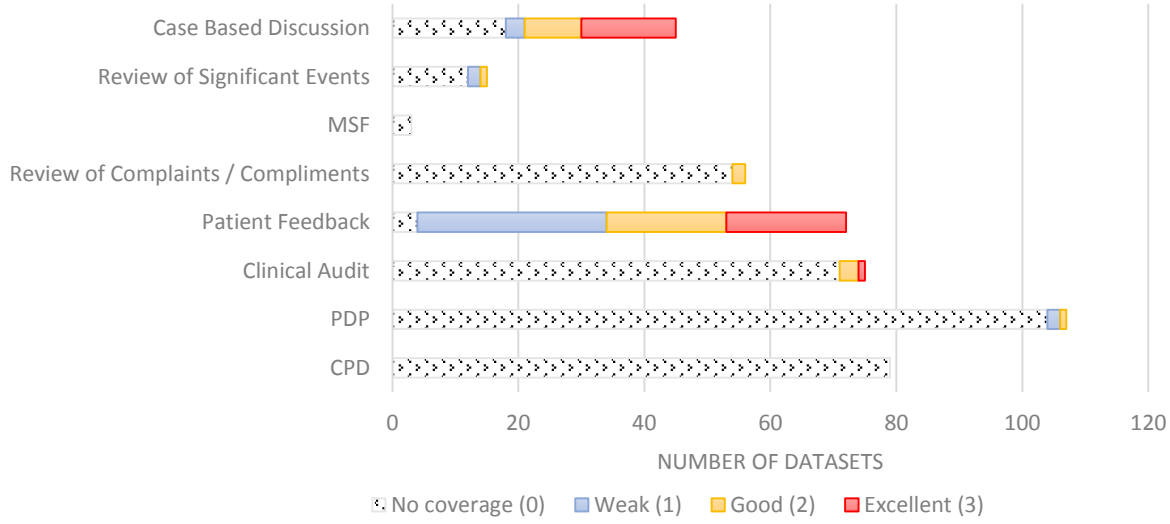
Graph 4.2.2b: The number of datasets and strength of evidence supporting GDC Standard 2.1

2.1 Communicate effectively with patients – listen to them, give them time to consider information and take their individual views and communication needs into account.

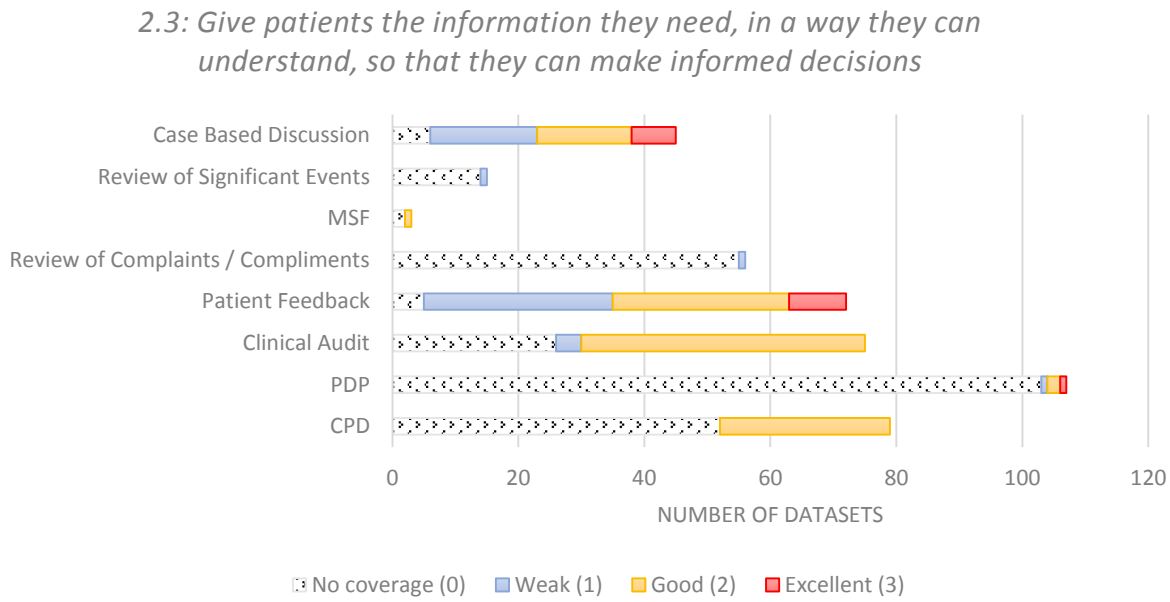


Graph 4.2.2c: The number of datasets and strength of evidence supporting GDC Standard 2.2

2.2: Recognise and promote patients' rights to and responsibilities for making decisions about their health priorities and care.



Graph 4.2.2d: The number of datasets and strength of evidence supporting GDC Standard 2.3

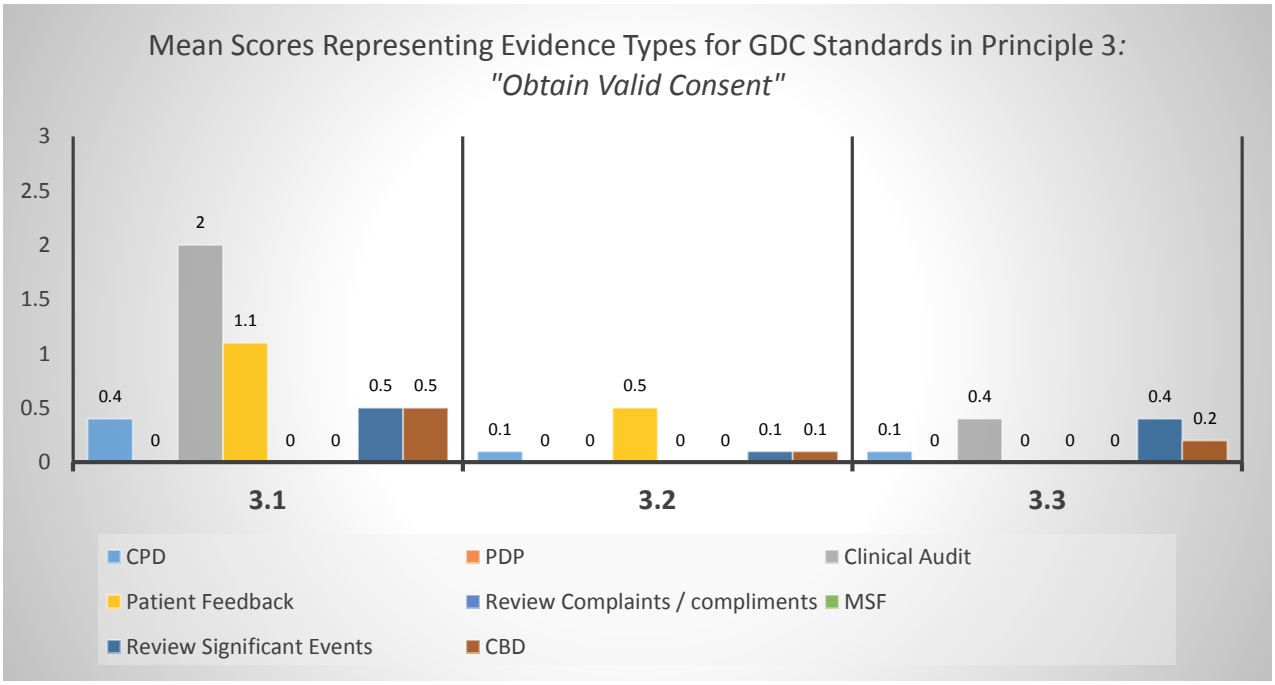


4.2.3 Principle 3: Obtain Valid Consent

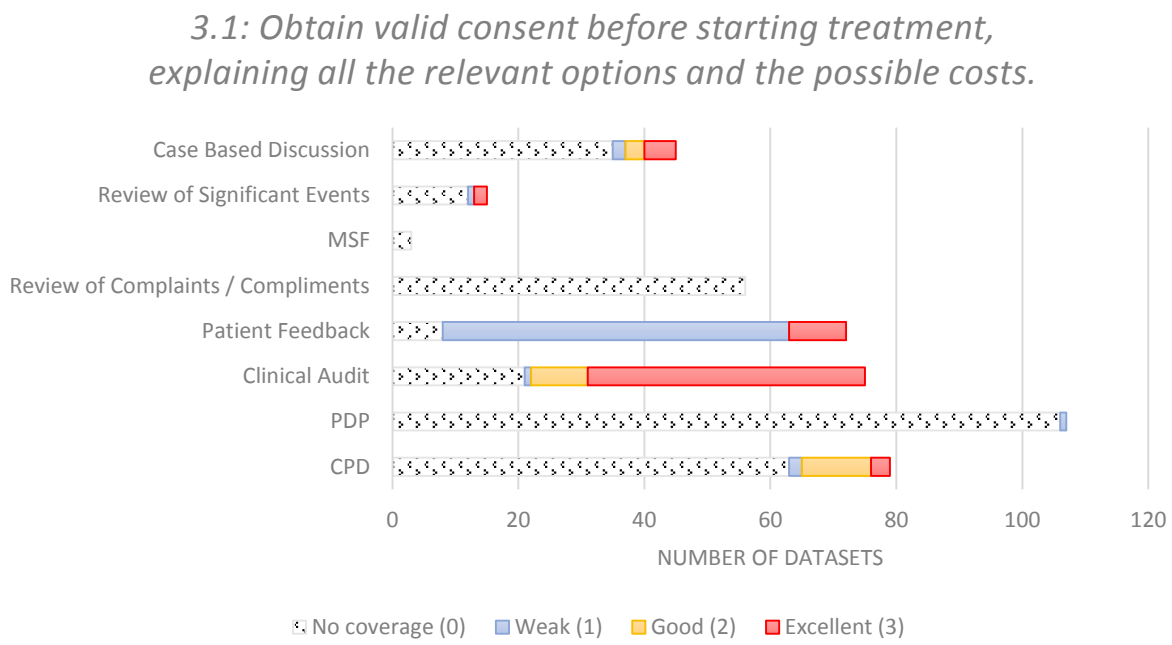
The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types cover the three standards within Principle 3 are presented in Graph 4.2.3a. Analysis of the portfolios indicates that the evidence gathered relates most closely to Standard 3.1: Obtain valid consent before treatment, obtaining all relevant options and the possible costs.

The frequency and strength of evidence for Standard 3.1 is presented individually in Graph 4.2.3b.

Graph 4.2.3a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 3 "Obtain Valid Consent"



Graph 4.2.3b: The number of datasets and strength of evidence supporting GDC Standard 3.1

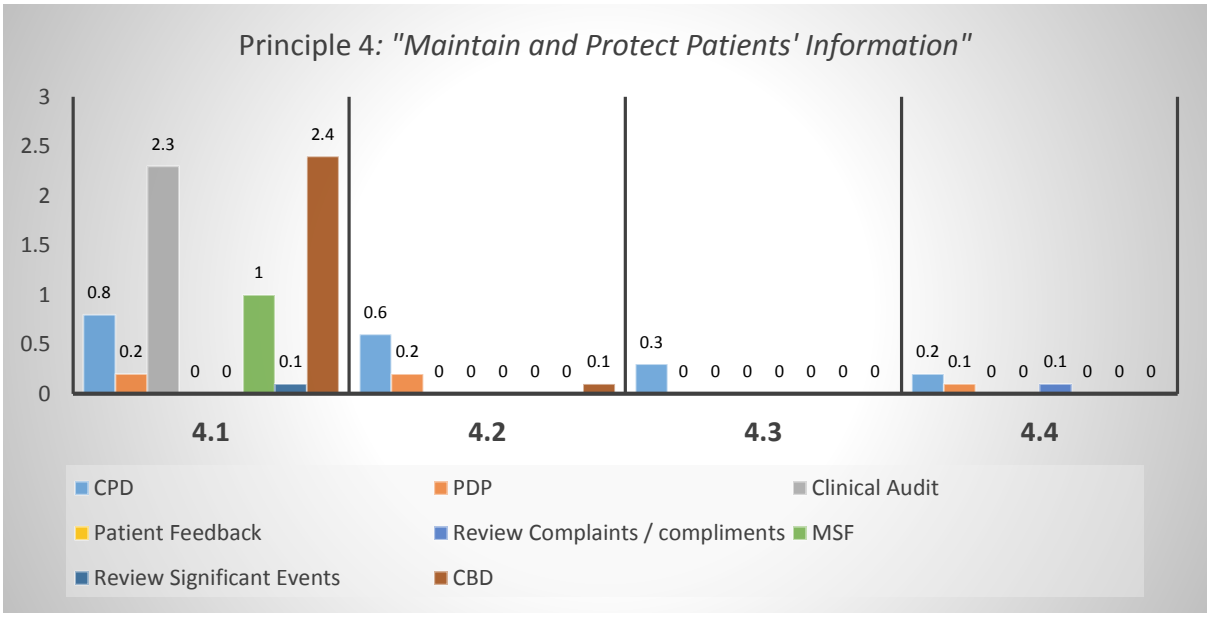


4.2.4 Principle 4: Maintain and Protect Patients' Information

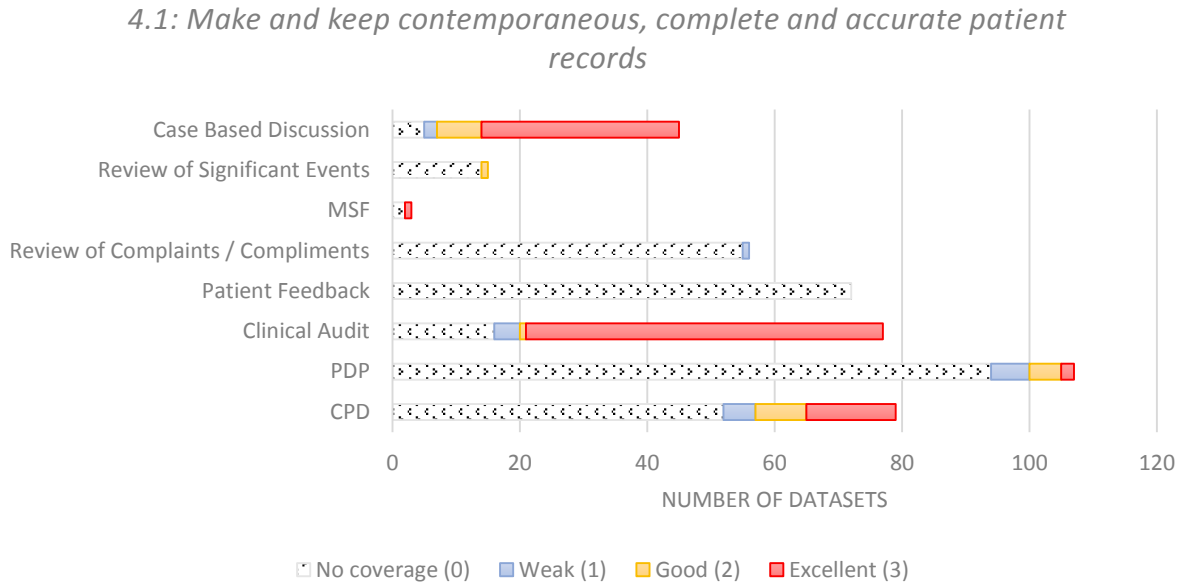
The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types cover the four standards within Principle 4 are presented in Graph 4.2.4a. Analysis of the portfolios indicates that the evidence gathered relates most closely to Standard 4.1: Make and keep contemporaneous, complete and accurate patient records.

The frequency and strength of evidence for Standard 4.1 is presented in Graph 4.2.4b.

Graph 4.2.4a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 4 "Maintain and Protect Patients' Information"



Graph 4.2.4b: The number of datasets and strength of evidence supporting GDC Standard 4.1



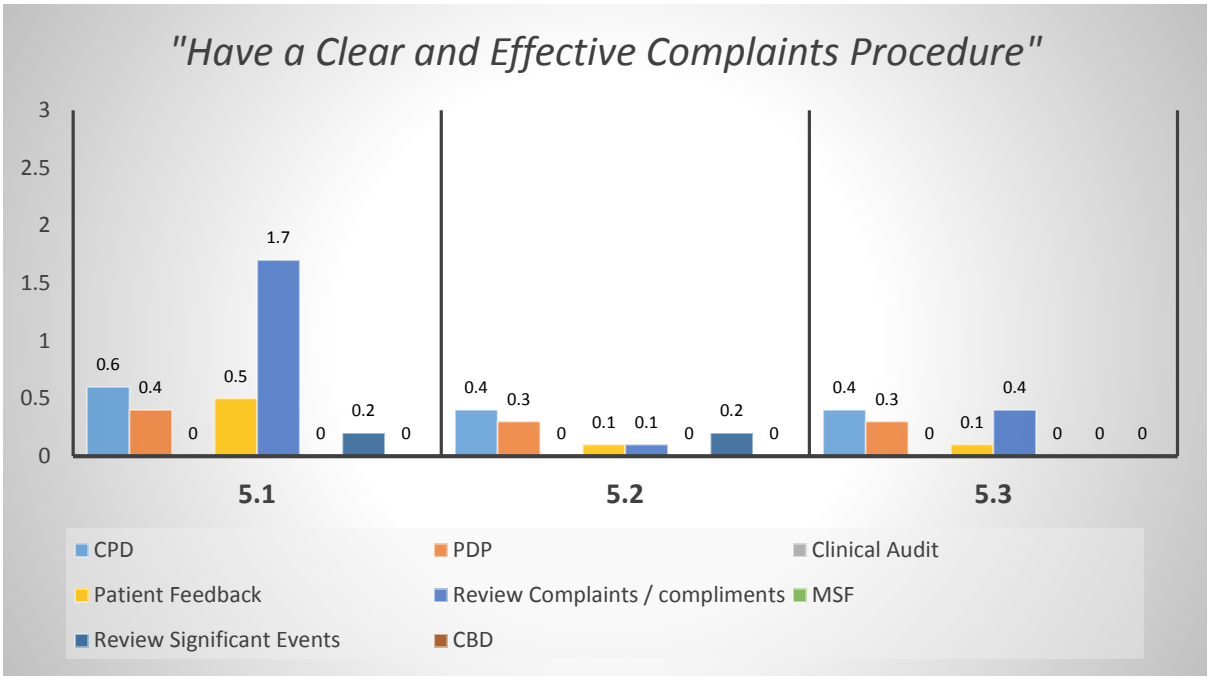
4.2.5 Principle 5: Have a Clear and Effective Complaints Procedure

The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types within portfolios relate to the three standards within Principle 5 are presented in Graph 4.2.5a.

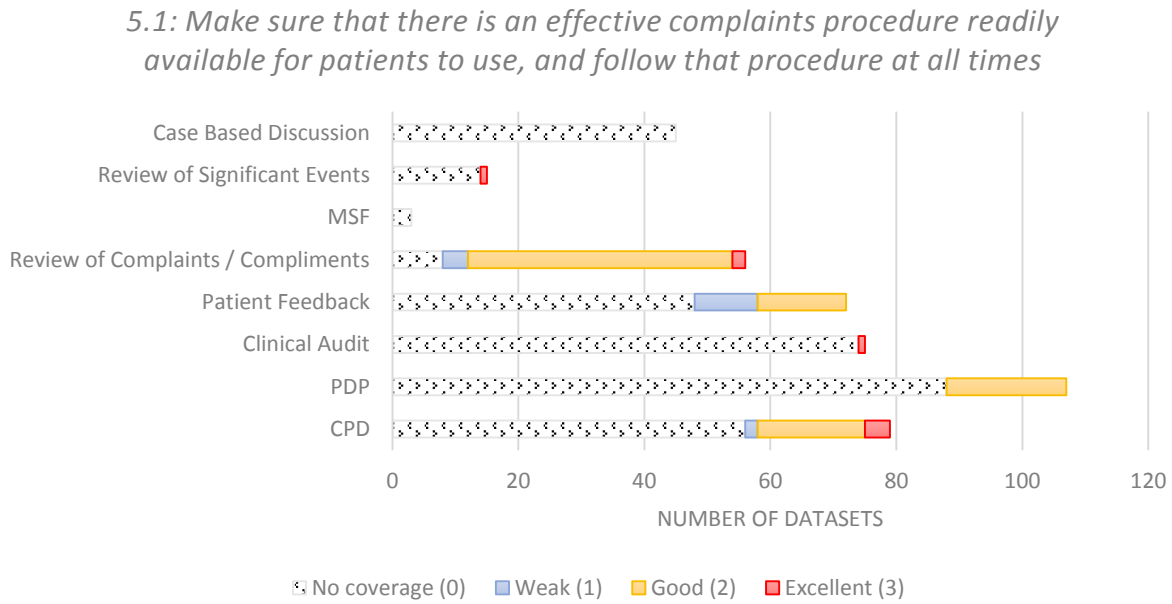
Analysis of the portfolios indicates that the evidence gathered relates most closely to Standard 5.1: Make sure there is an effective complaints procedure readily available for patients to use, and follow that procedure at all times.

The frequency and strength of evidence for Standard 5.1 is presented individually in Graph 4.2.5b

Graph 4.2.5a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 5 "Have a Clear and Effective Complaints Procedure"



Graph 4.2.5b: The number of datasets and strength of evidence supporting GDC Standard 5.1



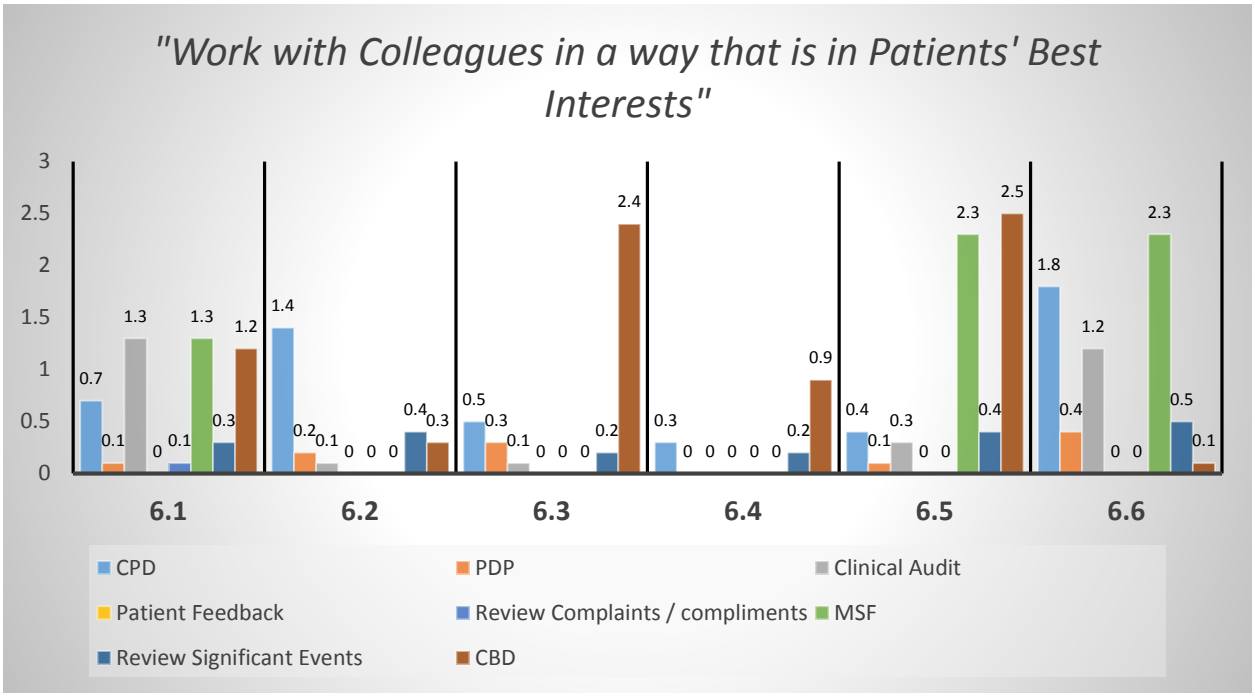
4.2.6 Principle 6: Work with Colleagues in a way that is in Patients' Best Interests

The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types within portfolios relate to the six standards within Principle 6 are presented in Graph 4.2.6a.
Analysis of the portfolios indicates that the evidence gathered relates most closely to the following Principle 6 Standards:

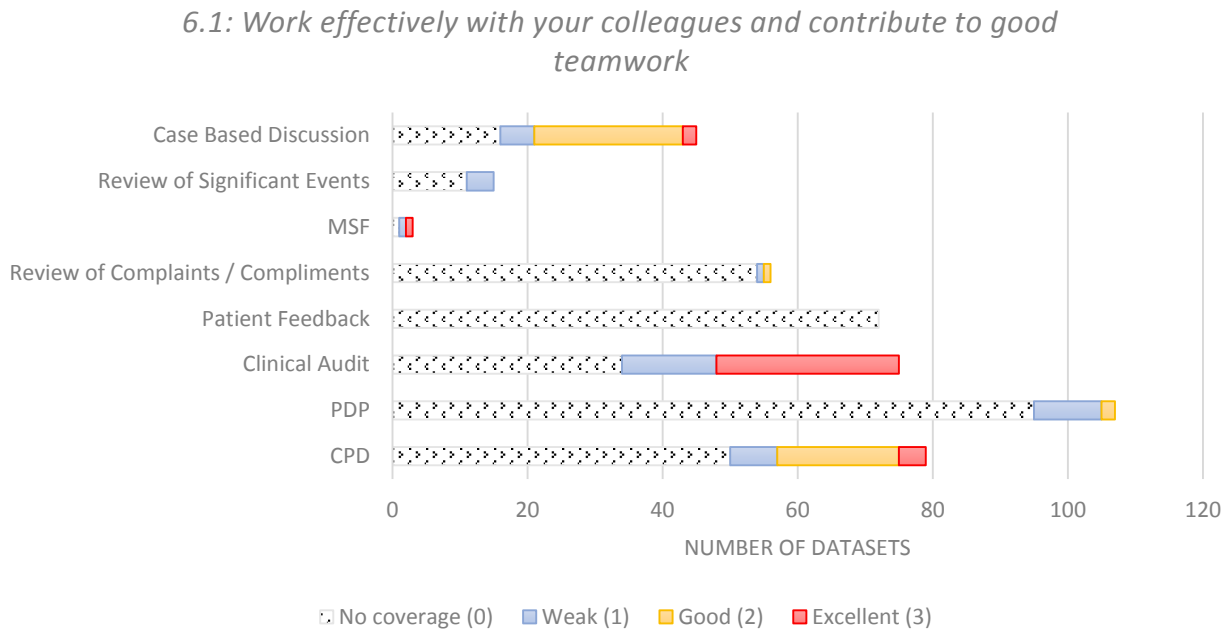
6.1: Work effectively with your colleagues and contribute to good teamwork.
6.3: Delegate and refer appropriately and effectively.
6.5: Communicate clearly and effectively with other team members and colleagues in the interest of patients.
6.6: Demonstrate effective management and leadership skills if you manage a team.

The frequency and strength of evidence are presented individually in Graphs 4.2.6b – 4.2.6e.

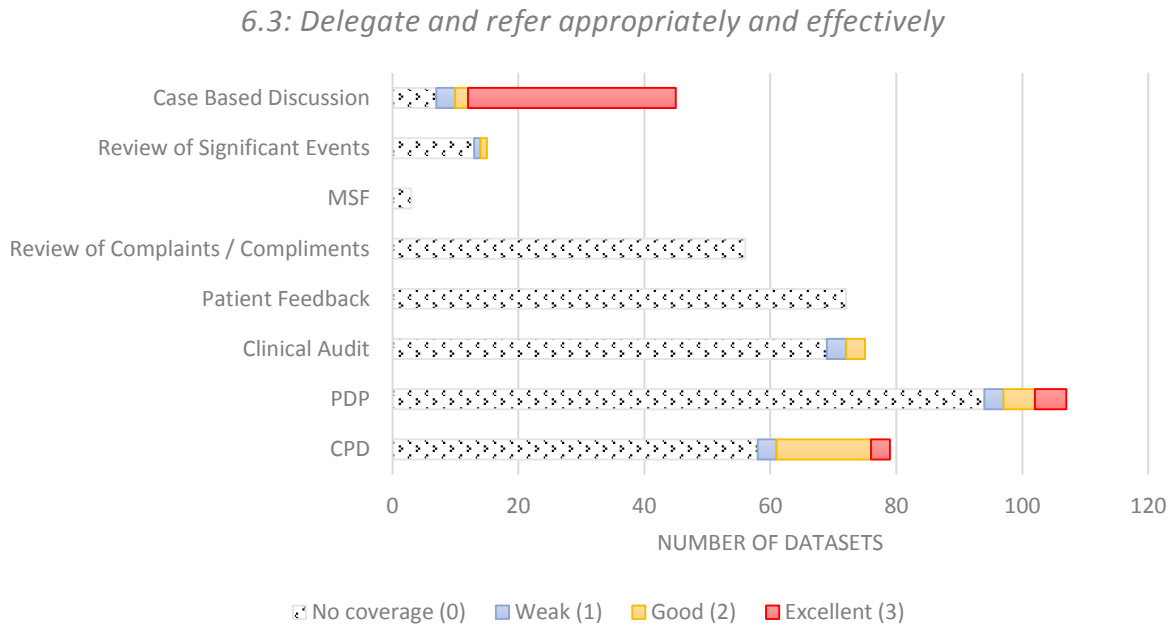
Graph 4.2.6a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 6 "Work with Colleagues in a way that is in Patients' Best Interests"



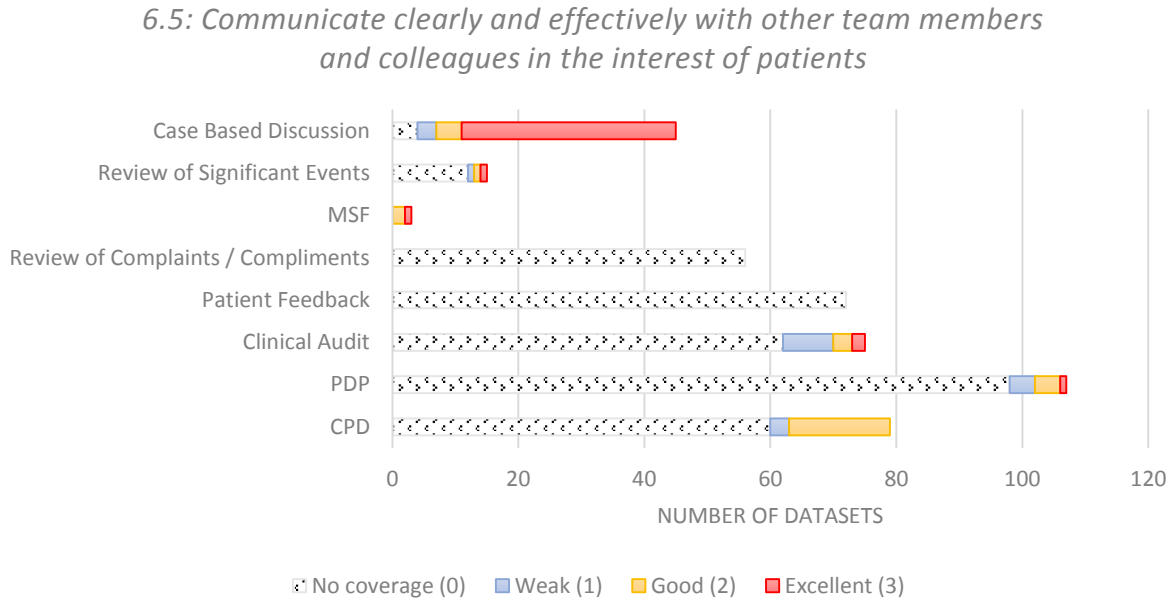
Graph 4.2.6b: The number of datasets and strength of evidence supporting GDC Standard 6.1



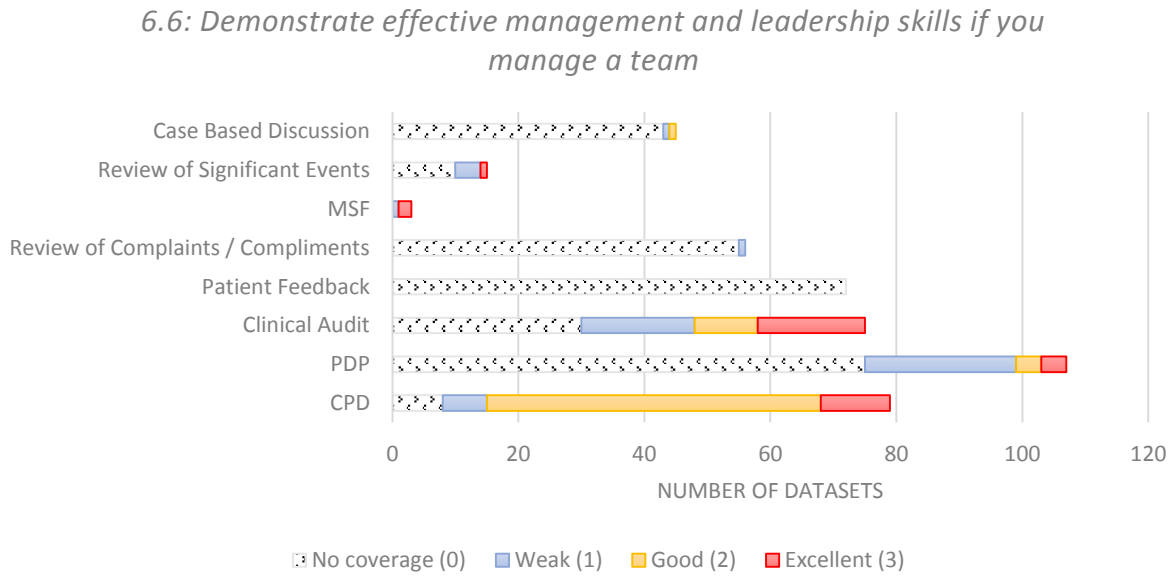
Graph 4.2.6c: The number of datasets and strength of evidence supporting GDC Standard 6.3



Graph 4.2.6d: The number of datasets and strength of evidence supporting GDC Standard 6.5



Graph 4.2.6e: The number of datasets and strength of evidence supporting GDC Standard 6.6



4.2.7 Principle 7: Maintain, Develop and Work within your Professional Knowledge and Skills

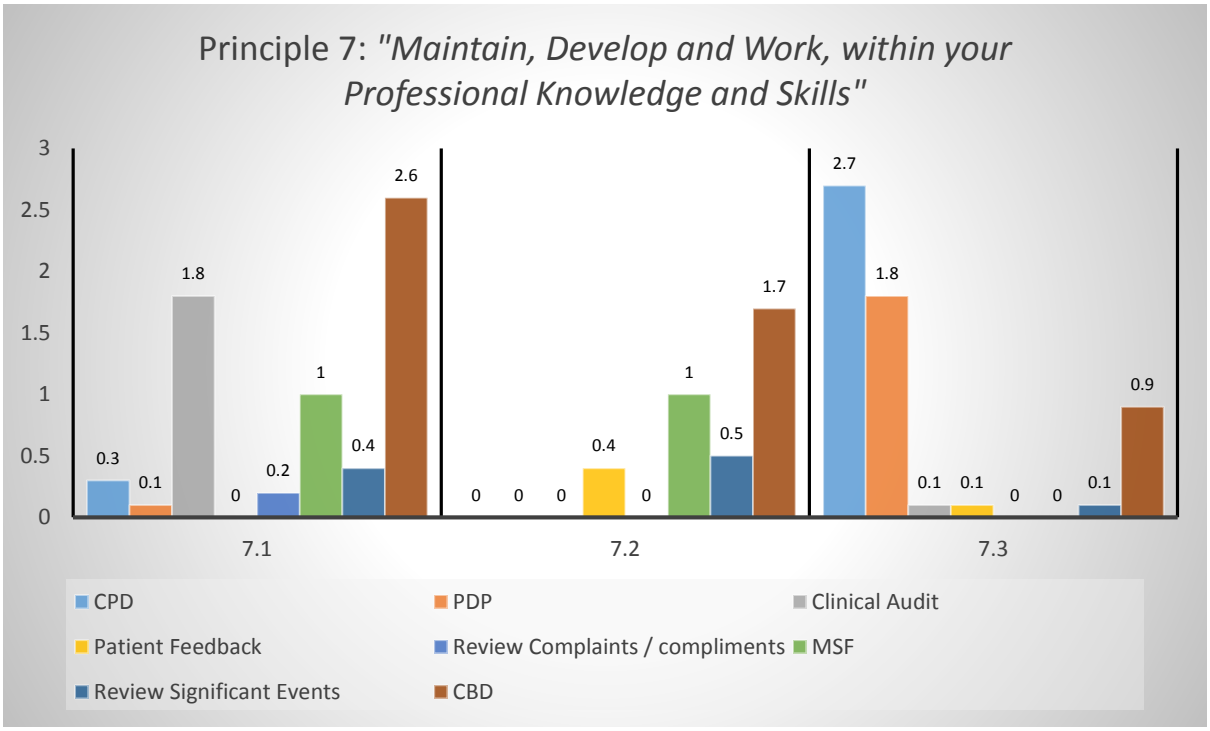
The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types within portfolios relate to the three standards within Principle 7 are presented in Graph 4.2.7a.

Analysis of the portfolios indicates that the evidence gathered relates to all three of the Principle 7 Standards:

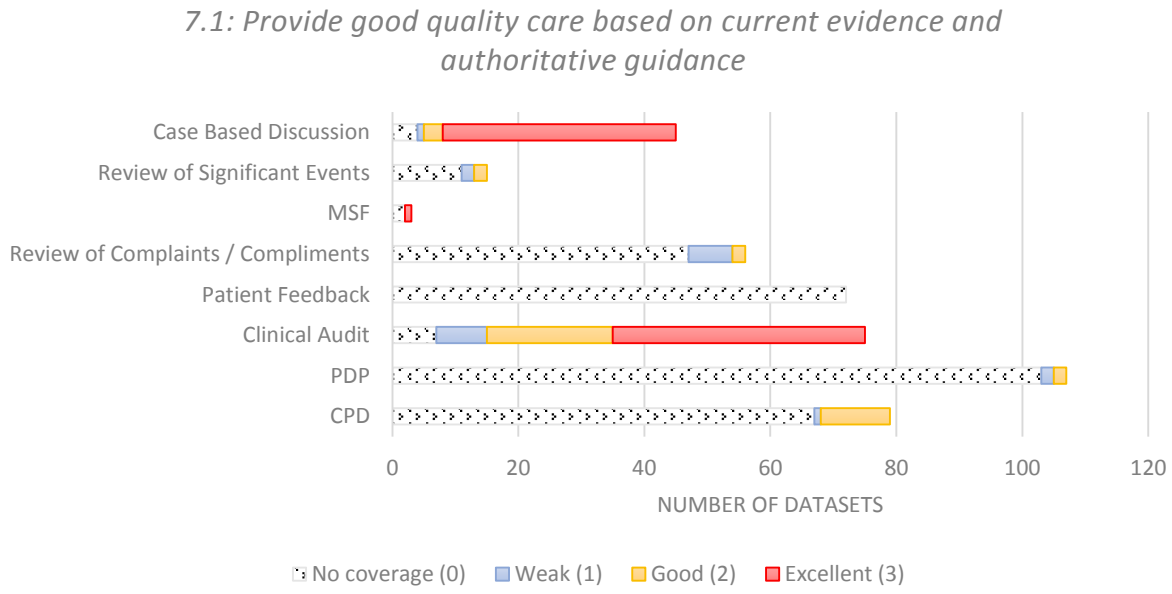
7.1: Provide good quality care based on current evidence and authoritative guidance
7.2: Work within your knowledge, skills, professional competence and abilities.
7.3: Update and develop your professional knowledge and skills throughout your working life.

The frequency and strength of evidence are presented individually in Graphs 4.2.7b - Graph 4.2.7d.

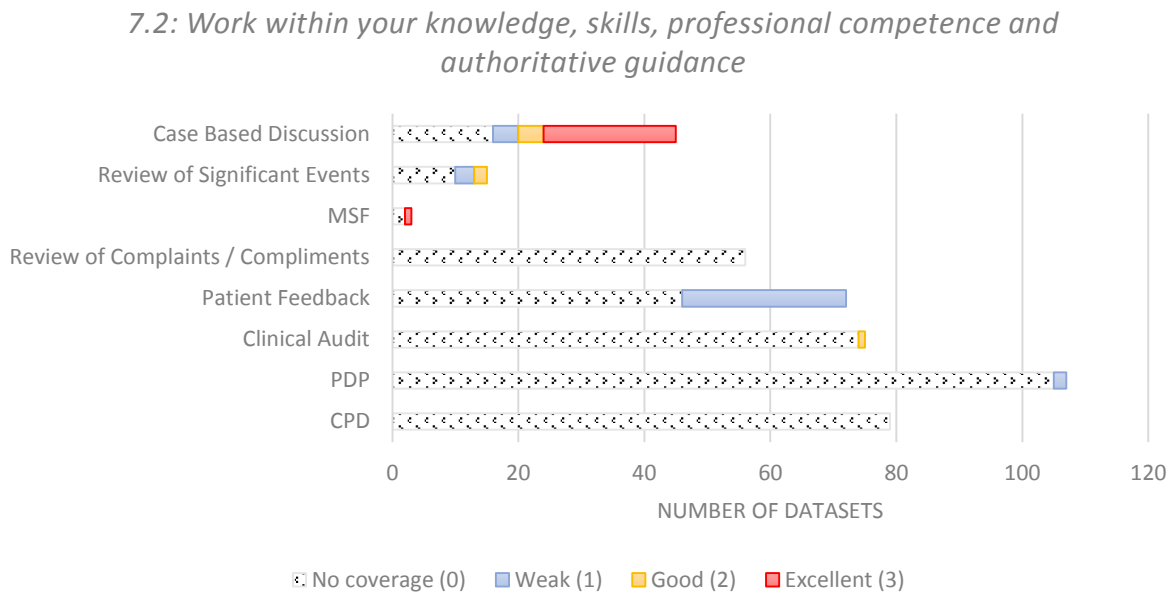
Graph 4.2.7a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 7 "Maintain, Develop and Work within your Professional Skills and Knowledge"



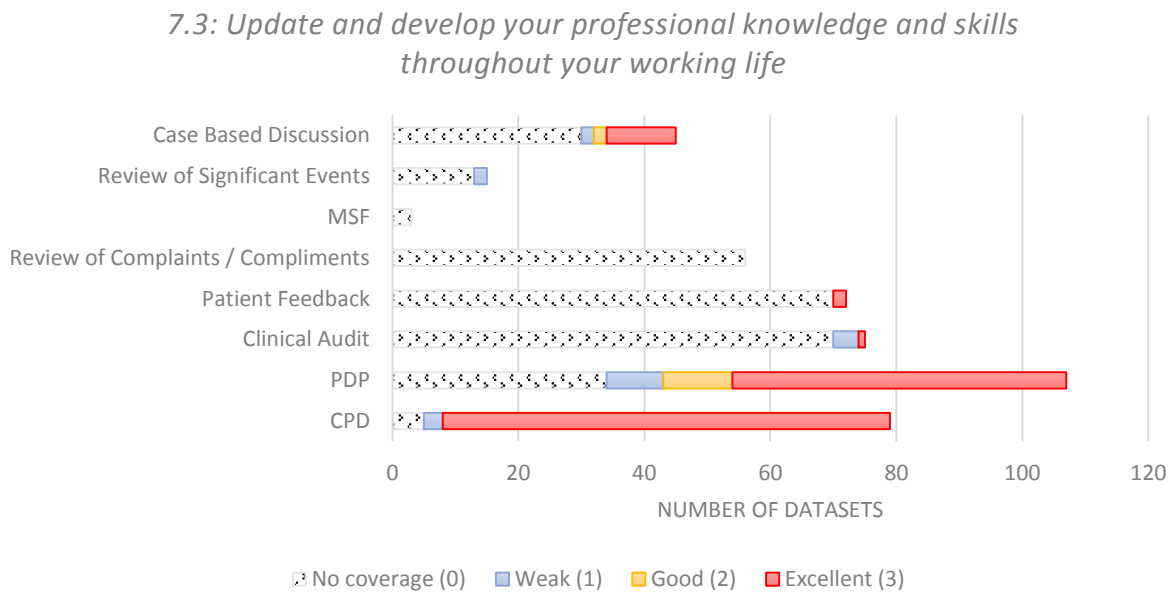
Graph 4.2.7b: The number of datasets and strength of evidence supporting GDC Standard 7.1



Graph 4.2.7c: The number of datasets and strength of evidence supporting GDC Standard 7.2



Graph 4.2.7d: The number of datasets and strength of evidence supporting GDC Standard 7.3

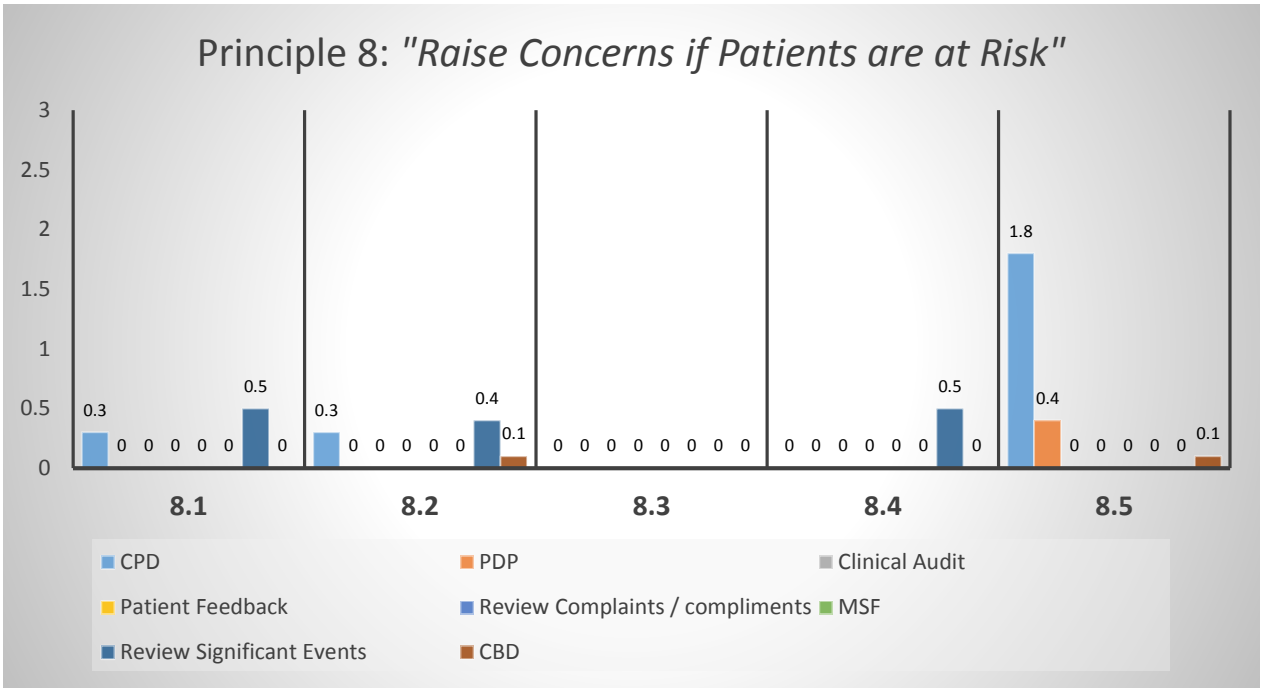


4.2.8 Principle 8: Raise Concerns if Patients are at Risk

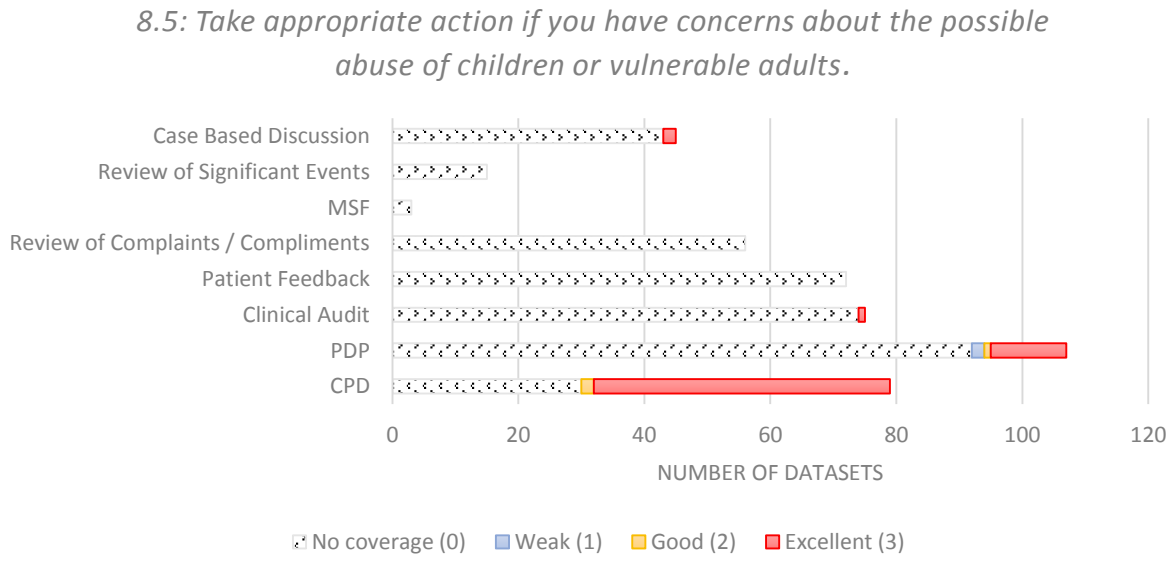
The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types within portfolios relate to the five standards within Principle 8 are presented in Graph 4.2.8a.
Analysis of the portfolios indicates that the evidence gathered relates most closely to Standard 8.5: Take appropriate action if you have concerns about the possible abuse of children or vulnerable adults.

The frequency and strength of evidence for Standard 8.5 is presented in Graph 4.2.8b.

Graph 4.2.8a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 8 "Raise Concerns if Patients are at Risk"



Graph 4.2.8b: The number of datasets and strength of evidence supporting GDC Standard 8.5

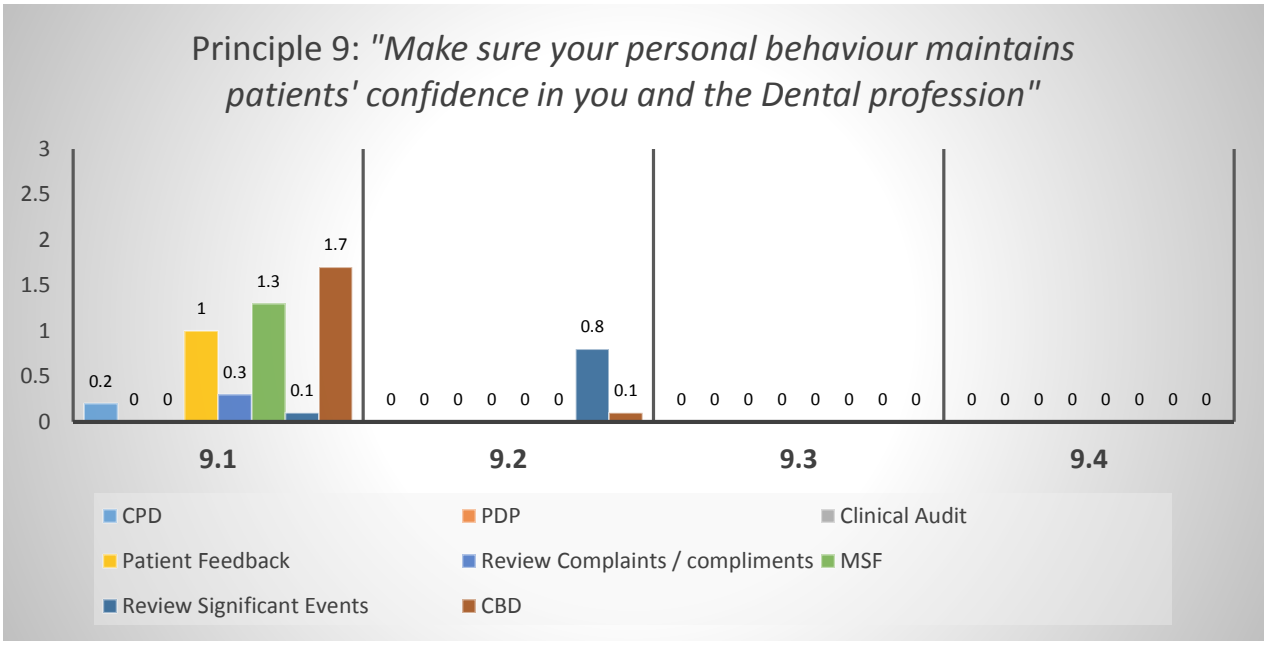


4.2.9 Principle 9: Make sure your Personal Behaviour Maintains Patients' Confidence in you and the Dental Profession

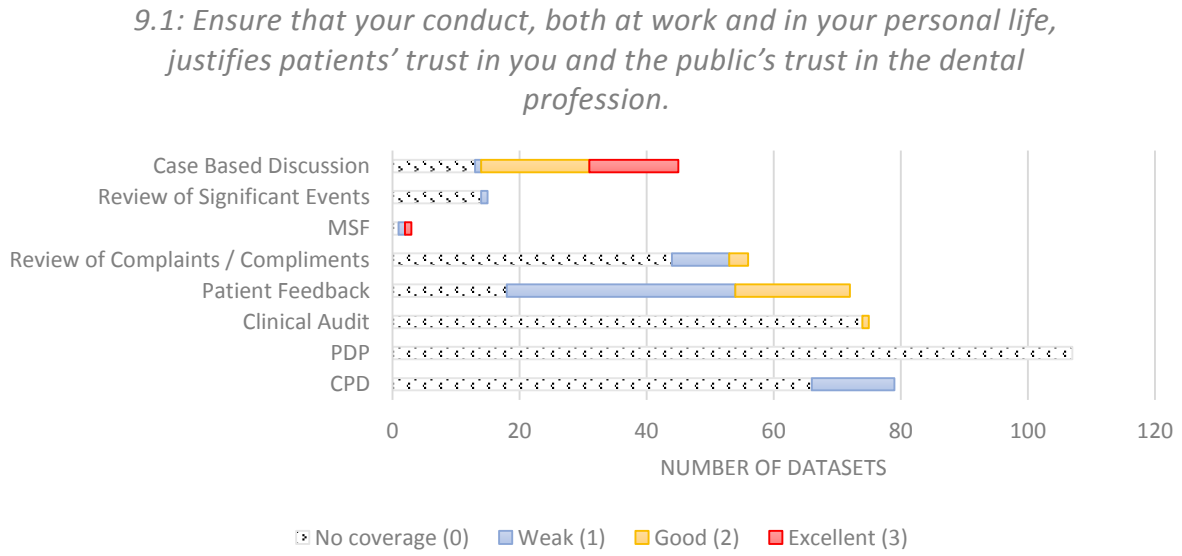
The aggregated data (based on strength mean scores) showing the extent to which the eight evidence types within portfolios relate to the four standards within Principle 9 are presented in Graph 4.2.9a.
Analysis of the portfolios indicates that the evidence gathered relates most closely to Standard 9.1: Ensure that your conduct both at work, and in your personal life, justifies patients' trust in you and the public's trust in the profession.

The frequency and strength of evidence for Standard 9.1 is presented individually in Graph 4.2.9b.

Graph 4.2.9a: Aggregated Data: Mean Scores Representing Strength of Evidence Types Covering Principle 8 "Raise Concerns if Patients are at Risk"



Graph 4.2.9b: The number of datasets and strength of evidence supporting GDC Standard 9.1



4.2.10 Summary of content mapping evidence type data against GDC Standards

To summarise the overall results of the content mapping of evidence in portfolios against the GDC Standards, the evidence types demonstrating the strongest degree of coverage of Standards (at the level of Principle) are indicated in Table 4.2.9.

Table 4.2.9: Evidence Types demonstrating the strongest relationship with GDC Standards at the Principles

GDC Principle	CPD	PDP	CLA	MSF	SEA	PFB	RCC	CbD
1. Put patients interests first	✓					✓		✓
2. Communicate effectively with patients				✓		✓		✓
3. Obtain valid consent			✓			✓		
4. Maintain and protect patients' information	✓		✓					✓
5. Have a clear & effective complaints procedure	✓	✓					✓	
6. Work with colleagues in a way that is in patients' best interests	✓			✓				✓
7. Maintain, develop & work, within your professional skills and knowledge	✓			✓				✓
8. Raise concerns if patients are at risk	✓	✓			✓			
9. Make sure your personal behaviour maintains patients confidence in you and the profession				✓		✓		✓

4.3 Continuing Professional Development (CPD)

4.3.1 CPD: Rapid Evidence Review

The initial search revealed 630 publications, from which 44 were considered to be relevant following a review of titles and abstracts (Table 3.4).

Continuing Professional Development for Revalidation

CPD can be an important component of recertification or revalidation systems for health professionals, with the specific requirements for the amount and type of CPD being identified by a range of professional and regulatory bodies worldwide. Following the introduction of the 'Maintenance of Competence' programmes by the American Board for Medical Specialties, most boards required doctors to complete 10-50 hours of Continuing Medical Education (CME) (Batmangelich & Adamowski; 2004), and the Netherlands Society of Anaesthesiology stated that 200 hours of accredited CPD are required to be completed every five years for recertification (Damen, 2001). There are reports indicating that sometimes CPD requirements are less clear - in the UK a study exploring the views of surgeons around CPD expectations of the General Medical Council (GMC) showed that 69% of surgeons did not feel the CPD targets at that point in time were clear (Stewart *et al*; 2008). Some regulators such as the General Pharmaceutical Council in the UK suggested that practitioners complete CPD which meets certain quality criteria and are able to demonstrate relevance to practice and impact (Donyai *et al*; 2013).

Uptake of CPD

The extent to which practitioners undertake CPD and the types completed varies across professional and personal contexts. In 2009, Howard *et al* investigated the uptake of CPD of doctors applying for interim membership of the Royal College of General Practitioners in the UK, using a retrospective analysis of learning logs from 71 General Practitioners (GPs). While an average of 87 hours CPD were complete in a year, the amount of CPD undertaken in a year ranged from 21.5 hours to 293.5 hours (Howard *et al*; 2009).

In 2000, a survey completed by General Dental Practitioners (GDPs) (n= 1,357) and Community Dentists (n=212) in Scotland (which was prior to mandatory CPD for dentists) indicated that 89% of GDPs and 95% of Community Dentists participated in some form of CPD, with short courses being the most popular with GDPs (Leggate & Russell, 2002). A further study exploring the type of CPD undertaken by a 10% sample of UK dentists revealed that the majority (87%) read journals at least once per month, around half (50.3%) had attended meetings or courses for at least five days in the last year, and 12.5% had attended a retraining course in the last three years (Buck & Newton; 2002). Factors associated with a practitioner being more likely to read journals were: (1) working longer hours, (2) those with a postgraduate degree, (3) practitioners who had qualified a longer time ago and (4) those taking a career break. Attendance at courses tended to be more likely for male practitioners, those having a PG qualification, those working longer hours and non-GDPs (Buck & Newton; 2002). A more recent survey of UK Dentists carried out for the GDC indicated that 91% Dentists (or their practice) had undertaken CPD in the last year (Picker Institute Europe, 2012). A survey exploring UK Dental registrants' views on CPD revealed that almost half (48%) found it easy or very easy to find the motivation to undertake CPD, although this was lower for dental nurses (39%) and dental technicians (36%). Around two thirds of registrants (64%) agreed that they would do CPD even if it was not mandatory, and most of those interviewed accepted that it was part of being a dental professional. More than half preferred learning online, with many intending to increase the

amount of online CPD they undertake, and around two-thirds (65%) complete CPD activities outside of working hours (ERS Research, 2012).

A similar survey-based study investigated the type (format) of CPD activities completed and preferred by UK surgeons. The most common types of CPD activity for surgeons were reading journals, clinical audit, attendance at conferences, teaching, the internet and local meetings (all of which had been completed by at least 80% respondents). The CPD activities favoured by surgeons were attendance at conferences, workshops, the internet, lectures and meetings (Stewart *et al*; 2008). Furthermore, a report of CME activity of consultants from 27 different medical specialties, working within UK district general hospitals, described a range of CPD activities carried out within the workplace in addition to external activities. These included reading, discussions with colleagues and teaching, with non-clinical topics being the least popular (Fletcher, 2001).

A survey exploring the Continuing Professional Education (CPE) undertaken by 71 pharmacists in the USA also highlighted preferences for the type and format of activities, with "live" CPE being considered to be more relevant than online education (Walsh *et al*; 2012). This study also explored practitioners' feelings regarding the relevance of the CPE undertaken. While two thirds of those surveyed thought the CPE they had done was directly relevant to their practice, and a quarter thought the CPE completed was indirectly related to their practice, 11% thought it had no direct relevance to their practice. Furthermore, the CPE completed towards the end of a licensure cycle was considered significantly less relevant (Walsh *et al*; 2012).

A survey of CPD practice by UK-based consultant psychiatrists noted that 97.4% attended peer group meetings at least every 3 months and it was suggested that such activities should be credited as CPD (Bamrah & Gray, 2011).

CPD Drivers

The literature suggests that factors that positively influence the completion of CPD may be associated with both intrinsic and extrinsic motivation. A survey of consultant doctors from a range of specialties working within district general hospitals indicated that 'prompts' for CPD were personal rather than external (such as College guidance) or driven by the organisation, and topics tended to be chosen based on their subspecialty rather than their individual educational needs (Fletcher, 2001).

Conversely, a survey exploring the views of GPs on the annual appraisal process indicated that more than half of respondents (55.8%) - and 80% of GPs who were non-principals - thought the appraisal process had encouraged CPD participation. Indeed, some indicated that without appraisal they would have spent little time on CPD (Finlay & McLaren, 2009).

A survey of UK dental registrants revealed that only a minority identified appraisal (15%) or a PDP (27%) as factors which influenced their choice of CPD, with more common drivers being the opportunity to learn a new skill or technique (60%), personal interests or preferences (59%) or personal reflection upon their skills and abilities (51%) (ERS Research, 2012).

Barriers to CPD

A number of studies reported barriers to the completion of CPD by health professionals, the most frequent barriers being a lack of time and/or resources, poor motivation, insufficient support or feasibility issues.

Insufficient time to complete CPD was identified by consultants from a range of medical specialties working within UK district general hospitals (Fletcher; 2001), psychiatrists (Bamrah & Gray, 2011), GPs (Finlay & McLaren, 2009), and pharmacists (Donyai *et al*; 2011). Similarly, studies exploring the views of UK dentists reported that heavy clinical commitments were a barrier to them undertaking additional qualifications, in addition to the perceived cost for little or no additional benefit (Leggate & Russell, 2002). A more recent survey of GDC registrants also demonstrated that time and cost were the largest perceived barriers to dental professionals completing CPD (ERS Research, 2012).

One of the most detailed studies was a literature review covering 2000 to 2010 about the beliefs about, and uptake of, CPD by UK pharmacists (Donyai *et al*; 2011). This comprehensive review identified a range of barriers to the uptake of CPD, including time and resources (time to conduct and document CPD, and resources to backfill their clinical commitments), lack of motivation, a lack of facilitation and support (to understand the process) and feasibility issues such as a preference for CPD templates to document CPD activities and technical problems with an online system to record CPD.

Types of CPD

Several articles considered the types of CPD undertaken by healthcare practitioners for regulation or revalidation purposes. In a study commissioned by the UK Conference of Postgraduate Education Advisors in General Practice (UKCEA), interviews and focus groups with General Medical Practice educators working within Postgraduate Medical Deaneries, indicated that the quality of CPD available was considered variable and undertaking a variety of different CPD activities was positive, with support for the use of IT in CPD delivery as well as educational activities based within the practice. Furthermore, this cohort of GP Educators reported that the outcomes from practitioners' appraisal were used to inform the CPD activities undertaken (Agius *et al*; 2008).

There has been debate around the types of CPD activities that should be "credited" or considered verifiable in the context of revalidation. A survey of consultant psychiatrists and staff grade and specialist doctors (n=2632), carried out by the Royal College of Psychiatrists, showed that while most (98%) thought CPD was important for revalidation, more than half had difficulty finding time for CPD activities, and internal peer group meetings attended by around 90% of doctors should be given recognition as CPD (Bamrah and Gray; 2011). Similarly, a survey of district general hospital consultants reported a number of internal and external CPD activities were being undertaken (including activities such as reading, teaching and discussions with colleagues) which were not all recognised as CPD by the Medical Royal Colleges but were considered to be beneficial (Fletcher; 2001). Non-clinical topics were the least popular, and the focus of CPD (choice of activity) was usually linked to the subspecialty of the individual, rather than based on need.

A wide range of different CPD activities were reported by surgeons (n=498) who were members and fellows of the Royal College of Surgeons of Edinburgh, the most common formats being reading, attending conferences, local meetings, audit, teaching and use of the internet (with variation noted between some specialties). The favourite CPD activities reported by this group were attending conferences, workshops, using the internet, lectures, local meetings, and teaching (Stewart *et al*; 2008).

Shortly before the implementation of medical revalidation in the UK, a study taking a retrospective analysis of CPD records of General Medical Practitioners undertaking the Royal College of General Practitioners (RCGP) interim 'Membership by Assessment of Performance Programme', was carried out. This showed that GPs completed five different types of CPD on average, with most practitioners

undertaking activities across the spectrum of the GMC domains of practice. The types of CPD recorded included NHS courses, reading, practice meetings and (to a lesser extent) Clinical Audit and Significant Event Analysis (Howard *et al;* 2009). A study published six years earlier, exploring the perceptions of GP's with regard to CPD (n=698), indicated that most had attended both internal (practice-based) and external meetings (Little and Hayes; 2003).

Although many are clearly supportive of the use of the internet and online learning resources, it is recognised that this type of CPD activity may not be useful for more traditional learners. A small scale pilot of CPD involving a facilitated, distance learning approach carried out in the south of England suggested that while GPs appreciated the flexibility of this approach and that it was learner-centred, the role of the facilitator was key to its success and therefore funding would be an issue for larger scale initiatives (Macfarlane *et al; 2003*).

Fewer studies reported the CPD activities of UK Dentists. In 2000, a survey of general practice and community dentists in Scotland (n=1357), short courses (such as the section 63 courses) were popular, with IT and problem-based learning initiatives being preferred more by younger dentists (Leggate and Russell; 2002). A study exploring the engagement of UK General Dental Practitioners (n=1550) with CPD activities such as reading journals and attending courses, and what impacted on their engagement, indicated that most (87%) read journals, and around half (50.3%) had attended meetings for at least five days the previous year. Furthermore, 12.5% had attended a retraining course in the past three years. Those working longer hours, or with a postgraduate degree, those who had been qualified longer and/or GDPs who had taken a career break were more like to read journals, while the attendance at short courses was more likely for non-GDPs, practitioners who had not had a career break, those working longer hours and/or those with a postgraduate qualification. Females were less likely to attend short courses than males (Buck and Newton; 2002).

A more recent study (Butt and McNab; 2013) compared the professional development and uptake of CPD of UK teachers and dentists, suggesting that although the increasing regulation in dentistry may be effecting the type of CPD completed by dentists (as it is more extrinsically motivated), dentists still determine the content of the CPD activities they undertake.

The Effectiveness of CPD

A number of studies have reported on the perceived effectiveness of CPD activities. The effectiveness of CPD can be associated with many factors, including format, delivery, motivation and relevance to the individual. Reflecting upon the increased regulation of professional competence of medical practitioners in Ireland and the role of CPD, O'Loughlin (2012) considers the personal relevance of CPD activities to junior doctors as being important to encourage and maintain their motivation and engagement. Furthermore, a study carried out to inform discussions about a proposed system of revalidation for UK pharmacists, involving the analysis of CPD entries and focus group/interviews with trainee UK pharmacists, revealed two types of CPD behaviour - a more extrinsically motivated approach is associated with external drivers and a more intrinsically driven approach (Alexander *et al*; 2011). The authors suggest that the extrinsically motivated CPD tended to have an impact limited to the individuals themselves rather than extending to those around them, whereas the intrinsically motivated learning activities (often driven by an event within the workplace) were often embedded within the workplace context and had more evidence of application and impact at work.

A survey of UK General Medical Practitioners exploring their perceptions of the effectiveness of both practice-based and external meetings, indicated that many GPs (39% for practice-based meetings,

50% for external meetings) did not change clinical practice as a result of these CPD activities. Furthermore, any change in clinical practice following the CPD activity was perceived to be associated with clinical relevance to the individual, teaching effectiveness and/or social enjoyment of the event (Little and Hayes; 2003).

When considering the potential role of CPD in pharmacy revalidation in 2009, the Royal Pharmaceutical Society of Great Britain asked pharmacists to demonstrate the value of their CPD in terms of its relevance and impact (Donyai *et al;* 2013). As a result, a framework was developed to help practitioners choose CPD activities, in terms of relevance and impact, using a matrix to grade activities in terms of the potential consequences of failing to complete the CPD.

Dornan (2008) published a comprehensive discussion paper on CPD in a medical education context in light of the (then future) introduction of medical revalidation in the UK, focusing on the inherent role self-assessment or reflection of the practitioner would have in revalidation. The author considered a number of approaches to engagement with CPD activities, dependent on personal and policy drivers. For practitioners at an earlier stage in training (lacking 'mastery' of a subject), he noted the importance of well-defined external standards of performance to inform reflection, while the more experienced practitioners (with 'mastery' of a subject) would perhaps benefit more from deriving activities as a result of setting personal standards. Further, the author notes that in areas of difficulty, such as poorly performing practitioners, external assessment should take the place of self-assessment/reflection (Dornan, 2008). Norman *et al* (2004) also suggested that a needs assessment (to ensure relevance) was important to ensure the effectiveness of Continuing Medical Education, and that clinical audit of electronic records, comparing individual results with current best practice or exemplary peers (benchmarking) should inform professional development activities.

A number of studies have explored factors associated with perceived effectiveness of CPD activities based on format of delivery. In addition to the preferences of USA pharmacists for 'live' educational activities described above, (Walsh *et al*; 2012), a study exploring work-related continuing education and training in the NHS by analysing staff survey data suggested that less didactic formats of educational activity (such as workshops, peer support) were perceived as being more effective, and only a quarter of those accessing work-related continuing education and training rated it as effective (Thomas and Qiu, 2012).

In 2005, Starke and Wade described a framework for effective CPD involving categories of CPD: personal activities (reading journals – unverifiable), internal activities (e.g. meetings, not verifiable) and external CPD activities where attendance could be monitored (e.g. conferences and events). A pyramid for effectiveness was proposed, including the levels (from the bottom up) of participation, doctor satisfaction, knowledge improvement, change in behaviour and improvement of patient care. This paper also noted that different stakeholders are important in making CPD effective: (1) Doctors – through the identification of learning needs (2) CPD providers – through the provision of high quality learning activities, providing opportunities for doctors to practice etc, and (3) accrediting bodies – by setting standards for providers (Starke and Wade, 2005).

Key Messages from the Literature

- CPD is an important component of recertification and revalidation systems for health professionals worldwide.

- A range of different types and formats of CPD are undertaken by health professionals, including short courses, journal reading, online CPD, audit, attending conferences and peer group meetings.

- Drivers for the uptake of CPD can be intrinsically motivated (e.g. personal interest) or extrinsically motivated (e.g. meeting appraisal requirements).

- Barriers to the uptake of CPD include a lack of time, resources, motivation or insufficient support.

- The effectiveness of CPD can be measured at a number of levels, including perceived educational impact on the learner and improved outcomes for stakeholders (patients).

- The effectiveness of CPD depends on a range of factors, including the relevance, drivers, format and quality of the CPD itself.

4.3.2 CPD Data within Portfolios

CPD data submitted in the portfolios came in many formats, including photocopies of CPD certificates and CPD logs. The majority of evidence included only the titles of CPD activities, and although some contained further information such as learning objectives, this was rare. The volume of CPD evidence in each portfolio ranged from a single CPD certificate to CPD logs with 240 records across several years. The types of CPD activities recorded also varied, including both verifiable and non-verifiable activities, reading journals, attending conferences and informal activities. Practitioners in training posts often included tutorials, workplace-based assessments and study days within their CPD logs. Relatively few portfolios included documentary evidence of reflection on CPD activities.

4.3.3 CPD data and the GDC Standards

The CPD evidence in each portfolio was analysed using the approach described in section 3.3. To identify the extent to which CPD related to the GDC's Standards, each piece of CPD evidence was mapped to the individual standards and awarded a 'strength' rating of:0 = no coverage, 1 = weak coverage, 2 = good coverage, and 3 = excellent coverage. The graphs showing the results for CPD alongside the other evidence types are in Section 4.2.

In theory, CPD could cover almost any area of dental practice. Data analysis indicated that CPD activities across the entire sample covered all of the GDC Standards at the Principle level to some degree (but Principle 9 very rarely).

The evidence showed a relationship between the Standards covered most frequently, and the CPD topics[7] currently recommended by the GDC. For example, GDC Standard 1.5 "*Treat Patients in a Hygienic and Safe Environment*" (corresponding to Radiation Protection and Decontamination courses, as well as Medical Emergencies training) and GDC Standard 1.9 "*Find out about laws and*

[7] Medical emergencies, disinfection and decontamination, radiography and radiation protection, legal and ethical issues, complaints handling and early detection of oral cancer.

regulations for your work and follow them" (corresponding to the recommended area of legal and ethical issues).

Other topics frequently seen included leadership and management (GDC Standard 6.6 "*Demonstrate effective management and leadership skills*") and child or vulnerable adult protection courses (GDC Standard 8.5 "*Take appropriate action if you have concerns about the possible abuse of children or vulnerable adults*"). Understandably, the nature of CPD evidence itself meant that GDC Standard 7.3 "*Update and develop your professional knowledge and skills….*" was being addressed significantly.

Other than the difference in evidence format between practitioners in a training post and those not in training indicated above, there were no obvious differences in the types of areas covered by CPD between different fieldwork sites.

4.3.4 Strengths and Weaknesses of CPD for Continuing Assurance

Formative
In terms of the formative aims of Continuing Assurance, that is to support dental professionals in keeping their knowledge and skills up to date, through engagement with learning and professional development, we analysed the CPD evidence submitted in terms of (i) the type and strength of feedback involved and (ii) the degree of engagement evidenced by links between CPD and other evidence types within each portfolio (see methods, Section 3.3).

None of the datasets contained quantitative feedback and around a third of portfolios (30 out of 81) included some element of qualitative information that could support ongoing learning, although the strength of this feedback was often 'weak'. However, some pieces of evidence went beyond a simple log of event titles and dates, such as details of learning outcomes for the activity and/or personal reflections on educational impact or how the CPD might change future practice. For example, in four portfolios, the CPD evidence included details of the course content, a reflection following the activity and the identification of future learning needs on the topic.

In 49 of the 81 portfolios (60%) that included CPD evidence there was no detectable links between the CPD activity and other evidence in the portfolio. However, within the remaining 32 portfolios including CPD (40%), links were noticeable. In most cases, these were where the action plan or learning objectives listed in the PDP correlated with CPD activities undertaken (albeit 'weakly' in the majority of cases). In three portfolios, CPD evidence was linked with other evidence types, such as Clinical Audit or a Case Based Discussion (where the results prompted the practitioner to attend a CPD course covering the area identified as being problematic).

Summative
In terms of CPD evidence that could support the summative aims of Continuing Assurance, the data was variable. Although a minority of portfolios included CPD evidence organised into verifiable hours and non-verifiable hours, and the completion of the GDC recommended topics highlighted with dates of completion, this only indicates attendance and does not provide evidence of actual learning, or if knowledge or skills remains current. Although CPD evidence including reflection may provide a degree of insight into the educational impact of CPD activities, an assessment would be required to demonstrate actual knowledge. Consequently, the CPD evidence analysed in this study would offer little support for the summative aims of Continuing Assurance.

4.3.5 Usefulness and Usability of CPD

Evidence from the literature suggests that practitioners consider CPD activities to be most useful when it is relevant to their practice and addresses a learning need, when they are intrinsically motivated to undertake the activity, and when the teaching or delivery is engaging and of a high standard. All of these factors appeared to be supported by the views of practitioners interviewed for this study.

The majority of practitioners interviewed (20 of 23) found CPD useful to some degree, including the ability to improve practice:

"I made direct changes to my practice after attending infection control courses, especially when they are updated and give me new ways of working"

Ways in which practitioners reported CPD being useful included enhanced practice, keeping up to date, keeping in contact with how others work, and keeping focused and challenged. Many of the practitioners who found CPD useful had chosen their CPD activities for a specific reason, such as addressing objectives identified during appraisal, or being relevant to their practice:

"I would never attend a course that wasn't directly relevant, even if at times it's not a main interest area"

These practitioners were also the most likely to be energised, engaged and motivated by CPD. A smaller number of those interviewed (7 of 23) mentioned that the usefulness of CPD was variable:

"Some CPD is repetitive and familiar, more a refresher, and others are very helpful and new"

A minority of those interviewed (3 of 23) thought the CPD activities they had been to lacked relevance to them, and that the quality of CPD was variable with courses being based mainly on opinion rather than research.

The usability of CPD appeared to be high, with the majority of practitioners interviewed stating that they had no problems meeting the GDC's current requirements for verifiable and non-verifiable CPD. Engagement with CPD activities appeared to be easier where there was a structured CPD programme in place, such as those provided within some of the fieldwork sites. A supportive environment (with regard to time and flexibility) was also noted as a key facilitator for the completion of regular CPD. Where practitioners did not have access to a structured programme of CPD, they reported sourcing it from dental magazines, journals, websites and professional networks. Barriers to undertaking CPD activities were focused on being able to find time (particularly small practices, or locum practitioners), cost and availability (to the local area);

"Doing the required hours is easy, but finding good quality is more difficult. If I want to go on proper courses – those that are most relevant – that's difficult to find the time"

Whilst most practitioners interviewed felt that they already had an adequate system or template for organising their CPD, several thought additional guidance or structured templates may be helpful.

4.3.6 Implications of Format and Workplace Setting

A range of different CPD delivery modes were evident in the evidence from portfolios, including formal courses, reading journals, attending conferences, team meetings, online CPD and workplace based teaching or assessment such as case based discussions, or case presentations. A higher number of structured activities appeared to be undertaken by those practitioners in training posts, although most of the fieldwork sites appeared to offer some CPD activities for their dental practitioners. Other than the use of specific templates to record CPD by some fieldwork sites, no clear differences were noted in the CPD evidence across different workplace setting or practice type. However, it should be acknowledged that how closely our sample of practitioners represents the population of Dental Practitioners in the UK is unknown.

4.3.7 CPD: Key Findings

- **CPD activities may relate to any of the GDC Principles.**
- **The GDC's current 'recommended' CPD topics represent some of the areas of CPD activity most frequently undertaken by practitioners in the purposive sample.**
- **The CPD logs submitted by practitioners in training posts and/or those in the Defence Dental Services were more highly structured than those from other fieldwork sites.**
- **Most of the CPD evidence submitted was limited to a log of course titles and dates, or a description of the activity such as 'reading journal'.**
- **CPD evidence may have a number of strengths with regard to a system of Continuing Assurance, but it has yet to reach its potential. To improve the formative qualities and usefulness of CPD, this evidence should:**
    - **note the relevance of the CPD activity to the learner (why it was chosen and if it addressing a particular learning need)**
    - **include a reflection regarding the educational impact of the CPD activity, and any intentions to change practice as a result**
    - **note any future learning needs resulting from the CPD activity**
- **CPD logs can provide evidence only of attendance at courses. Additional evidence would be required to demonstrate a particular level of knowledge or standard of performance.**
- **The usability of CPD for practitioners appears good, particularly when supported by a structured programme of CPD activities and a supportive employer. Time is the biggest barrier to completing CPD.**
- **The quality of CPD activities is variable.**

4.4 Professional Development Plans (PDPs)

4.4.1 PDPs: Rapid Evidence Review

The initial search revealed 171 publications, from which 51 were considered to be relevant following a review of titles and abstracts (Table 3.4).

Using Professional Development Plans

Professional Development Plans (PDPs) are used by many professional groups, including doctors (Johnson, 2000; Lewis *et al*, 2003; Main *et al*, 2009; Saidi & Weindling, 2003; Bradley & McKnight, 2002), Academic General Medical Practitioners (Cottrell *et al*, 2013), dentists (Butt and McNab, 2013), pharmacy assistants (Beausaert *et al*, 2013) and teachers (Janssen *et al*, 2012, 2013; Karnes and Shaunessy, 2004; Nelsen and Cudeiro, 2009; Butt and McNab, 2013; Holland and Adams, 2002; Hubbell, 2010). PDPs are used within different contexts and for different purposes, whether formal e.g. linked to processes such as appraisal, assessment or performance management, or informal e.g. personal reflection on professional development.

Janssen *et al* (2012) describe teachers' professional development plans as being 'a section of a teacher's portfolio', which should include an individual's learning goals and action plan, set in the context of professional standards or competencies.

Use of PDPs in a Formative Role

The formative role of PDPs has been described in some of the literature, which may be enhanced under certain conditions. In an evaluation of a national scheme for CPD, paediatricians reported PDPs as being helpful in identifying educational needs (Saidi and Weindling, 2003). The use of a peer-led 'Mutually Agreed Statement of Learning', as part of the PDP process for medical GP trainers, appeared to increase the formative benefits compared to when the sessions were led by a facilitator, promoting mutual conversations and enhanced reflective learning (Main *et al*, 2009). A study carried out to evaluate the effectiveness of pharmacy assistants' PDPs in the Netherlands discussed both the formative (professional development) and summative (certification) roles of professional development planning (Beausaert *et al*, 2013). The authors note that when used just for individual professional development, feedback is used to support ongoing learning, whereas when a PDP is used for the purpose of re-certification, a priority for the individual is to present themselves in a good light. Further, it was suggested that the voluntary use of a PDP is associated with greater educational impact, than when use is mandatory (Beausaert *et al*, 2013).

Use of PDPs in a Summative Role

Beausaert *et al* (2013) suggested the presentation of oneself in a good light is the priority for individuals completing a PDP they know will be considered for summative purposes, such as re-certification. This study also demonstrated that, within a formal system of assessment of pharmacy assistants, PDP users had completed more learning activities than those who had not used the PDP. However, in this context PDP use was not associated with users planning more learning activities in the future, and those using the PDP did not score themselves higher with regard to professional competencies compared with non-users (Beausaert *et al*, 2013). Other studies also describe the use of PDPs structured around professional standards or competencies. When associated with summative assessment such as within a system of revalidation, there are limitations to relying solely upon an individuals' self-reflection on strengths and weaknesses to identify professional

development needs, as self-assessment is unreliable, therefore external standards would be required (Dornan, 2008). Similarly, Janssen et al (2012) described the PDP used by the Dutch Government within a system of regulation of teachers as being 'set in the context of professional standards or competencies'. This PDP is part of a cycle in which teachers have a performance interview, develop a PDP and receive feedback towards their goals.

PDPs with both a Formative and Summative Role

In some studies, the formative and summative purposes of PDPs are discussed together, highlighting the different use and impact in each case.

In a study looking at the assessment of reflective PDPs with UK General Medical Practitioners, it was noted that the General Medical Council was to link a formative process (appraisal) with a summative process of revalidation (Roberts *et al*, 2006). Holland and Adams (2002) suggested that a PDP can help integrate the formative and summative roles of teachers' supervision for professional growth, and summative assessment for accountability. However, other studies report tension and anxiety in individuals when conflicting purposes are apparent. In a study exploring the appraisal and professional development of both teachers and dentists in the UK, it was noted that when the potential for appraisal to be linked to regulation was discussed, it was envisaged that there would be increased tension from General Dental Practitioners (Butt and McNab, 2013). Further, it appeared that the content of practitioners' PDPs, i.e. the CPD activities chosen, were not always chosen on the basis of the need to improve practice, but rather they were focused upon comfort, timing, location and previous practice (Butt and McNab, 2013). Dornan (2008) suggested that a different approach to identifying PDP content should be taken, depending on the expertise of the practitioner, with learning needs being identified by experienced practitioners (those mastering their subject) themselves whereas well defined external standards should drive the process for those who have yet to gain expertise.

Similar tensions were noted when comparing teachers' attitudes towards completing a PDP in Dutch schools, who reported feeling 'pressured' to do so as it was mandatory (Janssen *et al*, 2013). Tensions were also noted in a study involving General Medical Practitioners in the UK, between focus of the PDP upon the perceived needs of the individual practitioners and those identified by their NHS Trust employer (Saidi and Weindling, 2003).

Linking PDPs to Appraisal and Assessment

Appraisal has been described as a key component of the PDP reflective cycle for revalidation (Rhughani, 2002; Butt and McNab, 2013). Whilst the links between professional development planning and appraisal are clear, in some circumstances where the purpose of the PDP is both formative and summative such as revalidation, confusion regarding the role of appraisal and concerns regarding health and probity questions have been reported (Lewis *et al*, 2003). Specific training for those carrying out appraisals of GPs in Scotland, around the generation of a good PDP and addressing any significant emotional issues that arise, was considered beneficial by participants and led to positive changes in appraisal practice (Staples *et al*, 2010).

In the literature around appraisal linking PDPs to revalidation or summative purposes, there is strong support from practitioners for the process to be led by peers (Butt and McNab, 2013; Johnson, 2000; Lewis *et al*, 2003).

In a pilot appraisal scheme involving PDPs in the UK, dentists were concerned about whether their appraisal was carried out by a peer or non-peer, with personal knowledge of the appraiser being considered a 'strength' and the feeling that an external appraiser or someone unknown to them

would not be as successful at identifying appropriate issues (Butt and McNab, 2013). A pilot peer-appraisal system for medical GPs across five health authorities in Wales showed that appraisers were positive and enthusiastic about the process where it remained non-judgemental and did not lead to feeling threatened (Lewis *et al*, 2003). The appraisees in this study (GPs) thought the process would be entirely different if their appraisals were carried out by non-peers or management, i.e. more judgemental and threatening. Similar studies reported support for a system of peer-appraisal for consultant anaesthetists (Johnson, 2000) and with GP educators (Main *et al*, 2009).

Formal assessment of PDPs is described less frequently. Gordon (2003) describes the use of a professional development portfolio with Australian medical students around 'professionalism', which was assessed at the end of their first year of study by confidential interview with a member of faculty, based on the PDP goals. More than 90% of the students involved agreed that the process had been worthwhile and the authors note that valid types of assessment such as this cannot always be made reliable (Gordon, 2003). A further study developed a matrix tool for assessment of the quality of medical GPs reflective PDPs, and evaluated the validity and reliability of the tool (Roberts *et al*, 2006). The design of the matrix was deemed valid[8] because it had good internal consistency, enabling good, satisfactory or poor PDPs to be identified. Reliability calculations indicated that 4 assessors would be needed for each PDP to make a reliable assessment[9], and clearly, this poses a significant threat to feasibility (Roberts *et al*, 2006).

PDP development

Several studies reported good practice guidelines for professional development planning relating to context or content, or the planning process (Hirsh, 2004; Aase, 2009; Gordon, 2003; Janssen *et al*, 2012; Thomas, 2007; Rhugani, 2002).

With regard to using PDPs within a learning cycle for recertification, the guidance for dietetics practitioners in the USA embedded the 5 year recertification timeline into 'step 1' -the practitioners reflection upon where they are now, and where they need to be; 'step 2' – learning needs assessment, 'step 3' – learning plan development, 'step 4' – learning plan implementation and 'step 5' – evaluating the learning plan outcomes (Aase, 2009).

Content guidance included '*reflections, critical incidents, formative assessment results and study options planned*' for medical students in Australia (Gordon, 2003) and '*a critical reflection on abilities / performance, learning needs and an action plan*' for Dutch teachers in a regulatory context (Janssen et al, 2012). In the context of UK medical revalidation PDPs are structured around the domains of the GMC's Standards, 'Good Medical Practice'. The identification of learning needs, in this context, was described using self-directed assessment or reflection, in addition to objective quantitative data such as referral rates, and qualitative data such as multi-source feedback and patient feedback (Rughani, 2001). In contrast, an evaluation of individual PDPs completed by teachers in Ohio revealed that they usually contained traditional coursework, details of workshops attended and conferences (O'Connor and Herrelko, 2003). Also, certain roles such as academic practitioners have indicated that it can be difficult to identify appropriate evidence sources to inform a PDP, as the tools available such as workplace-based assessments are aimed at clinical practice (Cottrell *et al*, 2013).

[8] High construct validity

[9] Reliability calculations indicated that 4 assessors would be needed for each PDP to make a reliable assessment with a coefficient >0.7 suitable for summative purposes such as revalidation, or 5-8 assessors for a coefficient >0.8.

Some authors link the content of PDPs to organisational objectives or national standards, particularly where a summative role is a priority. The development of practice development plans for GPs aimed to encourage practice-based learning, however the conflict between personal and practice learning needs was reported (Cornford, 2001). In contrast, others have described PDPs as being more effective if embedded within an overall organisational plan, such as the completion of PDPs by teachers in the context of wider school or district plans (Hirsh, 2004; Karnes and Shaunessy, 2004). Hirsh (2004) states that the plan should be driven by results (stakeholder outcomes, e.g. student success), based on professional regulatory standards and focused upon daily work, rather than 'one off' events like short courses or conferences. Thomas (2007) states that individuals should consider the need to translate learning into practice (learning transfer) when planning professional development, and a transfer plan should include specific learning outcomes, behavioural and cognitive objectives, strategies to support transfer, and a definition of the criteria for success in addition to follow-up plans.

Effectiveness of PDPs

The majority of studies reporting the effectiveness of PDPs have evaluated the tool or process from the perspectives of users (or appraisers), by using a questionnaire, focus groups or interviews. In a survey exploring GP's (n=698) perceptions of postgraduate education approved meetings and PDPs, only 30% reported having a PDP, and the last educational activity carried out as part of a PDP had not changed practice for 57% of GPs (Little and Hayes, 2003). In addition, focus groups involving paediatricians demonstrated that PDPs in a format which allowed clinicians to plan their own development needs, whilst considering those of the employing organisation, were considered to be helpful (Saidi and Weindling, 2003).

One study explored the perceptions and intentions of teachers in using a PDP within a school where PDPs were mandatory, according to their personal characteristics such as age and teaching experience (Janssen *et al*, 2013). The results of this study suggested that younger teachers and those with less teaching experience tended to be more positive about the experience.

A quasi-experimental study involving 2271 pharmacy assistants (Beausaert *et al*, 2013) investigated the effectiveness of a PDP in the workplace in undertaking learning activities and achieving professional competencies. The results indicated that while PDP users undertook more CPD learning activities than non-users, the use of a PDP did not appear to make users plan more activities in the future than non-users. Furthermore, PDP users did not score themselves higher on job competencies than non-users. The authors also note that the purpose of the PDP is likely to have an impact on how it is used, with the priority being the ability to 'present oneself in a good light' being the priority if used for recertification (Beausaert *et al*, 2013).

Feasibility of using PDPs

Whilst some studies concluded that individuals did not consider PDPs difficult to complete (Janssen et al, 2013), others reported some problems with the development of a good quality PDP, including General Medical Practitioners' difficulties in identifying learning needs and a lack of understanding of certain processes which can inform PDPs such as 'critical event audits' (Bradley and McKnight, 2002).

The barriers to completing a PDP in the context of appraisal were identified by General Dental Practitioners as being time, space, practicalities, location, and ease of transferring documentation between appraiser and appraisee (Butt and McNab, 2013). Paediatricians also described duplication of effort between a PDP they were using and other existing documents such as informal PDPs and

Medical Royal College documents (Saidi and Weindling, 2003). Thomas (2007) described the barriers to learning transfer in the context of professional development as including a lack of foundation knowledge, a lack of personal motivation or confidence, and a lack of peer support.

The provision of guidance via workshops for individuals completing PDPs was considered supportive by teachers in the Netherlands, helping them identify strengths and weaknesses and identify learning needs (Janssen *et al*, 2012).

Key Messages from the Literature

- **Professional Development Planning is embedded across a wide range of health professions, formally and informally. It is often linked to an appraisal process.**
- **PDPs can be used formatively (driving personal development) or within a summative system e.g. revalidation. The formative and summative roles of PDPs are often combined, which may create tension and have an impact upon how it is used.**
- **When compiling a PDP for consideration in a summative context, individuals may be 'selective' regarding content and may seek to include their best work.**
- **There is support for the use of peers to support the use of PDPs (and appraisal), particularly when used in a summative capacity. The formative impact and effectiveness of PDPs may be enhanced through peer support.**
- **The reliable assessment of PDPs for revalidation may be challenging due to resource constraints and the number of independent assessors required.**
- **Guidance for using a PDP effectively refers to stages within the learning 'cycle', i.e. the identification of learning needs, developing an action plan, implementation of the plan and subsequent evaluation.**
- **The effectiveness of PDPs may be variable and dependent upon many and complex factors, including the context within which it is used, the support available and personal needs and motivation of the user.**
- **Clear guidance for users may help the successful use of PDPs.**

4.4.2 PDP Data within Portfolios

Almost all the portfolios analysed contained a PDP. While most of the PDP evidence was structured - often using a template - and directly linked to a process of appraisal, the format and content varied considerably. PDP evidence from one fieldwork site was a 'Practice Action Plan', produced by a third party following a comprehensive practice inspection. However, as this was practice-based rather than practitioner-specific, its potential contribution to a system of Continuing Assurance is more limited, in comparison to personal PDPs focused on the knowledge and skills of the individual.

Within other fieldwork sites the PDP resembled a record of an appraisal discussion, whereas others were more structured into reflections on strengths and weaknesses, and an action plan for

professional development. The number of entries within PDPs, and the quality of evidence provided, was variable.

PDPs from dentists working within the Defence Dental Services were highly structured; where the practitioner was in a training post, the template developed by COPDEND for Dental Foundation Training (DFT) was used, or in other cases a Defence Dental Services template was used which structured learning objectives into 'mandatory' areas, those identified as a training need by others and 'self-directed' objectives for professional development.

4.4.3 PDP Data and the GDC's Standards

PDP evidence related to the following GDC Standards at the Principle level:

- Principle 1: Put patients' interests first
- Principle 5: Have a clear and effective complaints procedure
- Principle 6: Work with colleagues in a way that is in patients' best interests
- Principle 7: Maintain, develop and work within your professional skills and knowledge
- Principle 8: Raise concerns if patients are at risk.

Few or no entries within PDP evidence related to Principle 2: Communicate effectively with patients, Principle 3: Obtain valid consent or Principle 9: Make sure your personal behaviour maintains patients' confidence in you and the dental profession.

In addition to Standard 7.3: Update and develop your professional knowledge and skills… the strongest associations between PDP evidence and GDC Standards were associated with the GDC Recommended CPD Topics, including Standard 1.5: Treat patients in a hygienic and safe environment – corresponding to radiation protection courses, decontamination etc.). This suggests that for some practitioners the GDC's recommended CPD topics are driving entries within the PDP (as opposed to the PDP driving CPD). Around a third of PDPs analysed included entries corresponding to the current GDC recommended topics.

Some differences in the coverage of GDC Standards was noted between the different PDP evidence from fieldwork sites. Perhaps due to the highly structured template, and/or the formal process of appraisal, the PDP evidence from the Defence Dental Services appeared to relate to more GDC Standards than the others.

4.4.4 Strengths and Weaknesses of PDP evidence for Continuing Assurance

The rapid review of literature and data analysis of PDP evidence has identified a number of strengths and weaknesses in the context of evidence to support Continuing Assurance.

Formative Aims of Continuing Assurance

There is evidence in the literature to suggest that PDPs can be effective for formative purposes under certain conditions, including where there is a supportive environment; where the purpose of the PDP is to drive professional development; where individuals are motivated and peer support or coaching is available. In these circumstances it is argued that PDPs can be effective in helping practitioners keep their knowledge and skills up to date.

The analysis of PDP evidence supported this to some degree. PDPs from individuals in more structured environment, where high levels of support were available, (such as training posts, and

within the Defence Dental Service), demonstrated strong qualitative feedback in the form of regular reflection on strengths, weaknesses and learning needs, and targeted action plans. In contrast, where PDPs were developed in less structured environments or did not appear to be linked to other support mechanisms, the richness of the qualitative feedback was less evident - for example, where PDP entries were a list of bullet pointed actions, or where reflection was apparent but with no conclusions or action plan for learning. The PDPs with stronger qualitative information suggested a greater degree of engagement of the practitioner with the learning process.

Further analysis of portfolios to explore links between evidence types (Section 3.3) also supported this. Of the 109 portfolios submitted for analysis including PDP evidence, 43 (39%) had clear links between their PDP entries and other evidence types within the portfolio suggesting a degree of practitioner engagement. Almost all of these 34 of 43 (79%) were derived from structured working environments, and the PDPs from all but one portfolio from the Defence Dental Services showed clear links between different evidence types and engagement with the process. The links between evidence types were most often between PDP entries and CPD activities undertaken, although PDP entries were also sometimes linked to feedback from Case based Discussion and Clinical Audit.

Summative Aims of Continuing Assurance

In terms of the summative aims of Continuing Assurance, the potential of PDPs as an individual evidence type is less clear. There is evidence in the literature that practitioners may be more anxious and use the PDP differently in this context, including being more selective with regard to the contents of the PDP and possibly less likely to admit to areas of poor performance.

4.4.5 Usefulness and Usability of PDPs

Evidence from the literature suggests that PDPs may be more useful and effective when used primarily for formative purposes, in a process involving peer support and/or appraisal.

Interviews with dental professionals also indicated variation in practitioners' opinions about the usefulness of their PDP. The majority of those interviewed thought that their PDP was useful in monitoring progress, reflecting upon strengths and weaknesses, and planning future goals.

> *"It let me see what I needed to do and when, and it kept me focused on a specific goal. That goal is what I need because my job is really busy and without that to think about, I may well not bother at all"*

However, several practitioners felt that their PDP was of less use:

> *"I didn't find [my PDP] that useful at times as a learning tool, but it did help to guide me. Sometimes it gets forgotten about when there is so much to do. Then I have a panic to fill it in. I'm not sure if that's the best way to use it"*

There was variation in the frequency that practitioners referred to or updated their PDP, perhaps reflecting the difference in perceived usefulness. More than a third of those interviewed (9/23) only looked at their PDP prior to their appraisal or review. However, approximately a quarter (6/23) referred to their PDP every few months, and a similar number more than once per month.

The usability of PDPs appeared to be high amongst the practitioners interviewed for this study. Although the main driver for completing a PDP tended to be an appraisal process, or a formal review, the majority of practitioners reported no serious difficulties in completing their PDP. A

number of practitioners associated usability with the degree of support available to them, and one of those appearing to struggle with the process noted a lack of support because they were in a locum post. However, this sample of practitioners (which may not be representative of the population as a whole) generally reported high levels of support from the fieldwork sites, with templates and guidance already being available to them in most cases.

Practitioners were also asked what informed the content of their PDPs. Around half of the dental professionals interviewed said that CPD undertaken informed the content of their PDP (rather than the other way round), and similar numbers indicated that content was identified through 'personal interest or goals':

"It's a result of the CPD I do. I think that the CPD is probably enough, but then I put this into my PDP along with how I think I am progressing"

"My own personal interests are guided by the clinical advisor and my CPD, [and] also where the practice wants to go"

4.4.6 Implications of Format and Workplace Setting

Most of the PDPs analysed were based on template forms and had the opportunity to be underpinned by work-place based support or coaching. It was noticeable that the more structured the working environment (such as training posts or the Defence Dental Services) the greater the qualitative information contained in the PDP. There were no apparent differences in the quality of PDPs between different types of dental practice. There seemed to be less qualitative content and fewer links between the PDP and other evidence types for portfolios from General Dental Practice contexts.

4.4.7 PDPs: Conclusions and Key Findings

- **The vast majority of portfolios analysed for this study contained PDPs, almost all of which were linked to a process of appraisal or review.**
- **Although of variable quality, many were highly structured and contained rich qualitative data. Better quality PDPs appeared to be associated with more highly structured working environments such as training posts or the Defence Dental Service.**
- **The content of PDPs appeared to be informed by CPD (including GDC recommended topics) or personal interest/goals.**
- **There was strong alignment with PDP evidence and GDC Principle 7: *Maintain, develop and work within your professional skills and knowledge.***
- **The presence of a supportive environment, including peer support and coaching, appears to increase the effectiveness of PDPs and their usability.**
- **The role of PDPs (individually) within a summative context is less clear, and under such circumstances practitioners may be selective regarding the content of their PDP.**
- **PDP evidence was more likely to demonstrate engagement with learning (via links with other evidence types) than the other evidence types within this study. In most cases PDP entries were linked to CPD and to a lesser extent with CbD or Clinical Audit.**
- **Practitioners reported few barriers to completing their PDP.**

4.5 Clinical Audit

4.5.1 Clinical Audit: Rapid Evidence Review

The initial search revealed 609 publications, from which 82 were considered relevant following a review of titles and abstracts (table 3.4).

Clinical Audit in Healthcare

The varied role of clinical audit within healthcare is clear, with reports describing its use by individual practitioners, clinical teams, single and multiple institutions for quality assurance, addressing poor performance and formative and summative assessment.

The National Institute for Health and Clinical Excellence (NICE) defines clinical audit as:

> "*a quality improvement process that seeks to improve patient care and outcomes, through systematic review of care against explicit criteria and the implementation of change. Aspects of the structure, processes and outcomes of care are selected and systematically evaluated against explicit criteria. Where indicated, changes are implemented at an individual, team or service level and further monitoring is used to confirm improvement*" (NICE, 2002).

Clinical Audit has been used as part of quality assurance/quality management processes by many healthcare professions, including 'high stakes' audit, such as that used for accreditation purposes and against a wide range of national and international standards or for regular internal quality checks (Bilawka & Craig, 2003; Casas *et al*, 2003; Academy of Medical Royal Colleges, 2009; Berwouts *et al*, 2010). Internal audits based on self-evaluation against accreditation standards have also been put forward as a mechanism for monitoring of compliance, particularly in advance of a formal performance review (Hall, 2007).

When implemented at the institution-wide level, Clinical Audit generally requires the existence of audit supervisors or project leads, and the key to continual improvement lies within the dissemination of results and development, and subsequent monitoring of action plans (Bourke *et al*, 2012; Northeast London NHS Foundation Trust, 2012). A number of advantages have been reported for audit carried out at the institutional level, or across multiple institutions, including the ability to compare data across units or teams and the identification of quality trends and outliers (Paskins *et al*, 2010; Bourke *et* al, 2012; Locke *et al*, 2013). However, a number of barriers were also identified, including a reluctance to share data across institutions (Locke *et al*, 2013).

Clinical Audit in Revalidation

Several studies reported support for the use of Clinical Audit within a (then) future system of Medical Revalidation in the UK (McKay *et al*, 2003; Hayes, 2005; Thompson *et al*, 2005). In a survey of General Medical Practitioners in Scotland regarding their views on Significant Event Analysis (described as a qualitative form of audit by the authors), 76% agreed that it should be part of a future system of Revalidation (McKay *et al*, 2003). The potential of clinical audit to inform revalidation was also noted following a successful pilot involving a "peer review" assessment of clinical audit of surgical mortality data (Thompson *et al*, 2005). However, concerns were also identified associated with the need for training (Bowie *et al*, 2001 & 2008) and the need for objective review of the evidence (Bowie *et al*, 2008).

A comprehensive description of the principles, criteria and key indicators for the use of clinical audit within medical revalidation was published by the Academy of Medical Royal Colleges (AoMRC) (Academy of Medical Royal Colleges, 2009). These criteria are summarised in Table 4.5.1.

Table 4.5.1: Clinical Audit Best Practice Criteria (AoMRC, 2009)

Criteria
Stage 1: Preparation & Planning
1. The topic for the audit is a priority
2. The audit measures against standards
3. The organisation enables the conduct of the audit
4. The audit engages with clinical and non-clinical stakeholders
5. Patients or their representatives are involved in the audit if appropriate
Stage 2: Measuring Performance
6. The audit method is described in a written protocol
7. The target sample should be appropriate to generate meaningful results
8. The data collection process is robust
9. The data are analysed and results reported in a way that maximises the impact of the audit
Stage 3: Implementing Change
10. An action plan is developed and implemented to take forward any recommendations made
Stage 4: Achieving and Sustaining Improvement
11. The audit is a cyclical process that demonstrates improvement has been achieved and sustained

Following the introduction of GP appraisal in Scotland, Colthart explored whether this process had had an impact on GPs learning and development. Almost half of participants in the study (49%) thought the appraisal system had no effect on them taking the lead on a clinical audit, 30% thought that it had a small effect and 21% thought appraisal had had a substantial effect on whether they had led a clinical audit (Colthart, 2008).

Similarly, in the run up to the introduction of medical revalidation, a number of reports described proposals for implementation. In a report summarising medical revalidation requirements for Paediatricians, it was highlighted that although clinical audit would be required for appraisals, a 'less formal data review' such as clinical notes or a review of records (audit) including discharge would also be acceptable (Thompson and Fellows, 2011). It was suggested that needs assessment would be an important concept to inform revalidation (recertification), and that if standardised audits are used, they could only include relatively common conditions whilst specialists are frequently involved with rare but important conditions. A number of strategies for identifying individual's learning needs were put forward, including regular record audits, criterion based audits (where individuals results are compared with current literature or practice guidelines) and audits involving comparison with peers (benchmarking) (Norman *et al*, 2004).

Clinical Audit in Dentistry

Relatively few studies related to clinical audit in dentistry, in the context of revalidation, certification or regulation. A small pilot study of revalidation for dental practitioners in Scotland used national clinical audit data as a base for setting standards for the assessment of clinical audits, and using trained assessors demonstrated a degree of feasibility and acceptability of the assessment. This study demonstrated that most clinical audit data was collected by others (such as a Vocational Dental Practitioner) via delegation from their trainer or another dental practitioner, and that there was a lack of uniformity and variable quality in the approach to how clinical audits were carried out (Maidment *et al*, 2006a and 2006b).

Design and Implementation

Clinical audit can be applied to a range of different topics. In addition to a list of national (cross-institutional) clinical audits around priorities in healthcare outcomes[10], and similar to the Association of Medical Royal Colleges (2009) (Table 4.5.1, stage 1), the Healthcare Quality Improvement Partnership (HQIP) has published detailed guidance on local clinical audit for doctors, including references to use within the context of CPD and medical revalidation (HQIP, 2010). The guidance for identifying an appropriate topic for clinical audit states it should be interesting and important to clinicians in that area; relevant to the department and management of the NHS Trust; have established standards against which outcomes can be measured; have a clearly defined population and be an area in which improvements can be made (HQIP, 2010).

The importance of a needs assessment to inform clinical audit has also been emphasised (Norman *et al*, 2004). Despite such guidance, some doctors lack confidence in their ability to identify suitable topics for clinical audit for revalidation. Workshops designed to support Occupational Physicians in their selection and development of clinical audit evidence for revalidation focused on the identification of topics, as this had been the most frequently identified training need for three years (Braithwaite and Thornton, 2012). A study by Rogers and Lowe (2011), conducted an online survey to 'audit the audit activity' carried out for medical revalidation by consultant Oral and Maxillofacial Surgeons. This indicated a wide range of different Clinical Audit topics although the authors recommended focusing upon fewer specific areas suitable for national comparison and benchmarking (Rogers and Lowe, 2011).

The introduction of GP appraisal in Scotland appeared to have some impact on whether practitioners carried out clinical audit, with 30% of GPs reporting that appraisal had a 'small effect' and 21% considering this to be a significant motivator for them (Colthart, 2008). It was also suggested that a diverse primary care context makes it more difficult to collate data to support the appraisal process than in secondary care settings (Locke *et al*, 2013).

Several authors studied clinical audit of patient/clinical records, across different health professions, including General Medical Practitioners (Overeem *et al*, 2007), Paediatricians (Thomson and Fellows, 2011), Radiation Oncologists (Shakespeare *et al*, 2004), and Health Visitors (Hamilton *et al*, 2007). The National Clinical Assessment Service (NCAS) use clinical record audits in their reviews of practitioners with performance concerns (Berrow *et al*, 2007). Other topics used for audit purposes include practitioner's referral letters (Overeem *et al*, 2007) and parent satisfaction with community paediatric care (using a questionnaire) (Bhusari and Banerjee, 2012).

[10] The National Clinical Audit Programme http://www.hqip.org.uk/national-clinical-audits-managed-by-hqip/ accessed 13/1/15.

In order to be effective, the design and implementation of the audit requires careful consideration and planning. A number of studies describe the features of good clinical audit to ensure that it is effective in improving performance and/or clinical outcomes (Academy of Medical Royal Colleges, 2009 – Table 4.5.1; Northeast London NHS Foundation Trust, 2012; Solent NHS Trust, 2013; Spark and Rowe, 2004). In a study comparing the performance of audit tools developed in Singapore and New Zealand, measuring the competence of Oncologists in completing patient records (chart review), a number of risks to validity were noted, including the relevance of items included within the audit tool, potential for misinterpretation, a lack of clarity around criteria and the use of subject terms for scoring/classification such as 'adequate' (Shakespeare *et al*, 2004). The authors note a general lack of validation associated with audit tools in oncology, and suggested that a simple summative score would enhance the usefulness of the tool and that random patient selection is important in order to avoid selection bias (Shakespeare *et al*, 2004). Spark and Rowe (2004) also identified selection bias as a potential flaw in clinical audit, in addition to other issues such as having too narrow a focus, describing successful audit as "*comprehensive, multidisciplinary and part of everyday practice*". The focus upon multiple perspectives of performance (described as 'performance polygons') has also been highlighted as being able to better identify strengths and weaknesses (Cook and Coupe, 2012).

Norman et al suggested that the use of standardised audits for purposes such as revalidation may have limitations, as these are generally limited to common conditions which may not be the most appropriate areas for specialists to focus upon, and individual 'needs assessments' should rather be used to inform clinical audit evidence for revalidation/recertification (Norman *et al*, 2004). The type of auditable standards against which data or performance is measured may vary, for example national standards, practice guidelines, benchmarking against the performance of peers (Norman *et al*, 2004), or the development of standards using a Delphi process involving individuals with appropriate professional expertise (Moss *et al*, 2010).

A number of studies have also explored factors associated with the implementation of clinical audit. With regard to the collection of patient outcomes data for auditing treatment outcomes, Aylward (2011) states that an agreed dataset, comprising a set of defined variables representing clinical information about a patient, is vital in order to successfully collect and compare outcome data. The dataset is important as it allows the comparison of results across institutions and enables qualitative data to be considered in context (Aylward, 2011).

In terms of feasibility, (see 'barriers to audit' below) it was suggested that data collection for clinical audit could be delegated to others within the clinical team, such as clinical trainees, nurses and secretaries (Megaw *et al,* 2011) or carried out in peer groups (MacDonald and Huthwaite, 2012). Indeed, this has been shown to be the case in early, local pilots of revalidation carried out with dental practitioners, where it was identified that audits were frequently 'delegated' and carried out by the trainees (Maidment *et al*, 2006a & 2006b). Some authors described the use of electronic systems for collating patient outcomes data for audit purposes, such as commercial electronic records, web-based applications and NHS funded software applications (Megaw *et al,* 2011). An example of successfully implementing a web-based system for auditing surgical practice of more than 200 members of the Australian and New Zealand Society for Vascular Surgery has been described by Bourke *et al* (2012), with the authors noting the support provided by an Audit Monitoring Committee (for data analysis, identification of outliers and dissemination) and the importance of data validation.

Formative and Summative approaches

The use of clinical audit has been described as a process used solely to increase standards of practice and improve clinical outcomes (formative), and also for the measurement of clinicians' performance for regulatory purposes (summative).

Formative

In a study using an experimental prospective design to evaluate the impact of written feedback following a clinical audit of the quality of ultrasound images, taken by a group of sonographers in France, it was demonstrated that the quality of the images produced by the group which had received audit feedback improved significantly more than those taken by the control group of sonographers who had not received feedback (Calhouli *et al*, 2013). In a different approach, a questionnaire-based audit of Public Health practitioners' knowledge carried out with the aim of informing their CPD choice had mixed results, which were attributed to the perceived focus upon 'core' topics and lack of relevance to the specialised practitioners involved (Garvican and Doyle, 2001).

Summative

Clinical audit is also used in the assessment of healthcare professionals in order to identify areas of poor performance or practitioners lacking competence in some way (Locke *et al*, 2013; Cook *et al,* 2012; Hamilton *et al*, 2007; Bashook, 2005). One of the most common types of clinical audit carried out for this purpose is a patient record audit, which has been identified as being a useful measure of an individual's practice, attitude and decision making ability (Bashook, 2005), as well as being important in the identification and / or further investigation (assessment) of poorly performing doctors due to many instances of poor practice being associated with substandard record keeping or practitioners not following guidelines (Berrow *et al*, 2007; Southgate *et al*, 2001).

In addition to the outcomes of clinical audit being used to assess healthcare professionals' performance, it has also been used as part of a (then potential) process of revalidation (Academy of Medical Royal Colleges, 2009; Bowie *et al*, 2008; Maidment *et* al, 2006a & 2006b). In such cases, the audit reports may be reviewed for their quality by peers, trained assessors, or external specialists (Bowie *et al*, 2008; Maidment *et* al, 2006a & 2006b). Bowie *et al* (2008) found little difference in the scores awarded by peers trained to review clinical audits and those awarded by external (audit) specialists.

Effectiveness of Clinical Audit

A number of studies have highlighted concerns about the use of clinical audit for revalidation purposes. Jutley *et al* (2001) questions the validity and accuracy of hospital audit data for use within a (then future) UK system of medical revalidation following an investigation into 10 years of electronic records from a surgical unit which revealed only 90.5% accuracy. A review of audit practice within a department of Oral and Maxillofacial Surgery concluded that the effectiveness of audit was questionable, due to a high number of incomplete audit cycles (junior staff turnover was suggested as a contributing factor), many audits with few recommendations and poor uptake of recommendations made as a result of audit (Reuther *et al*, 2013). In a small pilot of portfolios (including clinical audit) for revalidation of dental practitioners, trained assessors noted considerable variation in the quality of audits submitted (Maidment *et al*, 2006b).

There is a general lack of validity and reliability data for the use of clinical audit as an assessment tool for health professionals performance (Hamilton *et al*, 2007; Shakespeare *et al*, 2004) and only

two studies were retrieved using our search strategy. A systematic review of performance assessment methods used in daily practice reported evaluation data for a medical record audit tool and a tool for the audit of referral letters in Canada (Overeem *et al*, 2007). It found that for the assessment of referral letters, five raters were required to judge ten cases to achieve sufficient reliability to inform a high stakes decision. The assessment of radiology case reports required three raters to assess 60 case reports to achieve this reliability. In terms of validity, the audit tool to rate referral letters had content and construct validity reported, however other studies did not support the content validity of medical record audits. Shakespeare *et al* (2007) analysed intra and inter-rater reliability for two different audit tools (developed in Singapore and New Zealand) used to rate patient records (charts) based on misclassification rates. The Singapore tool had significantly higher reliability, with 2.3% items misclassified, compared to 22.3% with the New Zealand tool (inter-rater reliability), and 2.4% items misclassified compared to 13.6% (intra-rater reliability).

Facilitators and Barriers to Completing Clinical Audit

A number of areas have been described which would support practitioners in completing clinical audit. In an early study comparing two types of potential portfolio for GPs' medical revalidation, evidence types such as observation of practice, clinical audit and analysis of prescribing data were considered least feasible to collect, because they needed partner involvement, planning and effort. Successful completion was thought to be helped by high levels of support around implementation, such as examples of evidence, standard forms being on the internet and the organisation of peer and patient surveys by an independent organisation (Bruce, 2004). The development of brief single topic tools for clinical audit for doctors by academic units to support implementation was also suggested (Norman *et al*, 2004).

Barriers to carrying out clinical audit include lack of time, particularly around data collection and reporting (Bruce, 2004; Atfeh and Williams, 2012) and the need to employ peers or external specialists to assess the audits (Bowie *et al*, 2008). Further, the financial cost of audit is significant, with Portsmouth Primary Care Trust reporting a cost of clinical audit to be £276,000 in one financial year (Reuther *et al*, 2013).

A need for training and support for healthcare practitioners in carrying out clinical audit was noted in several studies. In a survey of GPs in Scotland, 64% indicated that they needed more training in the audit process and non-principals had very little experience in clinical audit (Bowie *et al*, 2001). Similarly, audit had been the most frequently identified development need by UK Occupational Medicine physicians (Braithwaite and Thornton, 2012). Potential Responsible Officers within medical revalidation reported feeling unprepared in advance of the introduction revalidation for doctors in the UK (Shepherd and Cameron, 2010). Structured training has been reported as being more time and cost effective than self-training regarding quality assurance processes (including audit) in the laboratory setting (Berwouts *et al*, 2010).

Key Messages from the Literature

- Clinical audit is used across a wide range of contexts, to quality assure and/or assess practice at the individual, practice or organisational level.

- Clinical audit is a quality improvement process, which systematically reviews practice against agreed standards (criterion audit) or the performance of experts/peers (benchmarking audit).

- The continual monitoring, or subsequent re-evaluation of practice, is key to ensuring quality improvement.

- Clear guidelines around the focus and process of audit are needed to support implementation.

- Relatively few studies were retrieved describing clinical audit within dentistry, and these noted variation in the quality of audit and that the collection of audit data was often delegated to others.

- Topics appropriate for clinical audit require careful consideration, and guidelines are helpful in the context of revalidation. Audits are frequently carried out on patient records.

- Audits have been used both within a formative and summative role. When used for revalidation audits may be assessed for their quality in terms of data collection, interpretation, action plan and re-evaluation. However, there is a lack of data regarding the validity and reliability of clinical audit for assessment purposes.

- Facilitators for the effective implementation of clinical audit include the provision of training for practitioners, standardised forms of templates, and support e.g. coaching or mentoring from peers and/or appraisal.

4.5.2 Clinical Audit Data within Portfolios

Over two thirds (68%) of the portfolios analysed, representing all practice types and settings, submitted evidence of participation in clinical audit. The format and focus (content) of the clinical audit varied, and in the case of some fieldwork sites the audit was carried out by a third party on aspects of practice-level performance, rather than relating to the individual practitioner.

Although many of the audits focused upon the same topic (see below section 4.5.3), a number of bespoke clinical audits were also submitted.

Most portfolios contained up to three clinical audits. The quality of evidence was variable, ranging from just a summary of audit outcomes, to comprehensive reports including an action plan and second cycle to monitor improvement. Many of the audits had been completed using a template. One advantage of this approach was the ability to provide the practice with feedback that is benchmarked against peer groups, in addition to comparison against specific criteria such as performance standards.

4.5.3 Clinical Audit and the GDC Standards

Clinical Audit evidence covered a wide range of topics although there were some common themes which demonstrated strong relevance to the GDC's Standards. Many portfolios contained clinical audit of record-keeping, and/or the quality of radiographs. Some were 'team' audits focusing upon the practice team and leadership and management issues. Many of the bespoke clinical audits reviewed focused on the consistency or approach to recording patient information.

The evidence related to six of the nine GDC Principles:

Principle 1: Put patients' interests first (evidence related only weakly to this principle)
Principle 2: Communicate effectively with patients
Principle 3: Obtain valid consent
Principle 4: Maintain and protect patients' information
Principle 6: Work with colleagues in a way that is in patients' best interests, and
Principle 7: Maintain, develop and work within your professional skills and knowledge (specifically Standard 7.1 - Provide good quality care based in current evidence and authoritative guidance).

Clinical record audit evidence mapped particularly strongly to Principle 3: Obtain valid consent, and Principle 4: Record keeping.

4.5.4 Strengths and Weaknesses for Continuing Assurance

Formative Aims of Continuing Assurance

As an established process of quality improvement, Clinical Audit is primarily formative in nature, providing objective feedback on performance against agreed standards or benchmarked against peers. However, its strengths in terms of the formative aims of Continuing Assurance may be enhanced further under certain conditions. There is evidence to suggest that some practitioners may delegate the data collection and analysis for clinical audit to other staff, with their own time being spent considering the results of the audit. While this does not necessarily reduce the quality of feedback for the practitioner, it could be argued that it is the engagement within the audit process, including the consideration of the results and benchmarks, identification of areas for improvement, the development of an action plan and subsequent re-audit, which provide evidence that an individual is fully engaged within the process of professional development. Analysis of the dataset indicated that better feedback was associated with more robust processes and practitioner engagement in clinical audit.

Many of the audit reports included both quantitative and qualitative feedback and in many cases, for both template-based and bespoke audits, the qualitative feedback was rich - particularly where multiple cycles of audit were submitted and the maintenance and improvement of quality over time could be seen. This was often the case for those working for the Defence Dental Service. The template audits used by some fieldwork sites were also comprehensive, with rich feedback and an action plan where necessary, but were practice-based rather than practitioner-specific so may be less useful for Continuing Assurance purposes.

The more comprehensive audit data provided some of the richest feedback of all the evidence types in terms of being able to demonstrate professional development. However, only 10% of portfolios demonstrated links between clinical audit reports and other evidence types. In these cases, clinical audit evidence either informed CPD or PDP entries, or the clinical audit may have been informed by Case Based Discussion, patient feedback or a review of a significant event.

Summative Aims of Continuing Assurance

Clinical Audits have been used in a summative context elsewhere (see section 4.5.1), including within a system of revalidation. Under such circumstances, the summative decision may rest on an assessment of how robust the audit process, report and follow-up was in addition to the results, i.e.

whether appropriate data were analysed and appropriate actions taken as a result. There is limited data on the validity and reliability of the assessment of clinical audit in this context.

4.5.5 Usefulness and Usability of Clinical Audit

Clinical Audit was considered by all the dental professionals interviewed during this study to be a highly useful exercise, frequently leading to a positive change in practice. A number of specific improvements to their practice were referred to, including “improving my radiography”, “writing fewer prescriptions” and “improved record keeping”. In many cases, a change in practice was reported at the practice level, rather than to an individual’s own practice, perhaps reflecting the level at which the audit tool was applied. This suggests that to enhance the usefulness of clinical audit for Continuing Assurance the tool used and data collected should be at the level of the individual practitioner.

Around a fifth of practitioners (4 of 19) interviewed described Clinical Audit as being useful in informing their CPD and PDPs. Others described the process as being more closely linked to personal interest and needs of the practice rather than informing other evidence types.

Although a high proportion of the practitioners interviewed had been involved with clinical audit, most noted that they did it because they were required to do so. During the interviews 17 out of 19 practitioners experienced no barriers to undertaking clinical audit and felt that they did not need further guidance, support, or templates as these had already been provided. Whilst standardised templates were not unhelpful, practitioners felt comfortable developing their own. However, the development of standardised templates provides the opportunity to ensure validity of the process.

Across the fieldwork sites, it was found that clinical audit topics were normally prescribed to the dental professional, although in some cases, discussions with colleagues or the practice team, personal interest or learning needs influenced the topic.

4.5.6 Implications of Format and Workplace Setting

The nature of clinical audit means it is best suited to topics where national standards are available to which practice can be compared, or where data can be compared to peers (benchmarking). Therefore, clinical audit could be designed to address a range of the GDC Standards.

Audits have been used and considered useful by practitioners across all practice types and settings. Relatively few difficulties were noted, although one individual expressed frustration that due to the nature of rotations within their secondary care training post, it meant that multiple cycles of clinical audit, to measure improved performance, was difficult. Similarly, it is likely that those in full time non-clinical roles such as clinical academics may have difficulty in completing clinical audit.

4.5.7 Clinical Audit: Conclusions and Key Findings

- **More than two thirds of the practitioners in the data sample had completed Clinical Audit.**
- **The types of Clinical Audit completed varied between practitioners and across fieldwork sites. Some audits were at the practice level rather than practitioner-specific.**
- **The most common audit topics in portfolios were record keeping and radiograph quality and safety.**
- **In its most robust form (appropriate sampling, consideration of results against standards/benchmarks, implementation of action plan and re-audit cycle to monitor improvement), Clinical Audit can provide rich feedback in terms of the formative aims of Continuing Assurance.**
- **Clinical Audit often provides both quantitative and qualitative feedback to practitioners with regard to their performance.**
- **Both the results from the Clinical Audit, and the quality of the process undertaken and reporting, may constitute relevant evidence for the summative aims of Continuing Assurance. However, there is little evidence in the literature regarding the validity and reliability of Clinical Audit assessment.**
- **The majority of practitioners interviewed found the Clinical Audit very useful, often resulting in a positive change in practice, but usually at the practice level rather than individual performance.**
- **No major barriers to engaging with Clinical Audit were identified by the practitioners interviewed in this study. Guidelines and templates were generally considered helpful.**
- **Topics for Clinical Audit were often provided to practitioners in advance, but topics were also identified through discussions with colleagues, personal interest or learning needs identified by other evidence types or reflection.**

4.6 Multi-Source Feedback (MSF)

4.6.1 MSF: Rapid Evidence Review

The initial search revealed 196 publications, from which 106 were considered to be relevant following a review of titles and abstracts (Table 3.4).

Using focused search terms, a large amount of relevant literature was retrieved for MSF compared to other evidence types, suggesting that this area has been studied in more detail in this context recently.

Use of Multi-Source Feedback

Multi-Source Feedback (MSF) is a concept originating in a business setting, which was developed to provide feedback to senior managers on their performance from a range of colleagues. This approach (or variations of it) has been described in a number of different ways, including 360 degree assessment, 360 degree appraisal, 360 degree feedback, peer assessment, peer appraisal, peer review or multi-source assessment (Abdulla, 2008). The process is focused on gathering feedback from individuals who have had contact with the person being assessed in the work environment and have built their opinion over a period of time (rather than assessment being based on observation of a single task).

Around 20 years ago, in the light of competency-based approaches within medical education, MSF was developed for use within medicine to assess a range of aspects of clinicians' performance and the delivery of good patient care. MSF is also now a mandatory part of medical revalidation in the UK. MSF is now established within a wide range of medical specialties (Donnon *et al*, 2014), including Primary Care (Mulrphy *et al*, 2009; Campbell *et al*, 2010), for Paediatricians (Archer *et al*, 2010), Dermatologists (Cohen *et al*, 2009), Medical Oncologists (Dark, 2009), Histopathologists (Davies *et al*, 2008), Radiologists (Wood *et al*, 2004; Lockyer *et al*, 2008), Surgeons (Violato *et al*, 2003), Occupational Therapists (Violato *et al*, 2009), Pharmacists (Patel *et al*, 2011; Davies *et al*, 2013) and medical students (Sharma *et al*, 2012). MSF has also been used by individuals in non-patient facing roles, such as clinical academics (Ferrari *et al*, 2011) and those in medical education roles, such as educational supervisors or tutors (Malling *et al*, 2009; Berk, 2009; Egbe and Baker, 2012; Archer *et al*, 2013).

No reports were retrieved on the use of MSF by dentists, indeed only one paper (a commentary) was retrieved which made reference to MSF potentially being used in a dental context (Archer, 2009).

MSF tools vary in design and implementation and may include patient ratings or feedback and a self-assessment, in addition to feedback from colleagues. A number of different MSF tools have been described in the UK, including Mini-PAT (Peer Assessment Tool) (Abdullah, 2008; Patel *et al*, 2011; Davies *et al*, 2013), the Team Assessment of Behaviour tool (TAB) (Bullock *et al*, 2009; Hassell *et al*, 2012), the CFEP360 (Campbell *et al*, 2010; Lockyer, 2013) and the General Medical Council's (GMC) patient and colleague questionnaire (Wright *et al*, 2012). Many of the studies retrieved describe the use of MSF in the context of UK medical revalidation (Dauphinee, 2005; Mahmood, 2010; Campbell *et al*, 2010 & 2011; Hill *et al*, 2012; Rubin , 2012; Wright *et al*, 2012). Some authors describe the use of MSF in association with appraisal (Cohen *et al*, 2009; Hill *et al*, 2012).

MSF tools have been designed to assess a range of aspects of performance and, when designed for a specific purpose such as medical revalidation, they reflect professional standards. MSF is particularly useful in assessing areas which can be difficult to assess using other workplace-based assessments such as professionalism (Bullock *et al*, 2009; Berk, 2009; Donnon *et al*, 2014; Dreyer, 2010; Grujich *et al*, 2012; Al Khalifa *et al*, 2013; Lockyer, 2013). MSF can also assess communication skills (Bullock *et al*, 2009; Donnon *et al*, 2014; Lockyer, 2013; Al Khalifa *et al*, 2013), teamwork or collaborative skills (Bullock *et al*, 2009; Lockyer, 2013), interpersonal relationships (Lockyer, 2013; Donnon *et al*, 2014; Al Khalifa *et al*, 2013), humanistic qualities (Sargeant *et al*, 2005; Al Khalifa *et al*, 2013), psycho-social skills, clinical care (Archer *et al*, 2010), accessibility (Bullock *et al*, 2009) and management (Donnon *et al*, 2014).

Effectiveness of MSF for Continuing Assurance

There is good evidence to support the effectiveness of MSF (Abdullah, 2008; Lockyer, 2003). The effectiveness of MSF for the assessment and/or provision of feedback across different contexts such as various medical specialties (Donnon *et al*, 2014) and for teachers in a university setting (Berk, 2009) have been described. Effectiveness is usually described either in terms of the psychometric properties of the MSF tool, such as validity and reliability, or in terms of the perceptions of those involved in the process (Miller and Archer, 2010; Saedon *et al*, 2012; Ferrari *et al*, 2011). Holmboe and Ross (2012) suggest there should be more focus upon the impact upon patient outcomes when exploring effectiveness of MSF.

Formative

A recent review noted the lack of literature investigating the educational impact of specific MSF tools (Lockyer, 2013), although a number of studies – with variable results - have explored the effectiveness of MSF in terms of any educational impact or the propensity to drive change (Sargeant *et al*, 2005 & 2009; Rees and Shepherd, 2005; Dubinsky *et al*, 2010; Miller and Archer, 2010). While many practitioners believe that MSF feedback is valuable, the likelihood that negative feedback will be accepted by them and/or lead an individual to change is dependent upon a number of factors, including the perceived credibility of the individuals providing feedback, the usefulness and accuracy of the feedback and consistency with other sources (Sargeant *et al*, 2005; Miller and Archer, 2010).

The provision of support to the practitioner in the form of coaching or mentoring has also been identified as being able to increase the likelihood that feedback would be accepted and lead to performance improvement (Sargeant *et al*, 2009, Miller and Archer 2010). Extrinsic factors may also play a role in driving a change in performance. A quantitative study carried out by Parrigin (2009) demonstrated that the number of developmental activities undertaken by managers following MSF feedback sessions was significantly higher if they had been notified that progress would be followed up by a phone call, compared with those who had not been told that there would be a follow-up call. The author suggested that this sense of accountability may have an important role in the process and on improving educational impact, so the use of a coach for individuals would be beneficial (Parrigin, 2009). A qualitative study involving consultants in the Netherlands also explored the incentives and disincentives to change their performance as a result of MSF feedback (Overeem *et al*, 2009). The authors identified contextual factors such as high workload, organisational culture and a supportive environment as influential factors, in addition to personal factors associated with the individual such as self-efficacy and motivation. The process of assessment and the wider system in which it was implemented were also important, such as characteristics of the feedback itself, and

structures to support reflection or goal setting such as a portfolio or follow-up interview (Overeem *et al*, 2009).

Summative

Concerns have been expressed about the use of MSF in a summative context, to identify poorly performing practitioners (Hill *et al*, 2012). These are associated with threats to validity, such as bias, which have been identified with regard to the characteristics of the doctor being assessed (Campbell *et al*, 2011; Crossley *et al*, 2008) and those of the assessors or colleagues providing feedback (Bullock *et al*, 2009; McKillop *et al*, 2011a). However, a study by Archer and McAvoy (2011), which investigated the use of both MSF and Patient Feedback with doctors referred to the National Clinical Assessment Service (NCAS) with performance concerns, showed that MSF scores from colleagues were significantly lower for NCAS assessed doctors, than those provided for a reference cohort. Furthermore, MSF scores differed significantly depending on whether the assessors were chosen by the individual being assessed or by a third party (in this case the referral body). Consequently, to avoid this type of bias it has been recommended that practitioners do not select their own assessors when using MSF (Archer and McAvoy, 2011).

Comparison of Feedback from Colleagues and Patients

A number of studies compared the MSF ratings provided by colleagues with those from patients (Archer and McAvoy, 2011; Crossley *et al*, 2008; Campbell *et al*, 2010). While scores from colleagues using MSF were significantly lower for NCAS referred doctors compared to those given for a reference group, it was noted that there was no significant difference between the groups in terms of patient feedback or ratings provided, and only one doctor from the NCAS cohort scored below average using this patient feedback tool (Archer and McAvoy, 2011). Conversely, in a primary care setting (using the CFEP360 tool) a comparison of ratings and feedback from colleagues with those from patients indicated that items from both scales were able to predict combined global ratings. This suggests that colleagues and patients identify similar levels of performance. The authors note that colleagues using MSF are able to provide feedback on both clinical and non-clinical aspects of performance, whereas patient feedback focuses only upon the non-clinical areas (Campbell *et al*, 2010). In a district hospital setting it was demonstrated that the uptake of MSF and Patient Feedback was variable, with 91% of doctors having had MSF forms completed for them, compared with only 48% managing to obtain sufficient ratings for patient feedback. Response rates for patient feedback were even lower for certain groups of doctors in this study, with only 6% of those working in non-clinical roles or anaesthetists managing to obtain sufficient ratings (Crossley *et al*, 2008).

Validity and Reliability

Many studies reported the validity or reliability of MSF tools in order to demonstrate their robustness as an assessment tool. Although validity is context-specific, therefore a tool demonstrating validity in one setting or context cannot be presumed to be equally valid in another, evidence for the validity of MSF tools has been presented across a range of medical settings including Surgery (Al Khalifa *et al*, 2013), Primary Care (Campbell *et al*, 2010), foundation training programmes or residents (Davies *et al*, 2008 & 2009; Wilkinson *et al*, 2008; Joshi *et al*, 2004), Paediatricians (Violato *et al*, 2006) and Occupational Therapists (Violato *et al*, 2009).

Reliability

The reliability of MSF tools has been presented in different formats. In general, tools demonstrating a reliability coefficient of 0.7 or 0.8 are considered sufficiently robust to inform a high stakes

decision such as revalidation. Studies often present the conditions under which such reliability can be achieved, such as the number of different assessors. MSF tools with high internal consistency[11] have been reported with doctors in Canada and the Netherlands (Lockyer *et al*, 2006; Overeem *et al*, 2012). A MSF tool used to assess Paediatricians noted high reliability, with reliability coefficients of 0.78 with 8 medical colleague assessors, and 0.87 with 8 co-workers (Violato *et al*, 2006). A MSF tool designed to assess the 'Accreditation Council for Graduate Medical Education' (ACGME) competencies in the USA using nurses, allied health staff and medical students achieved a reliability coefficient of 0.89 (Massagli and Carline, 2007). A recent systematic literature review on the use of MSF in surgical settings identified 8 studies reporting at least 1 aspect of utility for the tool, with high reliability noted for MSF in four of the studies (Al Khalifa *et al*, 2013).

The number of MSF assessors needed to achieve reliability sufficient for a high stakes decision were presented by several authors, relating to assessment of practitioners in a range of clinical contexts. Four assessors were needed for the majority of doctors using the Sheffield Peer Review Assessment Tool (SPRAT) (Archer *et al,* 2005); 15 assessors (medical colleagues) were required to achieve acceptable reliability using the GMC Colleague Questionnaire (Wright *et al*, 2012); and for the GMC patient and colleague feedback questionnaire, reliability was achieved with at least 11 assessors. Other studies described the need for 5 – 8 assessors to achieve good reliability. For example, eight assessors for doctors in specialty training (Davies *et al*, 2008) or their first year of foundation training (Davies *et al*, 2009); six clinical, or five non-clinical assessors (on two occasions) with medical GPs (Murphy *et al*, 2008), five co-workers for the assessment of medical residents (Massagli *et al*, 2007) or five colleagues or co-workers assessing hospital physicians (Overeem *et al*, 2012).

Validity

There is also good evidence supporting the validity of MSF tools (Archer *et al*, 2005; Lockyer *et al*, 2006; Davies *et al*, 2008 & 2009; Donnon *et al*, 2014). Evidence supporting to content validity (Al Khalifa *et al*, 2013), criterion validity (Sargeant *et al*, 2007; Al Khalifa *et al*, 2013; Ansari *et al*, 2014) and construct validity (Violato *et al*, 2008; Al Khalifa *et al*, 2013; Ansari *et al*, 2014) have been reported.

Risks to Validity

A number of risks to validity, in the form of systematic, selection or response bias, have been identified. These can be classified as being related to (i) characteristics of the assessors (ii) characteristics of the individual being assessed or (iii) factors associated with the relationship between assessors and the individual being assessed.

(i) Assessor characteristics

A number of studies have identified differences in the scores awarded by assessors in different roles. In a study of 226 doctors undertaking MSF as part of Foundation Training, consultants and senior nurses appeared to be more stringent assessors and more likely to raise concerns than assessors who were at a similar stage in training (other foundation doctors), or in administrative or general managerial roles (Bullock *et al*, 2009). Wright *et al* (2012) also noted differences in the scores awarded by assessors in different roles using the GMC colleague feedback questionnaire, including more generous ratings from non-medical, administrative or managerial staff, concluding that summative decisions such as being fit to practise should not be made on the basis of these results alone. There is some evidence to support a link between the seniority of the assessor and the degree

of experience they have, and the level of stringency using MSF (Bullock *et al*, 2009; Mackillop *et al*, 2011a).

A study exploring 'missing data' (areas of the questionnaire not completed) within a MSF tool used by the National Board of Medical Examiners (NBME) in the USA, to investigate whether they could be considered random or not, demonstrated that missing data was correlated with lower global ratings, or 'non-preferred candidates', suggesting the possibility of response bias (Mazor *et al*, 2007).

(ii) Doctor (candidate) characteristics

Bias associated with different groups of individuals being assessed has also been identified (Crossley *et al*, 2008; Campbell *et al*, 2011). In a study involving data from doctors across various clinical specialities in the UK using the GMC Patient and Colleague Questionnaire, it was demonstrated that lower scores from colleague feedback were independently predicted by doctors having qualified from outside the UK and South Asia, being employed as a locum, working as a General Practitioner or Psychiatrist, or those being employed within a staff grade, associates specialist or equivalent role (Campbell *et al*, 2011). The authors recommended that this MSF tool should be used formatively rather than summatively. MSF scores awarded to UK medical graduates were significantly higher than those awarded to non-UK graduates in a study involving career grade doctors in a district hospital in the UK (Crossley *et al*, 2008).

(iii) Factors associated with the relationship between assessors and individuals being assessed

A number of studies into the use of MSF by doctors have identified some response bias with higher ratings being awarded by assessors who had more regular contact with the doctor being assessed, such as daily or weekly, than if the assessor had had less contact with the doctor prior to assessment (Lockyer, 2003; Campbell *et al*, 2011; Wright *et al*, 2012).

The potential sources of bias demonstrate that the type as well as number of assessors used for MSF, particularly where high stakes decisions are involved such as for revalidation, needs careful consideration. This was further supported in a study that poorly performing doctors were more likely to be identified by MSF when the assessors were chosen by a third party, rather than by the individual being assessed (Archer and McAvoy, 2011).

While some studies have demonstrated a correlation between patient feedback and feedback from colleagues (Lelliot *et al*, 2008), others suggest that scores awarded by patients assessing doctors are significantly higher than those awarded by colleagues, and less likely to identify poor performance (Archer *et al*, 2010). A study investigating the relationship between self-assessment and scores from patients and colleagues using the GMC MSF tool, demonstrated that most doctors awarded themselves lower ratings than either patients or colleagues (Roberts *et al*, 2013).

Design and Implementation

The design and implementation of MSF tools can have an impact upon how effective the process is. To ensure validity, it is important to give close attention to the aspects of performance being measured and content of the questionnaire. When using MSF evidence to support a summative decision, for example revalidation, the items are generally developed using formal professional standards or competencies. However, in other cases the items within a MSF tool have been identified using assessors' opinions of what a competent practitioner is by ranking statements and performing factor analysis (Thammasitboon *et al*, 2008). The development of bespoke MSF tools for some medical specialties, which include specialty specific content, has also been recommended (Mackillop *et al*, 2011a).

Question format was also found to be important to ensure clarity, interpretation and reliability (Mackillop *et al*, 2011b). In a study comparing MSF questionnaires with multi-factorial (compound) questions to those with the same content but where each question addressed a single area of performance, higher reliability was demonstrated for non-compound questions (Mackillop *et al*, 2011b). The type of ratings scale used within MSF tools can also have an impact on its effectiveness. Longer ratings scales have been shown to result in fewer doctors being awarded a 'problem' score than shorter scales, and a higher proportion of doctors being scored in the 'exceeding expectations' range (Hassell *et al*, 2012).

Feasibility

There is good evidence to support the feasibility of using MSF tools across a range of clinical contexts (Massagli and Carline, 2007; Crossley *et al*, 08; Ferrari *et al*, 2011). Although concerns around a high administrative burden have been expressed, particularly if paper-based questionnaires are used, and significant resource implications (Hobson, 2009; NHS Revalidation Support Team, 2012), good feasibility has been noted with web-based formats (Hobson, 2009; Massagli and Carline, 2007; Archer *et al*, 2013; Faulds, 2010; Mackillop *et al*, 2011a). This was contradicted in one study by Lockyer *et al* (2006), where the paper-based versions had a better response rate than internet or phone methods. However, the authors noted that this could have been a feature of the particular cohort used for the study.

Some studies described the time taken to complete MSF questionnaires. A study based in Denmark which used MSF to assess doctors in early specialist training demonstrated that assessors took 14.5 minutes (median) to complete the questionnaires (Allerup *et al*, 2007). Other studies reporting the use of SPRAT (Archer *et al*, 2005) and MSF tools used to assess specialist registrars in the UK (Wilkinson *et al*, 2008) described a shorter time of 6 minutes to complete the questionnaires.

Acceptability

MSF is generally considered valuable by those being assessed (Higgins *et al*, 2004; Murphy *et al*, 2008; Miller and Archer, 2010), with the formative nature of the process and the insight it gives practitioners being welcomed (Cohen *et al*, 2009; Hill *et al*, 2012). Where concerns were expressed, they were associated with some participants feeling "hurt" by negative comments (Potter and Palmer, 2003; Hill *et al*, 2012), or being confused by benchmarking scores (Hill *et al*, 2012). A study carried out by the NHS Revalidation Support Team (2012) found doctors preferred having MSF results prior to appraisal and taking a more developmental approach to the discussion of MSF feedback, rather than an overly critical approach.

Key Messages from the Literature

- MSF is established within a range of medical contexts, including as an evidence type contributing to medical revalidation in the UK. However, there was only one commentary of its potential use in UK dentistry.

- In addition to being used across a wide range of clinical specialties in primary and secondary care, MSF has been used successfully for those in non-patient facing roles such as clinical academics, tutors and educators.

- MSF usually targets areas of performance such as professionalism, communication skills, teamwork and interpersonal skills. In the context of revalidation, the items within MSF tools are usually derived from professional standards.

- There is evidence to show that MSF can be effective in identifying poor performance. However, the number and type of assessors requires careful consideration to avoid bias. Practitioners should not choose their own assessors.

- Evidence supporting the effectiveness of MSF in terms of educational impact and a change in future performance of the practitioner is variable.

- Factors promoting educational impact include availability of support processes such as coaching, accountability (i.e. the need to change), the credibility of those providing feedback, the usefulness of the feedback and consistency with other sources of evidence.

- High reliability has been demonstrated for a range of MSF tools, with reports of between 4 and 15 assessors being required in order to fulfil the criteria for high stakes decisions such as revalidation.

- Although there is evidence to support the validity of MSF in different settings, potential risks to validity relate to systematic, selection or response bias. Consequently MSF requires careful implementation when used in a summative context.

- There is good evidence for the feasibility of MSF, particularly when in a web-based format.

- The acceptability of MSF is generally good, with feedback from colleagues being considered valuable by most practitioners.

4.6.2 MSF Data within Portfolios

Following the results of a recent previous survey of dental professionals in the UK[12], in which only 11% of dentists reported having completed MSF in the previous year, it was anticipated that MSF for this study may be rare. Despite purposive sampling, only six portfolios contained MSF. However, analysis showed that half of this evidence was not actually MSF but rather assessments of observed practice. This meant only three portfolios contained actual MSF. This highlights that MSF may not be common practice in dentistry and there may be a lack of understanding regarding what constitutes MSF.

4.6.3 MSF Data and the GDC's Standards

From the limited data analysed in this study, two of the three datasets used a MSF template developed by COPDEND for Dental Foundation Training and the other was a bespoke tool used within that particular general practice. The MSF evidence related to the following Standards Principles:

[12] Evaluation of Supporting Evidence Types for Revalidation Stage 1. Picker Institute: http://www.gdc-uk.org/Newsandpublications/research/Documents/Evaluation%20of%20Supporting%20Evidence%20November%202012%20(Picker-GDC)%20Report.pdf

Principle 1: Put patients' interests first
Principle 2: Communicate effectively with patients
Principle 4: Maintain and protect patients' information
Principle 6: Work with colleagues in a way that is in patients' best interests
Principle 7: Maintain, develop, and work within your professional skills and knowledge
Principle 9: Make sure your personal behaviour maintains patients' confidence in you and the profession.

4.6.4 Strengths and Weaknesses of MSF for Continuing Assurance

Analysis of the limited dataset indicated that the COPDEND MSF tool included both quantitative and qualitative feedback on performance across each of the performance criteria, and the qualitative feedback was rich, highlighting both strengths and weaknesses of the individual. Feedback on the Rodericks tool was also quantitative (via an 'agree / disagree' scale) and qualitative, although less comprehensive.

Evidence from the literature suggests that MSF can be a useful and effective tool for healthcare professionals within the context of revalidation – both in terms of formative aims and in contribution to a summative decision. High reliability has been demonstrated where there are 4-15 assessors, although there are some important risks to validity to consider associated with implementation.

4.6.5 Usefulness and Usability of MSF

Most of the practitioners interviewed for this study had not completed MSF. When this type of evidence was discussed, many practitioners had not heard of it before or had no experience of it within dentistry:

> *"I've never heard of it. It isn't something that has ever been discussed in the practice or that I have read about in the context of revalidation, or as a tool for the assessment of dentists"*

Although some practitioners stated that they had completed MSF, their comments suggested that some were actually referring to a different type of evidence:

> *"LEPs[13] are one of the most useful tools for me… it gives me something to work towards"*

The dental professionals interviewed who had no direct experience of using MSF tools expressed concern as to whether it would work for them in their area of practice, particularly in small teams within general practice, or larger clinical environments such as the dental hospital due to the lack of consistent long-term contact between staff members, colleague sensitivities and practicalities. Despite these anxieties, the majority said that they would like to find out more about MSF and would consider putting it into practice:

> *"This could be useful"*

> *"It sounds very interesting"*

The five practitioners interviewed who said they had completed MSF, were positive about the experience. Some had personalised the MSF tools used:

[13] Longitudinal Evaluation of Performance – a workplace-based assessment used in Scotland

"I also added my own personal questions that I wanted feedback on. It's one of the ways I learn best"

No specific barriers were identified with regard to the collection of MSF, although there were concerns that despite attempts at anonymisation the results may be identifiable - making the process sensitive.

4.6.6 Implications of Format and Workplace Setting

Evidence from the literature shows that MSF is a flexible tool which can be designed for, and used successfully within, a wide range of clinical and non-clinical environments. The MSF tool can be developed targeting specific areas of performance (as demonstrated by that used for Medical Revalidation in the UK, based on GMC Standards "Good Medical Practice"), which can include specialty specific elements if necessary. Electronic or web-based formats appear to have greater feasibility than paper based formats, due to reduced administrative burden.

A few practitioners interviewed expressed concerns that MSF could be challenging in small practices. However, there is evidence that multiple rounds of MSF with fewer respondents can achieve the same reliability as a single episode of MSF using more respondents[14].

[14] Moonen *et al* (2015) Reliability of MSF revisited: effects of multiple occasions and assessor groups within competency-based assessment programmes. Academic Medicine (*In Press)*

4.6.7 MSF: Conclusions and Key Findings

- **Although MSF is embedded within the medical profession in the UK for the (primarily formative) assessment of doctors, it has yet to become established in dentistry.**
- **MSF was scarce in the primary data sample and there appears to be a lack of understanding regarding what it is.**
- **MSF has the potential to assess a range of GDC Standards. It generally targets professionalism, communication skills, interpersonal skills and teamwork, which can be difficult to assess by other means.**
- **MSF has the potential to contribute to both the formative and summative aims of Continuing Assurance. Both quantitative and qualitative feedback are possible using MSF tools and, if linked to other evidence types and professional development activities, could demonstrate engagement with the learning process.**
- **It is possible to achieve high reliability using MSF, although there are risks to validity which should be considered carefully during implementation.**
- **A number of factors have been shown to enhance the educational impact of MSF, including peer support/coaching, accountability, and the credibility of assessors.**
- **As MSF may be relatively new concept in UK dentistry, detailed guidance and/or training, in addition to a standardised template, would be helpful.**

4.7 Review of Significant Events / Significant Event Analysis (SEA)

4.7.1 SEA: Rapid Evidence Review

The initial search strategy revealed 35 publications, from which 17 were considered relevant following a review of titles and abstracts (Table 3.4).

Most of the publications related to studies carried out within Scotland, using a formalised process of reviewing a significant event known as Significant Event Analysis with medical GPs, in advance of the introduction of revalidation by the General Medical Council (GMC).

Significant Event Analysis

Significant Event Analysis (SEA) is a process used for quality improvement and has been described as "a qualitative method of clinical audit", suited to investigating areas of clinician performance with regard to decision making or treatment choice, as a wider range of complex issues are able to be

considered compared to criterion-based clinical audit (Bowie *et al,* 2005a). Team members, including administrative staff, may often be involved in the collation and analysis of documentation (Bowie et al 2005b).

Four elements of a SEA (Bowie *et al,* 2005a) have been described as a description and reflective account of:

1. What happened?
2. Why it happened?
3. What has been learned from the event?
4. What has been changed?

Using this structure, detailed guidance for doctors was developed by NHS Education for Scotland, in collaboration with the National Patient Safety Agency, the Royal College of General Practitioners and Healthcare Improvement Scotland.[15] While it was mostly used as a quality improvement tool in primary care in the UK, and more recently adapted to assess the performance of individuals GPs or their teams (see below), this approach has also been used within larger healthcare institutions in the promotion of risk management (Wallace *et al*, 2007).

SEA can focus on any significant event, whether negative or positive event, the vast majority of SEAs studied in the literature represented 'negative' significant events (Bowie *et al,* 2005a; 2005b; Bradley, 2009). In one study, a focus group participant suggested that this might be because a report of a positive significant event may be perceived as 'bragging' by the rest of the clinical team. It was suggested that by linking SEA to a patient complaint there was additional benefits, such as it would be clear to the patient that action was being taken (Bowie *et al*, 2005b).

SEA has been used within the dental context (Wilson *et al*, 2004; Wright & Franklin, 2007). Following a pilot study and training in SEA, a library of anonymised significant events was developed and shared amongst dentists in Sheffield to facilitate learning. Three broad SEA themes were noted: (i) incidents involving clinical treatment; (ii) incidents involving the running of a dental practice; and (iii) incidents relating to relationships with team members or patients (Wright & Franklin, 2007). A similar process to SEA ("Thought Provoking Episode Reports – TPERs) was implemented in an undergraduate dental programme at the University of Otago in the USA, and the focus included a range of clinical and non-clinical issues, such as 'difficult patients', conflicting advice from tutors, observing or experiencing belittlement, professional standards and complaints, treating family members or friends, and system issues (Wilson *et al*, 2004).

A number of studies found some selectivity in the identification of significant events when being used for peer review. Practitioners were reluctant to choose events that highlighted "professionalism" issues for fear of embarrassment, looking incompetent to peers or team members, concerns over confidentiality or litigation, or threats to successful practice accreditation (Bowie *et al*, 2005b). In contrast, a study of 37 SEAs submitted by individual pharmacists, reported a range of significant events including near miss safety incidents (Bradley *et al*, 2009). Practitioners indicated that they sometimes avoided dealing with an event due to the complexity of the event and SEA process (McKay *et al*, 2003).

A study of SEA by GPs reported the focus of events as including patient harm (25%) or circumstances with potential to cause patient harm (57%), with mistakes being cited as the main reason causing the event in 32.5% of those reviewed (McKay *et al*, 2009). Events analysed often related to disease

[15] The Use of Significant Event Analysis: Guidance for Primary Care Teams. *NHS Education for Scotland* (2011).

diagnosis and management, prescribing, patient behaviour, investigations and results, communication, administration, medical records, confidentiality, appointments and surgeries (McKay *et al*, 2008).

Significant Event Analysis and Performance

Formative

SEA has originated as a tool to facilitate quality improvement, so the potential educational impact is implicit. In a study by McKay *et al* (2003), the analysis of SEA reports completed by GPs revealed the identification of learning opportunities in the vast majority (95%) and the description of actions taken to improve practice systems or professional behaviour (80%). However, it is noteworthy that where the changes were identified as a result of patient harm, non-clinical team members were less likely to be involved and non-specific professional issues were often not shared with members of the practice team. GPs were generally supportive of the peer review process for SEA, with feedback generally being welcome and considered reassurance that they had dealt with the issues correctly. However, a number of GPs misunderstood the process, expecting guidance from the peer reviewers on their actions in response to the significant event (McKay *et al*, 2008).

Summative

The potential for SEA to be used as a tool to measure an individual's performance through the introduction of peer review of events against predetermined criteria, has been studied in General Medical Practice (Bowie *et al,* 2005a; 2005b; 2008; McKay et al, 2008) and pharmacy (Bradley et al, 2009). Implemented initially as a means of formative assessment to provide valuable feedback to practitioners on the quality of their SEA reports, the potential for peer reviewed (assessed) SEA reports to contribute to the GP appraisal and ultimately revalidation has been recognised. SEA reports were judged by peers as either 'satisfactory', if they met the quality criteria, or 'unsatisfactory', if one or more areas of the SEA were considered to be lacking in quality (Bowie *et al*, 2005a; Bradley *et al*, 2009; McKay, 2008). Evaluation of pilot studies of peer review of SEA suggested practitioners thought peer review increased the formality of the exercise, which may in turn lead to improved significant events documentation and the increased likelihood of improved patient care (Bowie *et al*, 2005b, McKay *et al*, 2008).

Relatively few studies have formally evaluated the use of SEA as an assessment tool. Murphy *et al* (2009) investigated the reliability of a range of workplace-based assessment tools frequently used within postgraduate medical education and training. SEA was reported as having high internal consistency and test-retest reliability but poor inter-rater reliability[16]. Based on a sample considered to be feasible (four raters assessing two SEA reports) low reliability was reported, and it was predicted that 8 raters assessing 2 separate SEA reports would be required for high reliability for summative purposes (Murphy *et al*, 2009)[17].

Another study investigating peer review of SEA in Scotland with GPs, compared the ratings awarded by peers with those from external audit specialists. Relatively little difference was observed in the scores awarded by the two different groups of reviewers (Bowie *et al*, 2008).

In the context of the potential for using SEA as evidence to support appraisal and medical revalidation, one study asked stakeholders which of the eight major GMC competencies they

[16] The degree of agreement between different assessors

[17] it should be noted that this is in the context of consideration of SEA data in isolation (not with additional evidence types within a portfolio).

thought SEA (and other types of workplace-based assessment) would be able to address. Stakeholders considered SEA most effective as a tool to measure "maintaining good medical practice" and "critical thinking", but was less effective for the measurement of "health", "probity" and "relationships with patients" (Murphy *et al*, 2008).

Quality of Significant Event Analysis Reports

Peer review of more than 650 SEAs submitted by GPs revealed potential educational issues in 25%, with 11% of the SEAs being considered 'unsatisfactory' (Bowie et al, 2005a). A range of problems were identified, with the majority of unsatisfactory SEAs (89%) inadequately addressing "*What has been changed*?", e.g. inadequate action taken by the practitioner, inadequate description of the actions taken, or where change had been discussed but no action taken. Furthermore, 45% of the unsatisfactory SEAs were judged by peers to be deficient in the area "*Why did it happen*", usually due to inadequate description, and 16% were unsatisfactory in the area "*What have I learned from the event*" due to issues such as a lack of learning or insight. Others were unsatisfactory as they were not considered to represent a significant event. The authors concluded that about a third of GPs had some difficulty with SEA (Bowie *et al*, 2005a). In a similar study involving pharmacists in Scotland, 30% of SEA reports were judged by peers to be 'unsatisfactory', for similar reasons, particularly ineffective descriptions or change implementation (Bradley *et al*, 2009).

Barriers to completing Significant Event Analysis

Studies investigating the reasons for poor quality SEA reports (rated 'unsatisfactory' by peers) identified a range of barriers. Around 40% GPs reported having difficulty identifying whether an event was 'significant', with less experienced GPs being more likely to identify this as being difficult (Bowie *et al*, 2005a; McKay *et al*, 2003). The complexity of a significant event was also identified as a potential barrier and a reason for selectivity due to the perception that complex events would be complex and time consuming to analyse (Bowie *et al*, 2005a; McKay et al, 2003). A number of emotional reasons were reported as being potential barriers to SEA, such as vulnerability, guilt, blame and embarrassment, if they were personally responsible for what happened during the event. There was a reluctance to share professionalism issues with colleagues (Bowie *et al*, 2005b).

McKay et al (2003) investigated potential barriers to SEA amongst GPs using a questionnaire; 26% GPs reported feeling uncertain how to analyse a significant event, 59% thought there was a lack of time to discuss significant events with colleague and team members and 20% required training in SEA.

A strong indication that practitioners lacked understanding in the SEA process and required training was also found amongst general dental practitioners (Wright & Franklin, 2007).

Motivations for completing Significant Event Analysis

Motivators for GPs engaging with the SEA process included the link to GP appraisal, practice accreditation and financial incentives associated with the GP contract (Bowie *et al*, 2005a). Protected time for GPs to complete SEA was also a strong motivator and GPs thought an increase in protected time was needed. Some practitioners also welcomed the flexibility of the process, being able to complete SEA at a time convenient to them (Bowie *et al*, 2005b).

Key Messages from the Literature

- In some cases SEA has been adapted for use in the assessment of individual practitioners or clinical team performance. Most studies are in the context of primary care in the UK, involve peer review of completed SEA reports and describe the assessment as being formative.

- There are relatively few studies investigating the reliability of SEA for the assessment of performance. Results suggest that significant resources would be required (several assessors across multiple SEA reports) in order to achieve high reliability to support a summative decision.

- The content of SEA is variable, although usually involves 'negative' incidents or complex cases.

- Practitioners may be selective when identifying cases used for SEA, particularly if the event outcomes are associated with professionalism and the SEA is part of a summative assessment.

- Peer review of SEA reports suggests the quality is variable, with a number of practitioners demonstrating areas of weakness in terms of the process.

- Barriers to completing SEA include a lack of understanding regarding the process, difficulties in identifying an appropriate case, a reluctance to share 'professionalism' issues with colleagues and the complexity of some cases.

- Motivators for the completion of SEA included financial incentives, protected time and a link to performance appraisal.

4.7.2 Significant Event Analysis Data within Portfolios

Although 54% of the portfolios were reported as having SEA evidence at the point of submission, this reduced to 13% following analysis of the data. This was because that while the practice inspection process carried out by one fieldwork site checked whether there is a system for recording and reviewing significant events in the practice, the review of significant events itself was not included within the portfolios submitted. Therefore the data analysis mainly comes from the Defence Dental Services.

A key feature of the data is that SEA evidence is usually the review of a single event, usually a negative incident, rather than a review of multiple events. However, some event logs were included. The depth of information included within SEA evidence was also variable.

4.7.3 Significant Event Analysis and the GDC's Standards

The majority of significant event analysis data reported significant clinical events, although some non-clinical issues were reviewed. As the focus of the evidence depends on the particular event which occurred, SEA could relate to any of the GDC Standards. This was supported by the data analysis with all nine GDC Principles being covered.

The SEA data analysed particularly related to:

Principle 1: Put patients' interests first
Principle 6: Work with colleagues in a way that is in patients' best interests
Principle 8: Raise concerns if patients are at risk
Principle 9: Make sure your personal behaviour maintains patients' confidence in you and the dental profession

4.7.4 Strengths and Weaknesses of Significant Events for Continuing Assurance

Almost all datasets included qualitative feedback which was usually analysed as good or excellent. No quantitative feedback was included. There were a small number where details of a significant event had been recorded but without details of any action or follow up. The strength of qualitative information within the significant event analysis evidence did not necessarily correspond to the level of structure within the report, although highly structured templates such as that used within the Defence Dental Services, including Root Cause Analysis of the incident, usually provided a comprehensive report. In many cases, the depth of information within the evidence is associated with the nature of the incident – straightforward events, even when significant, may be addressed more briefly.

Formative

The strengths of significant event analysis evidence for the formative aims of Continuing Assurance are increased when a systematic process is undertaken and details are recorded in full, such as a full description of the event, analysis and causes identified, reflection and action plan or recommendations. In contrast, the feedback from a log of significant events without analysis is less useful for Continuing Assurance purposes.

Although significant events analysis evidence has the potential to link with other evidence types, of the 15 sets of significant events analysis data reviewed, clear links with other evidence types within the portfolio were only detected in one portfolio, where SEA evidence was linked closely with a subsequent clinical audit.

Summative

The strengths of using significant event analysis evidence to inform a summative decision for Continuing Assurance are less clear. This evidence is mainly used as formative assessment or quality improvement process in healthcare, and relatively few studies have assessed SEA reports and investigated the validity or reliability of this approach. There is also evidence in the literature to suggest that practitioners may be 'selective' around identifying significant events which are associated with 'professionalism', if the evidence is linked to a summative decision. Furthermore, the occurrence or frequency of significant events cannot be predicted, and agreement on appropriate content and what constitutes 'significance' may be challenging, making standardisation difficult.

4.7.5 Usefulness and Usability of SEA

A number of the practitioners interviewed (5 of 11) who had no direct experience of significant event analysis questioned if would be a good use of their time, and whether it would add value to the practice. However, all but one of the six interviewees who had experienced it, indicated they found the process useful and had altered their practice as a result, such as changing clinical or non-clinical protocols.

One interviewee commented:

"It's good to look back on the outcomes of these significant events to see what I did and if later on I would do it differently, a kind of comparison of my practice"

Another individual commented that they considered the process a waste of time. However, this appeared to be directed at the need to 'log' incidents rather than the reflective process usually associated with SEA. This may also support the suggestion that to reach its full potential, significant event analysis evidence needs to be more than a log:

"It is a requirement of the NHS that I complete a daily record of significant events in a book of my own. The process is ridiculous, it takes a lot of time for not a lot of results that I can work with."

Practitioners who had been involved in significant event analysis said that communication with the rest of the clinical team and discussion of the event was a key feature of their approach.

In terms of the usability, few practitioners identified any barriers other than time, mentioned by two interviewees. Those currently involved in significant events analysis had protocols or guidance, which they found helpful. When asked how events were identified, responses included "*service impact*", "*an issue of clinical importance, staff or patient safety*", or "*if it has made an impact on me*".

4.7.6 Implications of Format and Workplace Setting

Although the data was limited, there is no evidence to suggest that significant events analysis evidence is more or less useful or usable across different types of practice in primary care. Around half of the evidence reviewed was gathered by DCPs, and half from the Defence Dental Services. No significant event analysis data was submitted from participants working within the hospital or salaried dental services.

As indicated above, the format of the process of carrying out significant events analysis and of recording the evidence is likely to have an impact in terms of the strength of the feedback provided, and in supporting the formative aims of Continuing Assurance. A systematic review of a significant event, reflection and analysis of the cause, and action plan for improvement would provide better evidence than a log of events. Some of the evidence submitted for analysis was rejected as being 'significant events analysis' as it was a reflective log of practice more generally, rather than being focused upon a significant event.

4.7.7 SEA: Conclusions and Key Findings

- **The majority of significant event analysis evidence analysed was of a single significant event. Most data analysed focused on clinical incidents, which may have (potentially) had a negative impact.**
- **The evidence can cover any of the GDC's Principles, being correlated with the type of significant event itself.**
- **In the data analysed SEA was commonly associated with Principle 1: Put patients' interests first, and Principle 9: Make sure your personal behaviour maintains patients' confidence in you and the dental profession.**
- **SEA is often associated with strong, qualitative feedback, particularly when a systematic process has been undertaken, including reflection and analysis of the event, and development of an action plan or recommendations (rather than a simple log of significant events).**
- **Where a robust approach is taken, significant event analysis has potential to support the formative aims of Continuing Assurance.**
- **SEA was considered to be useful by the majority of the practitioners interviewed who had engaged with this process, with many indicating that they had changed their practice as a result.**
- **Few barriers to participating in significant event analysis were identified. Most of the practitioners interviewed in this study had access to a template and/or guidance to support them.**

4.8 Patient Feedback

4.8.1 Patient Feedback, (and) Reviews of Complaints and Compliments: Rapid Evidence Review

While developing the search strategy significant overlap and duplication was found between the results for patient feedback and reviews of complaints and compliments. It was decided to undertake a single rapid review for these evidence types. The initial search revealed 480 publications, from which 37 were considered to be relevant following a review of titles and abstracts (Table 3.4).

There are few studies within the literature regarding the use of patient feedback in dentistry, although many studies had explored it in the context of the medical profession and medical revalidation.

Uses of Patient Feedback and Reviews of Complaints and Compliments

The majority of studies related to patient feedback, with only a small number relating to reviews of complaints and compliments.

Patient Complaints

A study carried out fifteen years ago reviewed how the GMC handled complaints, and noted a lack of transparency and consistency in decision making and a lack of clarity around what constitutes serious professional misconduct. The authors suggested that complaints handling should be subject to continual audit (Allen, 2000). There is evidence that different types of doctors are more or less likely to receive complaints, for example, male doctors receive more complaints than female, older doctors are more likely to be complained about than younger doctors, and international medical graduates receive more complaints than those who qualified in the UK. Most of the complaints received by the GMC do not reach the threshold to merit further investigation and as such might be better dealt with locally (GMC, 2011, 2012, 2013, 2014).

Patient Feedback

The majority of publications reported patient feedback in the form of a questionnaire, by which patients score and/or comment upon on aspects of practitioner performance and their satisfaction with the consultation. Patient feedback is used across a wide range of clinical contexts and for different purposes in primary care (Campbell *et al*, 2010; Baker *et al*, 2011; Charlton *et al*, 2011; Roland *et al*, 2013), and in secondary care settings (Challenor, 2003; Callahan *et al*, 2002; Campbell *et al*, 2011; Lipner *et al*, 2002; Mackillop *et al*, 2006). Patient feedback is also discussed as an evidence source in the context of UK medical revalidation (Mason, 2004; Davies *et al*, 2005; Shepherd and Cameron, 2010; Baker *et al*, 2011; Coomber *et al*, 2012; Roland *et al*, 2013), as a potential evidence source for dental revalidation (Maidment *et al*, 2006; Grieveson, 2009, Picker Institute Europe, 2012) and in the contribution of evidence within systems of accreditation or quality assurance for medical practices (Auras and Geraedts, 2010; Shah and Turner, 1986) or dental schools (Guba, 1990). Patient feedback tools are also described in the context of identifying poorly performing practitioners (Archer and McAvoy, 2011; Cox and Holden, 2009) or within a formative context (Lipner *et al*, 2002).

In the context of assessment for medical revalidation, patient feedback was described as focusing on interpersonal skills, communication skills and professionalism (Mackillop *et al*, 2006) and has been described as 'one-dimensional' i.e. focusing on non-clinical skills (Campbell *et al*, 2010).

Reliability

A number of studies have reported the reliability[18] of patient feedback tools used within different clinical contexts (Baker *et al*, 2011; Campbell *et al*, 2008 & 2010; Roland *et al*, 2013). Generally speaking, at least 20 questionnaires are required in order to achieve good reliability. Within the primary care setting data from the 'Consultation Satisfaction Questionnaire' demonstrated high reliability (G=0.8) with 19 returns (Baker *et al*, 2011), the CFEP360 tool needed 25 returns for high reliability (G>0.8) (Campbell *et al*, 2010), and the 'General Practice Assessment Tool' achieved a reliability G>0.7 with 29 returns (based on composite scores), or 35 returns if the questions were considered individually (Roland *et al*, 2013). One study investigated the reliability of a GMC designed patient and colleague questionnaire across a range of clinical settings, finding that 22 returns would be required to achieve 'acceptable' reliability for revalidation (Campbell *et al*, 2008).

Validity

Although evidence supporting the validity of patient feedback has been described (Campbell *et al*, 2010), the majority of publications reviewed describe risks to the validity of patient feedback questionnaires, including potential sources of bias (Archer and McAvoy, 2011; Campbell *et al*, 2008 & 2011).

A number of reports identified that patient feedback ratings were positively skewed (Archer and McAvoy, 2011; Campbell *et al*, 2008; Challenor, 2003; Lipner *et al*, 2002). In a study which explored the use of both Multi-Source Feedback and patient feedback to assess doctors referred to NCAS for potential poor performance, only 1 in 67 doctors in the cohort received patient feedback scores below average (in comparison to a control group of doctors) (Archer and McAvoy, 2011). This evidence type may therefore be less useful in the identification of poor performance.

A number of authors have indicated that in light of the positively skewed scores from patients and associated impact on the ability of this evidence to identify poor performance, a different approach to identifying 'outliers' is needed, particularly if patient feedback is to contribute towards a summative decision such as revalidation. In a study investigating the use of Patient Feedback for GPs, Baker *et al* (2011) demonstrated that while it was rare for patients to express concerns, doctors with scores 2 or 3 standard deviations below the mean often had negative free text comments on their feedback questionnaires. The authors concluded that in order to achieve the formative potential of patient feedback, score thresholds, i.e. the cut-off point for ratings representing the point at which a doctor may need support need to be identified (Baker *et al*, 2011). Some reports suggested that benchmarking of doctors scores against their peers is a more appropriate way to consider this feedback (Callahan *et al*, 2002), although even using this approach a ceiling effect may be encountered[19] (Lipner *et al*, 2002).

Differences in the scores awarded by patients, according to characteristics of the doctor being assessed or the patient providing the feedback, were also noted. In a study investigating the utility of the GMC patient and colleague questionnaires for medical revalidation, lower patient ratings were

[18] Reliability in these studies was often expressed as a Generalisability coefficient, where G>0.7 is generally accepted as being required for a high stakes decision such as revalidation

[19] Discrimination between different levels of performance becomes difficult as a result of the large amount of high ratings on the scale

likely to be awarded to older doctors rather than younger doctors, to doctors from a mental health trust, or doctors from non-NHS settings (Campbell *et al*, 2008). Other studies have noted lower scores awarded to doctors who had qualified outside Europe (Archer and McAvoy, 2011; Campbell *et al*, 2011) and doctors in Psychiatry (Campbell *et al*, 2011). It was suggested that these potential sources of bias requires consideration when patient feedback is used for revalidation, perhaps through the adjustment of scores according to case mix (Campbell *et al*, 2011). Potential sources of bias detected which are associated with characteristics of the assessor (i.e. the patient), may include race (with lower scores awarded to doctors where fewer white patients were providing feedback) and familiarity with the doctors (i.e. lower ratings awarded when patients were not seeing their usual doctors) (Campbell *et al*, 2011).

Design and Development of Patient Feedback Tools

When patient feedback tools are developed, the items within the questionnaire should correspond to the purpose for which it is being used. In UK medical revalidation, the items within patient questionnaires are derived from the GMC's Standards 'Good Medical Practice' (Roland *et al*, 2013). Additional considerations in the development of a patient feedback tool should be accessibility, to make sure that as many patients as possible are able to provide feedback the questions should be clear, and easily understood, by patients of different ages and different social and cultural backgrounds. Testing for patient understanding can be done during the development process of patient feedback tools (Roland *et al*, 2013). It may also be useful to involve patients and carers in the design of patient feedback tools, in order to enhance validity (MacKillop *et al*, 2006).

Feasibility

Although the feasibility of implementing patient feedback appears to be high within many studies, some reservations regarding the ability to obtain patient feedback have been expressed in some settings. A study involving 51 GPs from both rural and urban environments noted that 28% of participants had concerns about their ability to collate patient feedback (Charlton *et al*, 2011). A further study explored the ability of GPs working within secure environments (including prisons, secure mental hospitals and immigration detainee centres) to obtain patient feedback. These environments presented a number of challenges to the process, including the need for specific permissions to request patient feedback (in prisons), concerns regarding the literacy of patients (prisons) or emotional stability (mental hospital settings) and the impact this could have on either response rates or results (Coomber *et al*, 2012).

Acceptability

A small number of studies have investigated the acceptability of patient feedback in the context of revalidation. In a study specifically aimed at investigating the views of prospective Responsible Officers, prior to the implementation of medical revalidation in the UK, there were concerns regarding the use of patient feedback to inform such a high stakes decision (Shepherd and Cameron, 2010). Similarly, in a small study (n=10) to investigate the acceptability of a pilot scheme of revalidation for General Dental Practitioners using a portfolio of evidence (including patient feedback, and complaints and compliments), some participants expressed difficulty obtaining patient feedback and would have liked the results to show how they compared to their peers (Maidment *et al*, 2006).

Key Messages from the Literature

- The literature regarding the review of complaints and compliments was sparse, with no studies reporting reviews of complaints andcompliments by individual practitioners at the local level.

- Patient feedback, in the form of assessment or satisfaction questionnaires, is used across a wide range of medical contexts, including for medical revalidation. Only a few studies reported the use of patient feedback to assess dental practitioners in this context.

- Patient feedback tools are often focused on non-clinical aspects of performance, such as professionalism, communication skills and interpersonal skills.

- Reports of a range of tools have demonstrated that between 20 and 30 completed patient feedback questionnaires are generally required to achieve high reliability.

- A number of risks to validity exist. Patient feedback ratings are often highly positively skewed, and there is evidence to suggest that as a consequence some patient feedback tools are unable to identify poorly performing practitioners. As such, patient feedback requires careful implementation.

- The presentation of patient feedback scores using global ratings for peers as a benchmark may be more useful in the identification of poorly performing practitioners, or those needing support.

- A number of potential sources of bias have been identified around assessee and assessor characteristics, including age, country of qualification and certain clinical roles.

- Patient feedback tools require careful design and implementation. The collection of patient feedback may be more challenging in some environments.

4.8.2 Patient Feedback Data within Portfolios

Eighty percent of portfolios analysed contained patient feedback. Although noticeably, patient feedback was only submitted in dentist portfolios, and not those from DCPs.

Standardised feedback tools were used by all fieldwork sites, although less consistently within the Defence Dental Services setting, where a combination of both standard questionnaires and non-standardised formats were included. For non-standardised formats, the evidence bore more resemblance to reviews of complaints and compliments evidence.

4.8.3 Patient Feedback and the GDC's Standards

Patient feedback questionnaires were generally focused upon non-clinical aspects of performance, such as professionalism, communication skills and interpersonal skills. The extent to which they can relate to the GDC's Standards depends on the questions, and some variation was seen between tools and fieldwork sites. For example, Denplan Ltd and Rodericks Ltd use standardised questionnaires which have been designed to give practitioners a broader perspective on patient

satisfaction, so the feedback is not specific to a practitioner and includes areas relating to the practice environment and patient experience. As such, their usefulness in the context of Continuing Assurance may be lower, despite providing comprehensive feedback to dental practices. It was also evident from some data that certain GDC Standards had been considered during the design of feedback questionnaires. The patient feedback evidence within portfolios related to the following GDC Standards:

Principle 1: Put patients' interests first
Principle 2: Communicate effectively with patients
Principle 3: Obtain valid consent" almost completely

It also related specifically to Standard 5.1: Make sure that there is an effective complaints procedure…, Principle 7; Maintain, develop and work, within your professional knowledge and skills, and Standard 9.1: Ensure that your conduct, both at work and in your personal life, justifies patients' trust in you and the dental profession.

4.8.4 Strengths and Weaknesses of Patient Feedback for Continuing Assurance

Patient feedback has good potential to contribute to the formative aims of continuing assurance particularly if implemented under certain conditions. Most of the patient feedback evidence analysed included quantitative and qualitative feedback, although in many cases the qualitative feedback lacked structure being limited to free text comments.

It is a feature of patient feedback in healthcare settings that ratings are generally positively skewed and consequently even poor performers can achieve good aggregated scores (i.e. across ratings for all questions in the questionnaire). In order to achieve the formative potential of patient feedback, it may be better if results are presented in comparison to peers from equivalent types of practice/setting (benchmarking) so that a comparison can be made regarding individual strengths and weaknesses. This type of approach may also be helpful with regard to the summative aims of Continuing Assurance, with poorly performing practitioners or those requiring additional support being identified using an approach based on norm-referencing (i.e. benchmarked against peers).

Within the data sample there was virtually no evidence of practitioners linking patient feedback to other evidence types within a portfolio. Only one out of 79 portfolios demonstrated a link, where an issue identified via patient feedback had led to a clinical audit.

One of the greatest strengths of patient feedback as an evidence type for Continuing Assurance is that a tool can be designed specifically for this purpose, addressing all the relevant GDC Standards. The weaknesses are associated with threats to validity (the risk of bias), therefore care must be taken to avoid bias, either through the process of implementation or analysis of the results.

4.8.5 Usefulness and Usability of Patient Feedback

The usefulness of patient feedback to practitioners may depend on the design and implementation of the patient feedback tool and how the results are presented (benchmarking is discussed above in section 4.8.4).
Most practitioners interviewed for this study thought patient feedback was useful to them and, in many cases, it led to a change in practice. However, quite often this was at the practice rather than individual level. Comments included:

"It was really useful, it let me see how I could improve my service"

"Very useful, it often feeds into my professional practice but not individually, more as a whole practice – the comments are very general"

"Yes it has led to change: a comment was made about [my] lack of confidence and how it made [the patient] nervous. It was mentioned several times so I asked my boss how to get help and was enrolled onto a course to help improve in this area"

The majority of practitioners said that they preferred feedback in the form of narrative rather than ratings.

A number of the practitioners interviewed said that patient feedback was collected for them by a third party within the practice – either at the team or corporate level. Many didn't feel the collection of patient feedback was their remit, but were interested in the results:

"It's not in my remit to collect this evidence, but I am interested in what the results say. It would be too time consuming to be responsible for this also"

None of the practitioners interviewed identified any major barriers to collecting patient feedback and almost all found use of a standard template helpful.

4.8.6 Implications of Format and Workplace Setting

Although patient feedback evidence was collected and submitted from those working across all practice types and settings, no DPCs had collated this evidence. Although the workplace setting may have little impact where the dental professional has patient contact, the collection of this evidence without direct patient contact would be challenging.

The workplace setting may also be associated with potential sources of bias. In medicine, the analysis of patient feedback for doctors identified sources of bias corresponding to the characteristics of the doctor, including practice within certain clinical specialty roles, and patient characteristics. Further studies are required to investigate whether this is the case in dentistry.

The format and content of the patient feedback tool will have strong implications for the effectiveness in the context of Continuing Assurance. Standardised tools, incorporating items corresponding directly to relevant GDC Standards are likely to be most useful, both formatively and summatively. Where patient feedback was submitted for analysis in this study, and standardised tools were not used, the evidence could better be described as 'complaints and compliments'.

4.8.7 Patient Feedback: Conclusions and Key Findings

- **Around 80% of portfolios analysed contained patient feedback evidence, suggesting that this is already being used widely across the profession. Evidence was submitted from all practice types except from DCPs.**
- **There are few studies evaluating patient feedback evidence for its effectiveness or as an assessment tool for continuing assurance purposes.**
- **Patient feedback tools often focus on areas of professionalism, communication skills and interpersonal skills.**
- **Most evidence analysed was based on the use of standardised tools by practitioners. In the context of Continuing Assurance, the formative potential of this evidence would be enhanced using a feedback questionnaire related to the GDC's Standards at the individual practitioner level.**
- **Patient feedback using ratings may be positively skewed. The benchmarking of results may be more useful.**
- **There is evidence to support the reliability of patient feedback tools when 20+ responses are collected. However, careful consideration of known risks to validity are needed if patient feedback is to be used in a summative capacity.**
- **Most of the practitioners interviewed in this study thought that patient feedback was useful, and in many cases had led to a change in practice.**
- **A number of practitioners thought that the collection of this evidence was not in their remit, although they were interested in the results.**
- **Patient feedback evidence may be difficult to collect in some non-patient facing environments.**

4.9 Review of Complaints and Compliments

4.9.1 Complaints and Compliments: Rapid Evidence Review

As the search strategy revealed a high degree of overlap between the results for Patient Feedback and Reviews of Complaints and Compliments, the rapid evidence review for these evidence types were combined and have been presented in section 4.8.1. Very few documents were retrieved for complaints and compliments.

4.9.2 Complaints and Compliments Data within the Portfolios

Although 50% (57 of 114) of the portfolios provided were described as including reviews of complaints and compliments, analysis showed only 19% (22) included this evidence – from the Defence Dental Services and all other general practices settings. The main reason for this was that while practice inspection reports carried out by one fieldwork site included feedback on "*Are patients made aware of practice complaints procedure?*", and "*How well documented is the complaints handling procedure*", the evidence was not a review of complaints and compliments itself therefore could not be included in the analysis.

The majority of evidence corresponded to complaints, although some compliments were submitted.

In general there were only 1 or 2 pieces of evidence included within each portfolio. Although one portfolio included a review of two complaints and seven compliments within a 3 month period.

4.9.3 Complaints and Compliments data and the GDC Standards

Reviews of complaints and compliments could, in theory, cover any area within the GDC Standards. Analysis of the evidence provided covered all GDC Standards at the level of Principle to a degree, but often the links were weak, perhaps as a result of the wide variation and there not being any areas where a high volume of complaints or compliments were concentrated. The exception to this was GDC Standard 5.1: Make sure that there is an effective complaints procedure… to which this evidence corresponded strongly, by its very nature.

4.9.4 Strengths and Weaknesses for Continuing Assurance

Analysis of the evidence indicated that quality was variable, ranging from a handwritten compliment on a 'post-it' note, to detailed entries on a highly structured complaints log which included a detailed review incorporating a reflection, any actions taken and dates resolved etc. However, while these structured templates provided a detailed record of complaints and compliments, they were usually at the practice level and therefore may be of less use within the context of Continuing Assurance.

Formative

With regard to the formative aims of Continuing Assurance, it is likely to be the review element of the complaints and compliments evidence which provides the richest information. Most of the evidence submitted was in log format, with relatively few reflections or fuller detail. However, it was apparent from both the data analysis and from practitioner interviews, that complaints and compliments are often discussed with the practice team during meetings. This may suggest that a form of review does take place, but the reflection, discussion or analysis may not be documented. All

of the evidence submitted was associated with some qualitative feedback, but this was stronger and more useful where the evidence included a detailed reflection and action plan, in addition to a log.

None of the datasets for reviews of complaints and compliments could be linked to other evidence types within an individual's portfolio.

There were only a few cases where the evidence included a review of multiple complaints across a time period. However, this was practice-based rather than practitioner-specific so may be of less use in the context of Continuing Assurance.

Summative

There is currently a lack of evidence regarding the use of reviews of complaints and compliments in the context of the summative aims of Continuing Assurance. Further studies are needed to evaluate its use in the context of a high stakes decision such as Continuing Assurance. Potential risks to validity include exclusion of complaints, particularly those of a more serious nature or relating to professionalism. Even if all complaints had to be included within the evidence (via a declaration or otherwise), questions arise regarding how these would be assessed in a standardised manner – the number of complaints, the type of complaints (including seriousness) or the manner in which they were dealt with?

4.9.5 Usefulness and Usability of Complaints and Compliments

The majority of practitioners interviewed who had collected this evidence type felt that this type of evidence was useful, and three quarters of individuals interviewed (6 of 8) said that it had led to a change in practice. However, most changes were procedural rather than involving personal approaches to clinical practice:

"It might be useful, especially if there was a complaint that had been dealt with in a certain way, and then I was able to learn from that and put it into my practice"

"It has led to some changes in my practice that I value and probably would not have done or really paid attention to from the patients' perspective, had they not said"

With regard to the usability of complaints and compliments evidence, it was often collected by other members of the clinical team such as the practice manager, to save time:

"I certainly need to be aware of the outcome, but not be hands on with it, no benefit there"

None of the practitioners interviewed reported any major barriers to reviewing complaints and compliments and, as they perceived that complaints were not generally commonplace, they did not consider it to be a difficult or time consuming process.

4.9.6 Implications of Format and Workplace Setting

Most practitioners interviewed considered the use of standardised templates to be helpful. The format of the evidence may be associated with how useful it is for Continuing Assurance, and where analysis of the events, reflections and action plans are included the more helpful and useful reviews of complaints and compliments are likely to be.

.

4.9.7 Reviews of Complaints and Compliments: Conclusions and Key Findings

- **Only 19% of portfolios included complaints and compliments evidence.**
- **The majority of reviews of complaints and compliments related to complaints.**
- **Most of the evidence was collated in a 'log' or record summary using a standardised template provided by the fieldwork site.**
- **In general, all evidence addressed GDC Standards Principle 5 "Have a clear and effective complaints procedure" well, and other GDC Standards covered were associated with the context of the complaint or compliment.**
- **The quality of evidence was variable.**
- **The potential for reviews of complaints and compliments to make a valuable contribution to the formative aims of Continuing Assurance is enhanced when the 'review' element – whether through discussion with colleagues or carried out individually – is recorded and forms part of the evidence.**
- **There is currently a lack of evidence supporting the use of reviews of complaints and compliments for the summative aims Continuing Assurance.**
- **Some practitioners delegate the collection of complaints and compliments evidence to others, but most of the practitioners interviewed in this study found the data useful, with several reporting having made changes to their practice as a result.**
- **The review of complaints and compliments was not considered to be a difficult or time consuming process by those who had used the approach, and no major barriers to collecting this evidence were identified by those interviewed.**
- **There may be challenges to practitioners within certain roles or working environments to collecting such evidence, e.g. locums, clinical academics.**

4.10 Case-Based Discussion (CbD)

4.10.1 Case-based Discussion: Rapid Evidence Review

Following an initial search, 26 items were considered for inclusion from a total of 36 retrieved, 14 of which were retained after reviewing the abstracts (Table 3.4). A further two were discarded after reviewing the full text. Half of the final twelve included papers came from the Grey Literature. The papers were all from the UK, though previous work done in North America and Europe was cited. The literature relating to CbD was very limited in comparison to that for the other evidence types.

Definition of Case Based Discussion

Case-Based Discussion intends to "assess clinical decision making and the application or use of medical knowledge" (Academy of Medical Royal Colleges, 2009). During CbD, a practitioner (assessor) will review the case notes of a colleague and use them to inform a discussion with them of the reasoning and decision-making taken during a particular case. Following the discussion, the assessor may rate the performance of the individual against predetermined global criteria. It is primarily, but not exclusively, used in a formative context. CbD has been adapted and developed from previous work in North America on Chart Stimulated Recall (CSR) dating back to the 1980s, though CbD does vary in content.

Reliability

There is limited published evidence about the reliability of CbD.

In 2011 the various scales used in work-place based assessment including CbD were examined, and it was reported that construct aligned scales (i.e. those with detailed descriptors for different ratings within the scale, corresponding to the area being measured) have greater reliability and validity. The authors reported that twelve CbD assessors were "required to achieve a reliability coefficient R=0.70"[20]; however, using reliability modelling to design construct-aligned scales would fall to three CbD raters (Johnson *et al* 2011; Crossley *et al;* 2011).

Brown *et al* (2011) in a discussion paper mention the reliability of CbD in the wider assessment context, citing Van der Vleuten's papers of 1996 and 2005 where clinical competence is judged as a global construct of which CbD can be a (weighted) part.

Most recently, an evaluation by Brittlebank *et al* (2013) reports that "Case-based Discussion produces a highly reliable assessment after a total of 100 minutes of assessment that have been gathered over four episodes, each with different assessors". They tested CbD amongst other tools focusing on cases and found that twelve incidents of testing are required "to produce a level of acceptable reliability". They go on to report that CbD has a high level of correlation with peer-assessment and assessments that involve presentation of one's work. As with Brown, the authors report CbD should form a combined programme of assessment to provide a holistic representation of the individual.

[20] Reliability is expressed as a coefficient, and it is generally accepted that reliability greater than 0.7 is required for situations involving a high stakes decision such as revalidation

Validity

The Academy of Medical Royal Colleges (2009: report) cites two previous studies on the validity of a tool similar to CbD (Chart Simulated Recall), reporting it can be used to distinguish between "varying levels of experience", that it correlates with scores involving standardised patients and that there is "weak correlation with previous certification scores". However, the Academy does qualify the CSR evidence, noting that it may be specific to cases and require multiple assessors. CbD is recommended to be used in a more substantive way than questioning on "a normal ward round".

Brown *et al* (2011) argue that validity, like reliability, can be assured if CbD is integrated and linked with other components of a programme of assessment. Their comments are discursive rather than evidence based.

Formative Aims of Continuing Assurance

Setna *et al* (2010) set out to also examine the acceptability, educational impact and cost implications for CbD (as well as other workplace-based assessments) but found no evidence of these properties for CbD. For all three assessments the authors conclude that it is essential to have high quality feedback for individuals following the CbD assessment to maximise potential. Similarly, training should be held to improve the uptake and acceptability of each assessment.

In a small (n=106) online consultation reported in *The Psychiatric Bulletin*, Mynors-Wallis *et al* (2011) found that CbD was rated the most useful of eight proposed techniques for revalidation of psychiatrists. The College then ran a pilot (n=86) examining the utility of CbD in eight domains of psychiatric practice. A very strong positive reaction of participants to the inclusion of CbD in medical revalidation was found: 87% thought CbD "could be a useful component for revalidation". The paper notes the participants might be more inclined to view CbD positively because they were volunteers, that it was being used developmentally and that unsatisfactory performance tended not to be reported. The paper also suggested that training is of key importance, as is case selection. The issue of training and the difficulties in giving, particularly negative, feedback were also discussed (in the same publication) by Anzia (2011), without adding new evidence. The separate paper by Brown *et al* (2011) echoes these themes within a further discussion in the psychiatric literature.

Summative Aims of Continuing Assurance

Eardley *et al* (2013) included CbD within an examination of workplace based assessments for surgical training. The paper notes that CbD scores were highly positively skewed, with only 0.55% of scores recorded being under four on a six point scale. There was a feeling that trainees would not use the tool until they "felt they would pass", which suggests they felt the tool was used summatively. Summary CbD scores did not correlate with stages of training, but those from a separate measure (global PBA) did correlate. Trainers and trainees involved with all workplace based assessments examined expressed reservations about reliability and validity, the amount of time it took to complete the assessments, and reported they felt it was a "tick-box" exercise.

Mitchell *et al* (2011) examined a large cohort of Medical Foundation Trainees (n=1,646) to see if workplace based assessments could predict difficulties in training. There was a notable association between trainees identified as being in difficulty and their mean scores on CbD. However, these findings were not strong enough to be able to predict those in difficulty. Similar to Brittlebank *et al* (2013), the authors view the utility of individual types of workplace based assessments as parts of a larger picture, not as an individual predictor of performance.

Key Messages from the Literature

- This search retrieved a limited number of publications for Case Based Discussion, and all corresponded to the format used within workplace based assessment.

- Although evidence for the reliability of CbD for assessing practitioners' performance is limited, some studies indicated good reliability can be achieved when around four cases are considered by four separate examiners.

- Evidence for validity is limited, although the use of a rating scale within the CbD tool which uses detailed descriptors for different ratings corresponding to the area being measured, appears to increase validity and reliability.

- Few studies have investigated the educational impact of CbD. There is some weak evidence to suggest that CbD may be useful within a wider system of workplace based assessment to identify poor performance.

4.10.2 Case-based Discussion Data within Portfolios

Although at the point of submission 79% (90 of 114) of portfolios were reported as containing Case based Discussion evidence, upon analysis it was found that the evidence from one fieldwork site was a review of case records, so more closely resembled clinical audit. As a result 39% (n=45) of the sample actually included Case based Discussion. The quality and quantity of evidence varied between practitioners and fieldwork sites, such as ranging from 1 CbD in a 6 month training post, to 26 CbDs in a year.

The data highlighted while the majority of CbD evidence represented a formal exercise - whereby a case is presented, discussed with a senior colleague and assessed against a range of predetermined criteria - some data was less structured and informal, such as notes of discussions with colleagues at practice meetings. Almost without exception, the formal CbD evidence originated from practitioners in training posts. The informal CbD evidence was usually of poor quality with a lack of detail, such as an email discussion of a case.

4.10.3 Case-based Discussion and the GDC's Standards

Formal Case based Discussion was found to be one of the best evidence types to relate to the GDC's Standards. Although the data set related to all the Principles within the GDC Standards, the relationship to some was weaker than others. A reason for this may be that whilst for some types of evidence the standards covered do so as a consequence of the design of the tool (e.g. questions within a patient feedback or MSF tool), and for other evidence types the standards covered tend to be related to the type of event (e.g. patient complaint, or significant event), when using a standardised Case based Discussion (CbD) tool, the topics covered arise from *both* the design and the case being discussed.

Evidence corresponding to two versions of a formal CbD tool designed for use within Dental practice[21] were submitted by practitioners (from NES, DDS and HEKSS). These tools include criteria

[21] the COPDEND CbD tool developed for DFT.

for the assessment of the case in terms of '*record keeping', 'clinical assessment', 'treatment planning', 'investigations and referrals', 'professionalism', 'clinical judgement'* and *'presentation skills'*. These criteria map closely to the Standards within:

Principle 1: Put patients' interests first
Principle 2: Communicate effectively with patients
Principle 4: Maintain and protect patients' information
Principle 6: Work with colleagues in a way that is in patients' best interests
Principle 7: Maintain, develop and work within your professional skills and knowledge
Principle 9: Make sure your personal behaviour maintains patients' confidence in you and the dental profession

Furthermore, the cases selected for presentation are usually chosen as they are 'interesting' or 'complex' cases, and may cover additional GDC Standards.

4.10.4 Strengths and Weaknesses of CbD for Continuing Assurance

Evidence from both the fieldwork and rapid review of literature indicated that most Case based Discussion data corresponds to the formal approach to CbD, although a few portfolios and several of the practitioners interviewed made reference to the informal practice of CbD. Whilst these interviews indicated that informal discussions about cases at practice meetings may be helpful, it is difficult to envisage how this approach could effectively contribute to Continuing Assurance unless it is recorded in some way. In contrast, formal Case based Discussion using a standardised template provides both quantitative and qualitative feedback. Furthermore, the qualitative feedback provided by the assessors was usually excellent, with detailed comments on performance, making this approach more than a 'tick-box' exercise.

Clear links between formal CbD evidence and other evidence types could be identified in 22% (25 of 114) of portfolios. CbD feedback was linked to PDP and CPD evidence or Clinical Audit, suggesting engagement in the learning process and developmental potential.

Although studies on the use of CbD for summative purposes are limited, there is some evidence for good reliability and validity when used under certain conditions, such as the use of certain types of ratings scale within the tool and sampling across several cases and assessors. Within medical education CbD is used primarily in the formative context.

There is potential for the formal approach to case based discussion to make a valuable contribution to both the formative and summative aims of Continuing Assurance. However, the weaknesses of Case based Discussion evidence may rest with usability within different workplace settings (section 4.10.5 below).

4.10.5 Usefulness and Usability of CbD

All practitioners interviewed during this study who had engaged with formal CbD had found it extremely useful (n=8), and all reported making changes to practice as a direct result:

"It lets me see the case from another point of view…
things are polished off after getting others' opinions"

Several of the practitioners interviewed who had not collected 'formal' CbD evidence (n=16), stated that they did have informal discussions about cases with peers on a regular basis, but these were

conversations that were not recorded in any way. The majority of these practitioners (n=13) said that they didn't like the thought of gathering this evidence formally:

"I don't see this [formal CbD evidence collection] as necessary. I can't see how recording this data formally will add anything more to my learning. It's the meetings that happen that are opportunities to learn. I don't need to write down what we discuss"

No major barriers were identified by those who had collected formal CbD evidence:

"it is a simple procedure that I am used to doing and I find it is one of the most helpful learning methods in my training programme up to date"

However, it is noteworthy that all formal CbD evidence was related to practice in training posts, with access to high levels of support from tutors or supervisors. These support processes may be key to the usability of CbD. Outside the training context, it is conceivable that a formal approach to CbD could be implemented (as opposed to informal case discussions with colleagues), involving peers, but this may have an impact on usability in terms of time and resources.

4.10.6 Implications of Format and Workplace Setting

There may be strong implications for the usefulness of this evidence type for Continuing Assurance, relating to the format and workplace setting. Case based Discussion appears to have good potential for the formative aims of Continuing Assurance, when implemented formally through a structured review of a case presentation. However, while informal discussions with colleagues in practice may be considered useful by practitioners, without recording this evidence this may be of little use within a system of Continuing Assurance.

Although the CbD evidence in this study was submitted from different workplace settings, the practitioners were in training posts with access to high levels of support.

4.10.7 Case based Discussion: Conclusions and Key Findings

- **Case based Discussion (CbD) evidence represented both formal CbD (involving peer review of a case presentation and assessment of performance across key criteria), and informal discussions with colleagues in practice meetings.**
- **Formal CbD was more apparent within portfolios from those working in training posts.**
- **Formal CbD evidence using a standardised tool, covered all Principles within the GDC Standards.**
- **The formal CbD evidence analysed usually provided excellent feedback to practitioners (both quantitative and qualitative), and may be useful for the formative aims of Continuing Assurance.**
- **Although there is some evidence to suggest formal CbD can be valid and reliable in terms of assessing practitioners' performance (summative aims of Continuing Assurance), within Medical Education CbD is primarily used for formative assessment.**
- **All practitioners interviewed, who had completed formal CbD, considered it to be extremely useful, with a high educational impact and leading to positive changes in practice.**
- **Practitioners interviewed who had not completed formal CbD felt that informal discussions with colleagues were useful and were reluctant to formalise the process.**
- **It is noteworthy that all formal CbD evidence reviewed for this study originated from practitioners in training posts, with the benefit of high levels of support.**

5. Conclusions

In addressing all the research questions, both the formative and summative aims of Continuing Assurance have been considered.

The primary data analysed originates from a purposive sample of practitioners which may not fully represent all dental professionals in the UK. While every effort was made to analyse evidence collected across different types of practice, role and workplace setting, it should be recognised that a key feature across all fieldwork sites was the provision of a supportive environment, which may have facilitated the collection of evidence.

5.1 Research Question 1: What can the supporting evidence types individually and collectively contribute to a scheme of continuing assurance, in the context of evaluating practice in accordance with the GDC's Standards?

The overall strength of the evidence types exists in their combined use, rather than as individual stand-alone sources of information. The evaluation of practice in accordance with the GDC's Standards will be derived from the consideration of different types of evidence together.

Individual Use of Evidence Types

Continuing Professional Development

CPD evidence may address any of the GDC's Standards, although it is clear that CPD activities corresponding to the GDC's currently recommended topics are being undertaken regularly by dental professionals in the study. This ability to drive practitioners' choice of CPD could be used in the context of Continuing Assurance, to ensure any priority areas are targeted. Although CPD records which list activities undertaken within a time period can do little to indicate whether an individual is fit to practise (attendance doesn't necessarily indicate learning), CPD evidence may be useful in demonstrating that a practitioner is engaged with professional development. Although attendance at a CPD activity is not a guarantee of and learning or development, when provided in a certain format, our analysis shows that rich qualitative feedback is possible that would be a useful indicator that a practitioner was engaged in professional development (formative aims of Continuing Assurance). A range of formats of CPD evidence was analysed in this study, and portfolios including a more detailed account of CPD activities, such as a personal reflection on the activity in terms of educational impact, relevance, perceived usefulness and action plan for changing practice where appropriate, were more useful. Another indication that a practitioner was engaged with professional development rather than 'ticking the box' was when CPD evidence included reasons why the activity was chosen, and/or how the learning need was identified. This can be demonstrated when there are clear 'links' between evidence types in a portfolio, e.g. with CPD activities being undertaken as a result of an issue arising from Clinical Audit, or perhaps corresponding to PDP entries either following appraisal or personal interest or goals.

Personal Development Planning

Personal Development Plans have the potential to provide good evidence in terms of the formative aims of Continuing Assurance. However, this is dependent on the quality of the evidence provided. A structured PDP containing development objectives, an action plan, details of how the learning need was identified, and reference to links to GDC Standards could demonstrate how a practitioner was engaged with professional development, and keeping knowledge and skills up to date. Identifiable

links between PDP entries and other evidence types could also support the formative aims of Continuing Assurance. PDP entries should drive CPD, and other evidence types may also identify learning needs which can then be included within the PDP. Furthermore, regular use of a PDP may indicate active engagement with professional development. Individually, the potential contribution of a PDP in terms of evaluating whether an individual is fit to practise (summative aims of Continuing Assurance) may be limited.

Clinical Audit

A good quality audit compares practice against pre-determined standards, or benchmarks performance against peers. The results from this evidence type could usefully contribute to the summative aims of Continuing Assurance, in areas of the GDC Standards where benchmarks are available. However, data would need to be practitioner specific, and criteria for 'acceptable' performance would need to be agreed. Clinical Audit has strong potential in terms of the formative aims of Continuing Assurance, although this would focus on the process of clinical audit in addition to the results - evidence, including practitioner-specific data, which includes a reflection on results, an action plan, and further cycles of audit to monitor performance and demonstrate improvement, may provide strong feedback that individuals are keeping knowledge and skills up to date through engagement with professional development.

Multi-Source Feedback

MSF is not yet commonplace in dentistry. However, this approach has been studied extensively in the context of UK Medical Revalidation, providing evidence from which we can cautiously draw some conclusions. Although studies investigating MSF in the dental context are required, it is perceived that MSF could make a valuable contribution to a system of Continuing Assurance. MSF has been particularly useful in other settings as it addressed a key aspect of performance (professionalism) that is notoriously difficult to assess, and has been demonstrated as being effective in the identification of poor performance with doctors. However, this requires careful implementation, particularly if used for summative purposes, as there may be a number of risks to validity. MSF has good potential with regard to the formative aims of Continuing Assurance, whereby standardised MSF tools could be designed to relate to the GDC's Standards, enhancing validity, and include both quantitative and qualitative feedback.

Significant Events Reviews

The quality of the SEA evidence was highly variable. Most of the evidence submitted were reports of a single event rather than a 'review' of multiple events over time, and consequently provided feedback upon a limited number of the GDC Standards. Similarly, events cannot be standardised (or predicted to happen), and therefore it is difficult to see how a summative decision around Continuing Assurance could be made using this evidence in isolation. Conversely, when a robust approach is taken - including the systematic review of the significant event, an analysis of the cause, a reflection and development of an action plan - this type of evidence can provide good qualitative feedback and may be useful for the formative aims of Continuing Assurance, demonstrating a commitment to professional development, and providing high standards of care. Linking the review of a significant event to other evidence such as PDP entries or CPD activities could also suggest that a practitioner is keeping knowledge and skills up to date. Although a significant event 'log' may indicate patterns of events, they are unlikely to be helpful for formative aims of Continuing Assurance, demonstrating only that an individual can 'tick the box'.

Patient Feedback

The usefulness of Patient Feedback for Continuing Assurance will depend greatly upon the design and implementation of the feedback tool (questionnaire). Usefulness will be enhanced if the feedback questionnaire gathers practitioner-specific data (rather than being practice-based), including questions which correspond to areas of professionalism, communication and interpersonal skills described within the GDC's Standards. Although such tools frequently demonstrate good reliability (generally with 20+ patient responses), there may be a risk of positively skewed ratings so may not be as helpful for the summative aims of Continuing Assurance, unless other mechanisms of agreeing a benchmark for acceptable performance are explored. Benchmarking performance against peers may also enhance the usefulness of Patient Feedback for practitioners, enabling them to understand better their strengths and weaknesses, and plan professional development accordingly.

Reviews of Complaints and Compliments

Complaints and compliments evidence is most likely to be useful in demonstrating that a practitioner fulfils GDC Principle 5: "*Have a clear and effective complaints procedure*". However, in a similar manner to the Review of Significant Events evidence, it is the quality and detail within the evidence itself that will determine how useful it is for a system (Stage 1) of Continuing Assurance. Although a log of all complaints made against an individual may highlight a potential problem, it is not clear how this could be interpreted summatively. For example, how many complaints would be too many? Which types or areas of complaints are more or less acceptable, and how would the severity be measured? How would different types of practice (and case mix) impact this evidence? Furthermore, how would 'compliments' be considered?

Reviews of Complaints and Compliments evidence may be useful, with regard to the formative aims of Continuing Assurance. A comprehensive reflection on a patient complaint or compliment, with an account of action taken and any change in practice resulting from the exercise, may provide evidence that the practitioner is keeping knowledge and skills up to date.

Case-based Discussion

Formal Case based Discussion, involving a detailed presentation of a case, followed by a discussion and questions from a [senior] colleague, and assessment against several performance criteria, was associated with rich quantitative and qualitative feedback, and covered many of the GDC Standards. Consequently, it is has the potential to make a valuable contribution, particularly to the formative aims of Continuing Assurance, if it can be demonstrated as transferable to, or adapted for use within, non-training posts. The value could be enhanced further if links are established with other evidence types such as PDP and CPD, and could provide a good indication that a practitioner is keeping knowledge and skills up to date. Although there is some evidence to support the validity and reliability of formal CbD when designed and implemented under certain conditions, there is a lack of evidence to support the use of such data for summative purposes in this context at present.

Collective Use of Evidence Types

'Competence' or 'fitness to practise' is a complex construct which is difficult to measure, and consequently a range of different evidence types will be necessary. For use within Stage 1 of a system of Continuing Assurance for all UK Dental Professionals, the evidence types need to be useful to the practitioner, address the GDC Standards, and be usable across a wide range of practice types, roles and settings. Key to any system will be a degree of flexibility for dental professionals, and

where possible different evidence types could be used to address similar areas of the GDC Standards, depending on which were most feasible for them personally.

The data analysis of evidence types indicates that some relate more easily than others to the GDC's Standards. Table 5.1 indicates the three best evidence types for GDC Standards (Principles) based on the data analysed.

Table 5.1: Evidence Types demonstrating the strongest degree of coverage for each of the GDC Principles[22]

GDC Principle	CPD	PDP	CLA	MSF	SEA	PFB	RCC	CbD
1. Put patients interests first	✓					✓		✓
2. Communicate effectively with patients				✓		✓		✓
3. Obtain valid consent			✓			✓		
4. Maintain and protect patients' information	✓		✓					✓
5. Have a clear & effective complaints procedure	✓	✓					✓	
6. Work with colleagues in a way that is in patients' best interests	✓			✓				✓
7. Maintain, develop & work, within your professional skills and knowledge	✓			✓				✓
8. Raise concerns if patients are at risk	✓	✓			✓			
9. Make sure your personal behaviour maintains patients confidence in you and the profession				✓		✓		✓

Although the data in Table 5.1 should be interpreted with caution, as it is based on the analysis of evidence collected for a purpose other than Continuing Assurance, it is a useful indication of the potential for each to cover different areas of the GDC Standards. CPD and PDP evidence can conceivably address any area of the Standards. The data indicates that although some evidence types such as MSF, Patient Feedback and Case based Discussion already address multiple areas of the GDC Standards, others such as Reviews of Complaints and Compliments and Significant Event Analysis tend to be narrower in focus, addressing one area. The usefulness of the evidence types could be enhanced if they were designed and implemented specifically for the purpose of Continuing Assurance.

Acknowledging that triangulation across evidence types, flexibility and feasibility for the practitioner are all important (described further below), it is envisaged that the use of a combination of Clinical Audit, Multi-Source Feedback, Patient Feedback and Case based Discussion evidence to inform a robust PDP and direct the practitioner to the completion of relevant CPD activities would be the most useful combination of evidence types in the context on Continuing Assurance.

[22] Based on content mapping scores from across the entire sample of portfolios

5.2 Research Question 2: What are the strengths and weaknesses of each of the sources, as indicated by the fieldwork, in the context of evaluating practice in accordance with the GDC's Standards?

The perceived strengths and weaknesses of each evidence type in the context of evaluating practice in accordance with the GDCs Standards are presented in Table 5.2. The fieldwork revealed wide variation in the format and quality of evidence. Generally, where the evidence was either highly structured, or included analytical content or reflection, its potential usefulness in the context of Continuing Assurance was enhanced. Conversely, where evidence consisted of a simple 'log' of events or complaints, or raw data only (e.g. Clinical Audit) with no interpretation or action plan, it may be less useful for Continuing Assurance purposes.

Table 5.2: Strengths and Weaknesses of the Evidence Types within Portfolios for Continuing Assurance

Type	Strengths	Weaknesses
CPD	• Extensive CPD participation in dentistry. • Can address any of the GDC Standards. • Driven by GDC recommended topics (therefore validity can be enhanced). • Comprehensive reflective records may demonstrate engagement with professional development (formative aims of Continuing Assurance). • Records with recognisable links to other evidence types within the portfolio may demonstrate engagement with professional development and that CPD is being targeted to individual development needs.	• Poor quality CPD records with limited data, provide evidence of attendance only (not engagement or learning). • CPD not informed by actual practice needs. • May be barriers (time, resources) accessing good quality CPD outside highly structured environments.
PDP	• PDPs are being used across different workplace settings and practice types. • PDPs can be highly structured with clear objectives linked to other evidence types, indicating engagement with professional development. • Can focus on any of the Principles within the GDC's Standards, and aligns well with Principle 7.	• Quality of PDP content may be variable. • Some PDPs had no clear links with other evidence types, including CPD.
Clinical Audit	• Many practitioners within our sample submitted Clinical Audit evidence, suggesting a degree of feasibility within dentistry. • Good quality audits are rich in feedback, and can demonstrate standards of performance and engagement with professional development. • Standardised templates for clinical record audits and radiograph audits support implementation on a large scale. • Contribution enhanced when accompanied by action planning and follow up audit	• Many Clinical Audit are carried out at the practice level, rather than practitioner specific, and may not elicit data for the individual practitioner. • Clinical Audit evidence where only results are provided, with no details of action plan or further cycles of audit to monitor performance, are less useful. • Bespoke audits generally required to cover the wider GDC Standards
MSF	• Has been shown to work well across a wide range of professions and clinical contexts. • Addresses many of the GDC Standards and can assess performance in areas otherwise difficult to assess e.g. professionalism. • MSF Tools can be designed to specifically target GDC Standards.	• Few practitioners have used MSF in dental practice, and there is a lack of understanding regarding this evidence type. • Risk of bias
Significant Event Analysis	• Good quality evidence can demonstrate practitioners' insight and commitment to professional development	• Significant events high variable, and the type of event unpredictable • Evidence often corresponded to a single event. • The quality of SEA evidence was variable, many examples were a simple 'log' of events with no analysis.

Patient Feedback	• Already established within dental practice settings • Existing Patient Feedback tools already address many areas within the GDC Standards. This could be enhanced further by developing items specific to GDC Standards. • Many existing tools include both quantitative and qualitative feedback. • Considered useful by most of the practitioners interviewed, and had led to a change in practice in many cases. • Data collection may be delegated, or administered by a third party.	• Some Patient Feedback tools are focused at the practice-level rather than providing practitioner-specific feedback. • Few examples of linking Patient Feedback to other evidence types in this data sample • Patient Feedback may be more difficult to collect in some environments • Risk of bias
Review of Complaints & Compliments	• Generally good for addressing GDC Principle 5 providing the quality of evidence is high.	• Logs without reflection and follow up have limited use • The majority of data corresponded to complaints rather than compliments. • No Review of Complaints and Compliments data available in this study from HDS or SDS, therefore unable to evaluate the potential impact of work environment
CbD	• Formal CbD evidence covered a wide range of GDC Standards, and CbD could be designed for Continuing Assurance purposes. • Provides rich qualitative and quantitative feedback. • Considered extremely useful by the practitioners interviewed who had used it • Frequently leads to a change in practice.	• All formal CbD data from practitioners within a training post / supportive environment, therefore unable to evaluate impact of working environment. • Informal CbD evidence was often of poor quality

5.3 Research Question 3: Individually by evidence type, what would maximise their usefulness and usability?

Some common themes emerged during this study, regarding the usefulness of different evidence types and their usability across different practice types and settings. The usefulness of evidence (either to practitioners themselves, or in the context of supporting a system of Continuing Assurance) is often associated with;

- relevance to the individual – evidence targeting identified learning needs of the individual are more useful
- the amount and type of feedback generated
- practitioner engagement (and motivation) – higher levels of motivation and engagement with the collection of evidence are often associated with better quality evidence.

Ways in which the usefulness of each evidence type might be enhanced are described in Table 5.3a.

Table 5.3a: Mechanisms to enhance the usefulness of evidence types

Evidence Type	Mechanisms to enhance 'usefulness'
CPD	• Ensure CPD activities are relevant to the individual, addressing an identified learning need. • Address any learning needs identified by other evidence types via CPD. • Guidance for practitioners, or templates, regarding the preparation of good quality CPD evidence i.e. with details of relevance, reflection, educational impact etc. • Recommend topics in line with priority areas.
PDP	• Guidance, templates or examples of good quality PDPs • Structure PDPs around the GDC Standards • Support mechanisms for practitioners, such as coaching/peer support and appraisal. • Regular review of progress against professional development objectives.
Clinical Audit	• Guidance for practitioners around the elements of a good quality audit, including sampling, analysis, action plan and re-audit cycles. • Inclusion of practitioner-specific data. • Target audits towards areas identified as needing development. • Access to national performance standards or benchmarking data.
MSF	• MSF tool(s) to be developed, where the criteria are developed using GDC Standards. • Include rich qualitative feedback. • Use ratings scales which include detailed descriptors for different ratings within the scale, corresponding to the area being measured. • Ensure assessors are credible to those being assessed. • Undertaken in a supportive environment, e.g. coaching or peer support. • Regular cycles to demonstrate improvements where appropriate
Significant Event Analysis	• Guidance for practitioners around the elements of a good quality Significant Event Analysis, including analysis and action plan. • Link Significant Event Analysis to other evidence types where appropriate, e.g. CPD, Clinical Audit
Patient Feedback	• Patient Feedback questionnaire(s) to be developed, where questions relate to GDC Standards. • Use appropriate benchmarking data where possible. • Include qualitative feedback. • Link Patient Feedback to other evidence types, e.g. CPD, Clinical Audit.
Complaints & Compliments	• Guidance for practitioners around elements of a quality 'review' of complaints/compliments (i.e. cause analysis, reflection, any change of practice or learning needs).

CbD	• Develop a standardised CbD tool based on GDC Standards. • Ensure CbD includes good quality feedback from credible assessors / peers. • Develop a process which identifies appropriate support mechanisms (e.g. peer support, coaching) to implement CbD – or a mechanism to evidence informal CbD which can provide robust evidence for Continuing Assurance. • Establish links with other evidence types, in order to demonstrate engagement with professional development

The usability of evidence types, across different practice types and workplace settings, can be enhanced through mechanisms to address any [perceived] barriers and through the provision of a supportive environment. The practitioners submitting evidence for this study benefited from a degree of support from the fieldwork sites. Support processes may be an important factor to ensuring the usability of evidence types within the wider population of dental professionals in the UK. Examples of mechanisms to enhance evidence type usability are provided in Table 5.3b.

Table 5.3b: Mechanisms to enhance the usability of evidence types

Evidence Type	Mechanisms to enhance 'usability'
CPD	• Access to a wide range of good quality CPD activities, delivered in a range of formats to enhance flexibility. • Guidance for practitioners, or templates, regarding the preparation of good quality CPD evidence i.e. with details of relevance, reflection, educational impact etc.
PDP	• Support mechanisms for practitioners, such as coaching/peer support and appraisal.
Clinical Audit	• Templates and guidance for 'standardised' audits, which may enable the data collection (but not analysis) to be delegated in some cases. • Access to national performance standards and/or benchmarking data.
MSF	• Detailed implementation guidelines required, and the provision of standardised tools. • Access to web-based formats
Significant Event Analysis	• Guidance, templates
Patient Feedback	• Patient Feedback Tool(s) to be developed which can be implemented across a range of practice types and settings • Implementation guidelines for different workplace settings. • Access to web-based formats • Guidance for practitioners working in environments where it is difficult to obtain Patient Feedback, including alternative evidence types to measure these areas
Reviews of Complaints & Compliments	• Support mechanisms for practitioners, particularly those in environments where it is more difficult to gather complaints / compliments data
Case based Discussion	• Design a CbD tool and develop a process that is transferable across different practice types and settings • Guidance around the provision of feedback to peers. • Access to credible support processes to facilitate implementation, i.e. peer support, coaching.

5.4: Research Question 4: Could the supporting evidence types provide adequate information to make a robust recommendation and decision relating to continuing assurance?

This research indicates that the supporting evidence types, individually and collectively, may be more useful in addressing the formative aims of Continuing Assurance, whereas there is currently insufficient evidence to indicate whether the evidence types could provide robust information to support the summative aims of Continuing Assurance. These issues are addressed below:

Formative Aims: Keeping knowledge and skills up to date, and demonstrating engagement with professional development.

Under certain conditions, used collectively, the evidence types could provide useful information that could support a decision regarding whether a practitioner is actively engaging with professional development, keeping knowledge and skills up to date. The evidence submitted would need to be of high quality, and whilst many examples of good quality evidence were reviewed in this study, other portfolios included evidence that would have not been sufficient to inform a robust decision.

The most useful evidence types for this purpose are PDPs, CPD, Clinical Audit, Multi-Source Feedback, Patient Feedback and Case-based Discussion. The conditions most likely to provide evidence of sufficient quality to inform a decision regarding the formative aims of Continuing Assurance include:

- CPD which is relevant to the individual and addresses an identified learning need. CPD records which include a reflection following the activity, including perceived educational impact, any changes to practice as a result of the CPD and any additional learning needs arising from the CPD activity, represent high quality evidence. Where possible, CPD evidence should link closely with the other evidence types – particularly (but not exclusively) the PDP.

- A PDP structured around the GDC Standards (ideally at the Principle level), including detailed evidence around professional development objectives, such as how learning needs were identified, relevance, activities, and reflection on progress. Clear links should be evident between entries in the PDP and other evidence types, such as CPD activities, or how a learning need has been identified using other evidence types.

- Regular review of PDPs, within a supportive environment e.g. coaching, mentoring or peer support.

- Clinical Audit evidence should include a reflection on the data, action plan and re-audit cycles, in addition to the results themselves.

- Multiple rounds of Multi-Source Feedback and Patient Feedback using tools developed to reflect the GDC's Standards. The evidence should highlight an individual's strengths and weaknesses, and areas for development should be included within the PDP and addressed accordingly.

- Any Case-based Discussion evidence should be relevant to the clinical context, include rich qualitative information, and be linked to other evidence types e.g. CPD where development is required.

Summative Aims: Demonstrating whether a practitioner is fit to practise

While it is likely that used collectively, with appropriate sampling and careful implementation, the evidence types would provide useful information regarding a practitioner's fitness to practise, further studies are needed to evaluate the use of these evidence types within dentistry. Much of the evidence relating to use of evidence types within the context of revalidation or other high-stakes decisions, originates from studies which have evaluated their use in medicine or other health professions. As robust high stakes decisions should be based on an approach with proven validity and reliability, and such qualities require context-specific evidence, further studies are needed to evaluate the use of these evidence types in dentistry. This is particularly important given our findings that some of the evidence types (MSF, CbD) appear not to have been widely used within dentistry to date.

5.5 Research Question 5: What difference, if any, did work place setting and format of supporting information make?

Workplace Setting

This research indicates that certain evidence types may be more or less usable (and feasible) in different workplace settings. Many of the differences appeared to be associated with practice within a highly structured or managed environment such as training posts or the Defence Dental Services, rather than the clinical setting.

Dentists working within the Defence Dental Services often submitted evidence that was comprehensive and highly structured, using standardised templates and review processes. Also, it is noteworthy that all eight evidence types were included within datasets submitted by practitioners working for the Service.

The CPD records from practitioners in a training post (whether DFT, or HTVT) included more face to face CPD activities structured around their curriculum, such as study days, tutorials and workplace-based assessments, whereas a broader range of CPD activities in different delivery formats were submitted from other practitioners, including reading journals, online courses and conferences. Differences were also evident between the Case based Discussion (CbD) evidence submitted by those in structured training environments which were structured, with high quality feedback and other which comprised limited data, usually poor quality evidence, reflecting 'informal' CbD or discussions with colleagues.

Although Clinical Audit has been used successfully across different practice types and workplace settings, some practitioners working within hospital or salaried dental service rotations lasting only 6 months indicated that it could be difficult to schedule re-audit cycles to monitor quality improvement. The majority of Clinical Audit evidence submitted from General Dental Practitioners from all fieldwork sites were standardised audits such as clinical records or radiograph reviews, carried out by a third party.

Patient Feedback and Complaints and Compliments evidence may be more difficult to collect in certain environments or roles, e.g. locum practitioners, clinical academics or educators, due to

restrictions around access to patients or data collection processes. We were unable to compare the use of Complaints and Compliments evidence, Significant Event Analysis and MSF in different workplace settings as these evidence types were not included in our sample of data from the hospital or salaried dental service.

Format of Evidence

The format of evidence was often variable across different practitioners and fieldwork sites, particularly for Reviews of Significant Events, Reviews of Complaints and Compliments, and Case-based Discussion (CbD). In many cases, the format of the evidence was directly associated with how useful it might be for Stage 1 Continuing Assurance. Certain evidence types such as MSF, Patient Feedback and CbD, can be collected using standardised tool(s) designed specifically for Continuing Assurance, including items (assessment/review criteria, or questions within a questionnaire) directly targeting GDC Standards. The usefulness of other types of evidence, such as CPD records, PDPs, Clinical Audit, Significant Event Analysis and Reviews of Complaints and Compliments, depend much more on the areas covered rather than the tool used. However, templates which facilitate comprehensive, reflective evidence, will be more useful than a simple log of events, with no links to other evidence types within a portfolio.

In general, evidence centrally managed by fieldwork sites was more structured and comprehensive than data collected by individual practitioners.

5.6: Research Question 6: What could a systematic evaluation framework, for the purposes of continuing assurance, comprise?

The development of a robust systematic evaluation framework for Continuing Assurance in dentistry is not yet possible, as further research into the use of evidence types in this context is required. However, triangulating the findings from each of the research methods used within this study, the most useful and robust approach to an evaluation framework for the purposes of Stage 1 Continuing Assurance is likely to include:

- The triangulation across multiple evidence types. It is envisaged that the use of a combination of Clinical Audit, Multi-Source Feedback, Patient Feedback and Case based Discussion evidence to inform a robust PDP and direct the practitioner to the completion of relevant CPD activities would be the most useful combination of evidence types in the context on Continuing Assurance.

- The development of a system primarily focused upon the *formative* aims of Continuing Assurance, i.e. a review of a portfolio comprising multiple evidence types to determine whether a practitioner is fully and habitually engaged with professional development, keeping their knowledge and skills up to date in order to remain fit to practise[23].

- Overall review criteria which prioritise the *quality* of evidence, and the demonstration of *active engagement* with professional development across all areas within the GDC Standards (at the level of Principle). Using such an approach, a "Red Flag", may constitute a lack of quality

[23] As recently supported in Southgate L and Van der Vleuten CPM (2014). A conversation about the role of medical regulators. Medical Education 48 (2) p215-218.

evidence or engagement with learning (in addition to direct evidence of poor performance), for example a portfolio with limited content, no evidence of habitual engagement, or of poor quality.

- Flexibility around which evidence can be used by practitioners to support Continuing Assurance, to facilitate the collection of evidence across different practice types and workplace settings, and the consideration of feasibility for practitioners working within non-patient facing roles.
- Guidance regarding the most useful evidence types to address different areas within the GDC Standards (from a "toolbox" of options).
- The development of tools and templates for evidence types, specifically designed for the purpose of Continuing Assurance, constructed around the GDC Standards. This will ensure consistency, promote quality of evidence and provide support for practitioners; i.e.
    - Multi-Source Feedback, Patient Feedback and Case-based Discussion tools with questions or criteria corresponding to the GDC Standards will be most useful, supported by clear guidelines for their implementation and use within different professional settings.
    - Templates and guidance for good quality Clinical Audits, PDPs, and CPD evidence.
    - Guidance for the elements of good 'review' and analysis of significant events or complaints and compliments.
- Access for practitioners (working within different workplace settings) to sufficient support mechanisms in order to be able to collect and record good quality evidence, and gain maximum benefit from doing so in terms of their professional development. Support may include peer support or coaching, in addition to comprehensive guidance.
- A more objective approach to evidencing GDC Standards which may be supported via either a declaration (e.g. GDC Standard 9.3 "*Inform the GDC if you are subject to criminal proceedings or a regulatory finding is made against you anywhere in the world*"), or certificates/policies (e.g. GDC Standard 1.8: "*You must have appropriate arrangements in place for patients to seek compensation if they have suffered harm*").
- Some of the GDC Standards may be evidenced objectively via either a declaration (e.g. GDC Standard 9.3 "*Inform the GDC if you are subject to criminal proceedings or a regulatory finding is made against you anywhere in the world*"), or via certificates (e.g. GDC Standard 1.8: "*You must have appropriate arrangements in place for patients to seek compensation if they have suffered harm*").

Bibliography

Aase S (2009) Make the most of your professional development portfolio. *J Am Diet Assoc*. 109 (7) p 1152-4.

Abdulla A (2008) A critical analysis of mini peer assessment tool (mini-PAT). *J R Soc Med*. 101 (1) p 22-26.

Academy of Medical Royal Colleges (2009) Clinical Audit & Revalidation: Report and Recommendations.

Academy of Medical Royal Colleges (2009) Improving Assessment.

Agius S, Baron R, & Phazey G. (2008) The current state and value of deanery-managed continuing professional development in primary care: The general practice appraisers' perspective. *Education for Primary Care.* 19 (6) p 590.

Al Khalifa K, Al Ansari A, Violato C, & Donnon T (2013) Multisource feedback to assess surgical practice: A systematic review. *Journal of Surgical Education*. 70 (4) p 475-486.

Alexander A M, Denicolo P.M & Donyai P. (2011) Purpose-action-results: As a behavioural model: Telling the story of pharmacy professionals' continuing professional development. *International Journal of Pharmacy Practice*. 19 (S1) p 13.

Allen I (2000) General Medical Council: A clear case. *Health Service Journal*. 110 (5725) p 32-3.

Allerup P, Aspegren K, Ejlersen E, Jorgensen G, Malchow-Moller A, Moller M K, Pedersen K K, Rasmussen O B, Rohold A & Sorensen B (2007) Use of 360-degree assessment of residents in internal medicine in a Danish setting: a feasibility study. *Med Teach*. 29 p 166-70.

Ansari A A, Donnon T, Khalifa KA, Darlish A, & Violsto C (2014) The Construct and criterion validity of the multisource feedback process to assess physician performance: a meta analysis. *Advances in Medical Education & Practice*. 5 p 39-51.

Anzia J M (2011) A clear step in the right direction: Commentary on... case-based discussion. *Psychiatrist*. 35 (6) p 235-6.

Archer J C, Norcini J, & Davies H A (2005) Use of SPRAT for peer review of paediatricians in training. *BMJ*. 330 (7502) p 1251-3.

Archer J (2009) Multisource feedback (MSF): supporting professional development. *Br Dent J*. 206 (1) p 1.

Archer J, McGraw M & Davies H (2010) Republished paper: Assuring validity of multisource feedback in a national programme. *Postgrad Med J*. 86 (1019) p 526-31.

Archer J, Swanwick T, Smith D, O'Keeffe C & Cater N (2013) Developing a multisource feedback tool for postgraduate medical educational supervisors. *Med Teach*. 35 (2) p 145-54.

Archer J C & McAvoy P (2011) Factors that might undermine the validity of patient and multi-source feedback. *Medical education*. 45 (9) p 886-93.

Atfeh M & Williams A T (2012) Resource implications of SNOT22 data submission. *Clinical Otolaryngology*. 37 (1) p 86-87.

Auras S & Geraedts M (2010) Patient experience data in practice accreditation : an international comparison. *International Journal for Quality in Health Care*. Mzq006.

Aylward B (2011) Revalidation and retinal detachment. *Ophthalmologica*. 226 (S1) p 58-9.

Baker, Richard; Smith, Andrew; Tarrant, Carolyn; McKinley, Robert K; Taub, Nicholas (2011) Patient feedback in revalidation: an exploratory study using the consultation satisfaction questionnaire. Br J Gen Pract. 61 (591) p e638-44.

Bamrah J S & Bhugra D (2009) CPD and recertification: Improving patient outcomes through focused learning. *Advances in Psychiatric Treatment*. 15 (1) p 2-6.

Bamrah J S & Grey D A (2011) Continuing professional development for psychiatrists: surveying current practice in the UK. *Psychiatrist* 35 (4) p 151-154.

Bashook P G (2005) Best practices for assessing competence and performance of the behavioural health workforce. *Adm Policy Ment Health*. 32 (Jun) p 563-92.

Batmangelich, S & Adamowski, S (2004) Maintenance of certification in the United States: a progress report. *J Contin Educ Health Prof*. 24 (3). p 134-8.

Beausaert S, Segers M, Fouarge D & Gijselaers,W (2013) Effect of Using a Personal Development Plan on Learning and Development. *Journal of Workplace Learning*. 25 (3) p 145-158.

Berk R A (2009) Using the 360 degrees multisource feedback model to evaluate teaching and professionalism. *Medical Teacher*. 31 (12) p 1073-80.

Berrow D, Humphrey C, Field R, Jobanputra R & Faw L (2007) Clarifying concerns about doctors' clinical performance: what is the contribution of assessment by the National Clinical Assessment Service? *J Health Organ Manag*. 21 (3) p 333-43.

Berwouts S, Morris M A & Dequeker, E (2010) Approaches to quality management and accreditation in a genetic testing laboratory. *Eur J Hum Genet*. 18 (S1) p S1-19.

Bhusari G S & Banerjee K (2012) Community paediatrician's clinic evaluation using modified version of Royal College of Paediatrics and Child Health paediatric carers of children (PAEDCCF) 2009 form. *Archives of Disease in Childhood*. 97 (S1) p A67.

Bilawka E & Craig BJ (2003) Quality assurance in health care: past, present and future. *Int. j. dent. hyg*. 1 (3) p 159-68.

Bourke B M, Beiles C B, Thomson I A, Grigg M J & Fitridge R (2012) Development of the Australasian vascular surgical audit. *Journal of Vascular Surgery*. 55 (1) p 164-9.

Bowie P, Garvie A & Oliver J (2001) Audit and non-principals: reported experiences in general practice. *Health bulletin*. 59 (5) p 335-9.

Bowie P, McCoy S, McKay J & Lough M (2005a) Learning issues raised by the educational peer review of significant event analyses in general practice. *Quality in Primary Care*. 13 (2) p 75-84.

Bowie P, McKay J, Dalgetty E & Lough M (2005b) A qualitative study of why general practitioners may participate in significant event analysis and educational peer assessment. *Qual Saf Health Care*. 14 (3) p 185-9.

Bowie, P, McKay, J, Murray, L, Lough, M (2008) Judging the quality of clinical audit by general practitioners: a pilot study comparing the assessments of medical peers and NHS audit specialists. *J Eval Clin Pract*. 14 (6) p 1038-43.

Bradley T & McKnight A (2002) A pilot study of the introduction of personal development plans in Northern Ireland - Practical experiences and implications for revalidation. *Education for Primary Care*. 13 (2) p 267-271.

Bradley N A, Power A, Hesselgreaves, H McMillan F & Bowie P (2009) Safer pharmacy practice: a preliminary study of significant event analysis and peer feedback. *Int J Pharm Pract*. 17 (5) p 283-91.

Braithwaite M G & Thornton R (2012) Tools for appraisal and revalidation-evaluation of regionally delivered workshops. *Occup Med (Oxf)*. 62 (3) p 220-2.

Brittlebank A, Archer J, Longson D, Malik A & Bhugra D K (2013) Workplace-based assessments in psychiatry: evaluation of a whole assessment system. *Acad Psychiatry*. 37 (5) p 301-7.

Brown N, Holsgrove G. & Teeluckdharry S. (2011) Case-based discussion. *Advances in Psychiatric Treatment*. 17 (2) p 85-90.

Bruce (2004) Revalidation for general practitioners: randomised comparison of two revalidation models. *BMJ*. 328 (7441) p 687-691.

Buck D & Newton T (2002) Continuing professional development amongst dental practitioners in the United Kingdom: how far are we from lifelong learning targets? *Eur J Dent Educ*. 6 (1) 36-9.

Bullock A D, Hassell A, Markham W A, Wall D W & Whitehouse A B (2009) How ratings vary by staff group in multi-source feedback assessment of junior doctors. *Medical Education*. 43 (6) p 516-520.

Butt G & McNab N (2013) Making Connections between the Appraisal, Performance Management and Professional Development of Dentists and Teachers: 'Right, What Are the Problems We've Got and How Could We Sort This Out?''. *Professional Development in Education*. 39 (5) p 841-861.

Callahan M, Fein, O & Battleman D. (2002) A practice-profiling system for residents. *Academic Medicine*. 77 (1) p 34-9.

Chalouhi G E, Salomon L J, Fontanges M, Althuser M, Haddad G, Scemama O, Chabot J, Duyme M & Fries N (2013) Formative assessment based on an audit and feedback improves nuchal translucency ultrasound image quality. *J Ultrasound Med*. 32 (9) p 1601-5.

Campbell J L, Richards S H, Dickens A, Greco M, Narayanan A &Brearley S (2008) Assessing the professional performance of UK doctors: an evaluation of the utility of the General Medical Council patient and colleague questionnaires. *Qual Saf Health Care*. 17 (3) p 187-93.

Campbell J, Narayanan A, Burford B & Greco M (2010) Validation of a multi-source feedback tool for use in general practice. *Educ Prim Care*. 21 (3) p 165-79.

Campbell J, Roberts M & Wright C (2011) Factors associated with variability in the assessment of UK doctors' professionalism: analysis of survey results. *BMJ*. p 343.

Casas M J, Kenny D J & Johnston D H (2003) Experience of 2 dental clinics registered to ISO 9002. *J Can Dent Assoc*. 69 (4) p 215-8.

Challenor R (2003) Southwest Regional Genitourinary Physicians' Audit Group: setting regional benchmarks for patient satisfaction. *Int J STD AIDS*. 14 (9) p 622-4.

Charlton R, Coomber J & Thistlethwaite J E (2011) Re-licensing of general practitioners using the current UK revalidation proposals: a cross sectional study. *Postgrad Med J*. 87 (1034) p 807-13.

Cohen,S N, Farrant P B J & Taibjee S M (2009) Assessing the assessments: UK dermatology trainees' views of the workplace assessment tools. *Br J Dermatol.* 161 (1) p 34-9.

Colthart I (2008) What do doctors really think about the relevance and impact of GP appraisal 3 years on? A survey of Scottish GPs. *British Journal of General Practice*. 58 (547) p 82-87.

Cook TM, Coupe M & Ku T (2012) Shaping quality: The use of performance polygons for multidimensional presentation and interpretation of qualitative performance data. *British Journal of Anaesthesia*. Aes026.

Coomber J, Charlton R, Thistlethwaite J E & England L (2012) Can GPs working in secure environments in England re-license using the Royal College of General Practitioners' revalidation proposals?. *BMC family practice*. 13 (1) p 123.

Cornford C S (2001) The development of practice professional development plans from the postgraduate education allowance: a discussion of the causes and implications. *Medical education*. 35 (1) p 43-8.

Cottrell E, Protherough K, Howard J & Wilkinson M (2013) Assessing academic clinical fellows in general practice: square pegs in round holes? *Educ. prim. Care*. 24 (4) p 266-73.

Cox S J & Holden J D (2009) Presentation and outcome of clinical poor performance in one health district over a five-year period : 2002-2007. *British Journal of General Practice*. 59 (562) p 344-48.

Crossley J, McDonnell J, Cooper C, McAvoy P, Archer J & Davies H (2008) Can a district hospital assess its doctors for re-licensure? *Medical Education*. 42 (4) p 359-63.

Crossley J, Johnson G, Booth J & Wade W (2011) Good questions, good answers: construct alignment improves the performance of workplace-based assessment scales. *Medical Education*. 45 (6) p 560-9.

Damen J (2001) Continuing professional development: An evidence based part anesthesiological care? *Nederlands Tijdschrift voor Anesthesiologie*. 14 (2)

Dark G (2009) Development of competency-based assessment methods for specialist registrars training in medical oncology in the UK. *Journal of Cancer Education*. 24 (1) Suppl. P 1-80.

Dauphinee W D (2005) GMC and the future of revalidation: Self-regulation must be made to work. *BMJ*. 330 (7504) p 1385.

Davies H, Khera N & Stroobant, J (2005) Portfolios, appraisal, revalidation, and all that: a user's guide for consultants. *Arch Dis Child*. 90 (2) p 165-70.

Davies H, Archer J, Bateman A, Dewar S, Crossley J, Grant J & Southgate L (2008) Specialty-specific multi-source feedback: assuring validity, informing training. *Medical Education*. 42 (10) p 1014-20.

Davies H, Archer J, Southgate L & Norcini J (2009) Initial evaluation of the first year of the Foundation Assessment Programme. *Medical Education.* 43 (1) p 74-81.

Davies J G, Ciantar J, Jubraj B & Bates I P (2013) Use of a multisource feedback tool to develop pharmacists in a postgraduate training program. *Am J Pharm Educ*. 77 (3) p 52.

Donnon T, A l Ansari A A l, Alawi S & Violato C (2014) The reliability, validity and feasibility of multisource feedback physician assessment: a systematic review. *Acad Med*. 89 (3) p 511-6.

Donyai P, Herbert R Z, Denicolo P M & Alexander A M (2011) British pharmacy professionals' beliefs and participation in continuing professional development: a review of the literature. *Int J Pharm Pract*. 19 (5) p 290-317.

Donyai P, Alexander A & Denicolo PM (2013) A framework for assessing continuing professional development activities for satisfying pharmacy revalidation requirements. *J Contin Educ Health Prof*. 33 (2) p 127-35.

Dornan T (2008) Self-assessment in CPD: lessons from the UK undergraduate and postgraduate education domains. *J Contin Educ Health Prof*. 28 (1) p 32-7.

Dreyer J S (2010) Assessing professionalism in surgeons. *Surg*. 8 (1) p 20-27..

Dubinsky I, Jennings K, Greengarten M & Brans A (2010) 360-degree physician performance assessment. *Healthc Q*. 13 (2) p 71-6.

Eardley Ian; Bussey Maria; Woodthorpe Adrian; Munsch Chris; Beard Jonathan (2013) Workplace-based assessment in surgical training: experiences from the Intercollegiate Surgical Curriculum Programme. *ANZ J Surg*. 83 (6) p 448-53.

Egbe M & Baker P (2012) Development of a multisource feedback instrument for clinical supervisors in postgraduate medical training. *Clin Med*. 12 (3) p 239-43.

ERS Research (2012) Registrant and provider perspectives on mandatory CPD in Dentistry in the UK. www.gdc-uk.org

Faulds M (2010) Development and evaluation of a web-based electronic multi-source feedback system for anaesthetists. *Anaesthesia*. 65 (8) p 870-71.

Ferrari S, Vozzolo B, Daneman D & Macgregor D (2011) Feasibility of physician peer assessment in an academic health sciences centre. *Healthc Q*. 14 (1) p 50-55.

Filipe H P, Silva E D, Stulting A A & Golnik K C (2014) Continuing professional development: best practices. *Middle East Afr J Ophthalmol*. 21 (2) p 134-41.

Finlay K & McLaren S (2009) Does appraisal enhance learning, improve practice and encourage continuing professional development? A survey of general practitioners' experiences of appraisal. *Quality in primary care*. 17 (6) p 387-95.

Fletcher P (2001) Continuing medical education in a district general hospital: a snapshot. *Med Educ*. 35 (10) p 967-72.

Garvican L & Doyle Y (2011) Public health physicians' knowledge of core skills and current policy: clinical audit by questionnaire. *J Public Health Med*. 23 (2) p 135-40.

General Medical Council (2011). The State of Medical Education and Practice in the UK: 2011.

General Medical Council (2012). The State of Medical Education and Practice in the UK: 2012.

General Medical Council (2013). The State of Medical Education and Practice in the UK: 2013.

General Medical Council (2014). The State of Medical Education and Practice in the UK: 2014.

George Street Research (2009) GDC Revalidation Stage 1 Feasibility Study: Final Report.

Gibbs T, Brigden D, & Hellenberg D (2005) From learning portfolios to personal development plans. *South African Family Practice*. 47 (3) p 5-6.

Grieveson B (2009) Proposals for validation and revalidation of the dental profession: a postgraduate dental dean's perspective. *Dental Update*. 36 (4) p 198-200.

Gordon J (2003) Assessing students' personal and professional development using portfolios and interviews. *Medical education*. 37 (4) p 335-40.

Grujich N N, Razmy A, Zaretsky A, Styra RG & Sockalingam S (2012) Evaluation of Professional Role Competency during Psychiatry Residency. *Academic Psychiatry*. 36 (2) p 126-28.

Guba C J (1990) Quality Assurance in a School of Dentistry: Getting Started. *Journal of Dental Education*. 54 (4) p 230-2.

Hall A (2007) Internal audits: setting the stage for Joint Commission surveys. *Biomed Instrum Technol*. 41 (6) p 469-70.

Hamilton K E, Coates V, Kelly B, Boore J R P, Cundell JH, Gracey J, McFetridge B, McGonigle M & Sinclair M (2007) Performance assessment in health care providers: a critical review of evidence and current practice. *Journal of Nursing Management*. 15 (8) p 773-91.

Hassell A, Bullock A, Whitehouse A, Wood L, Jones P & Wall D (2012) Effect of rating scales on scores given to junior doctors in multi-source feedback. *Postgrad Med J*. 88 (1035) p 10-14.

Hayes S F (2005) Where next with revalidation? Make CME and CPD compulsory with support of audit and mentoring. *BMJ*. 331 (7512) p 352-3.

Healthcare Quality Improvement Partnership (2010) Local Clinical Audit: Handbook for Physicians.

Higgins R S D, Bridges J, Burke J M, O'Donnell M A, Cohen N M & Wilkes S B (2004) Implementing the ACGME general competencies in a cardiothoracic surgery residency program using 360-degree feedback. *Annals of Thoracic Surgery*. 77 (1) p 12-17.

Hill J J, Asprey A, Richards S H & Campbell J L (2012) Multisource feedback questionnaires in appraisal and for revalidation: a qualitative study in UK general practice. *Br J Gen Pract*. 62 (598) p e314-21.

Hirsh S (2004) Putting Comprehensive Staff Development on Target. *Journal of Staff Development*. 25 (1) p 12-15.

Hobson J C (2009) Revalidation, multisource feedback and cloud computing. *Clin Otolaryngol*. 34 (3) p 295-6.

Holland P & Adams P (2002) Through the Horns of a Dilemma between Instructional Supervision and the Summative Evaluation of Teaching. *International Journal of Leadership in Education*. 5 (3) p 227-247.

Holmboe E S & Ross K (2012) Commentary: realizing the formative potential of multisource feedback in regulatory-based assessment programs. *Acad Med*. 87 (12) p 1657-9.

Howard J, Sparrow N, Turnbull C J, & Hydes A L (2009) Continuing professional development and revalidation: an analysis of general practitioners' recorded learning. *Educ. prim. Care*. 20 (4) p 298-303.

Hubbell E R (2010) Using McREL's Knowledge Taxonomy for Ed Tech Professional Development. *Learning & Leading with Technology*. 37 (8) p 20-23.

Janssen S, Kreijns K, Bastiaens T, Stijnen S & Vermeulen M (2012) Teachers' Professional Development: An Analysis of the Use of Professional Development Plans in a Dutch School. *Professional Development in Education*. 38 (3) p 453-469.

Janssen S, Kreijns K, Bastiaens TJ, Stijnen S, & Vermeulen M (2013) Teachers' Beliefs about Using a Professional Development Plan. *International Journal of Training and Development*. 17 (4) p 260-278.

Johnson C (2000) Consultant peer appraisal: a structured system to support clinical governance and revalidation. Clinical Governance Bulletin. 1 (2) p 12-13.

Johnson G, Booth J, Crossley J & Wade W (2011) Assessing trainees in the workplace: results of a pilot study. *Clin Med*. 11 (1) p 48-53.

Joshi R, Ling F W & Jaeger, J (2004) Assessment of a 360-degree instrument to evaluate residents' competency in interpersonal and communication skills. *Acad Med*. 79 (5) p 458-63.

Jutley R S, McKinley A, Hobeldin M, Mohamed A & Youngson G G (2001) Use of clinical audit for revalidation: is it sufficiently accurate? *J Qual Clin Pract*. 21 (3) p 71-3.

Karnes F A & Shaunessy E (2004) The Application of an Individual Professional Development Plan to Gifted Education. *Gifted Child Today*. 27 (3) p 60-64.

Kress V E & Protivnak J J (2009) Professional Development Plans to Remedy Problematic Counseling Student Behaviors. *Counselor Education and Supervision*. 48 (3) p 154-166.

Leggate M & Russell E (2002) Attitudes and trends of primary care dentists to continuing professional development: a report from the Scottish dental practitioners survey 2000. *Br Dent J*. 193 (8) p 465-456.

Lelliott P, Williams R, Mears A, Andiappan M, Owen H, Reading P, Coyle N & Hunter S (2008) Questionnaires for 360-degree assessment of consultant psychiatrists: development and psychometric properties. *Br J Psychiatry*. 193 (2) p 156-60.

Lewis M, Elwyn G & Wood F (2003) Appraisal of family doctors: an evaluation study. *Br J Gen Pract*. 53 (491) p 454-60.

Little P & Hayes S (2003) Continuing professional development (CPD): GPs' perceptions of post-graduate education-approved (PGEA) meetings and personal professional development plans (PDPs). *Family practice*. 20 (2) p 192-8.

Lipner R S, Blank L L, Leas B F & Fortna G S (2002) The value of patient and peer ratings in recertification. *Academic medicine*. 77 (10 Suppl) p S64-6.

Locke R, Scallan S, Leach C & Rickenbach M (2013) Identifying poor performance among doctors in NHS organisations. *Journal of Evaluation in Clinical Practice*. 19 (5) p 882-888.

Lockyer J (2003) Multisource feedback in the assessment of physician competencies. *J Contin Educ Health Prof*. 23 (1) p 4-12.

Lockyer, J, Blackmore, D, Fidler, H, Crutcher, R, Salte, B, Shaw, K, Ward, B & Wolfish, N (2006) A study of a multi-source feedback system for international medical graduates holding defined licences. *Medical education*. 40 (4) p 340-7.

Lockyer J M, Violato C & Fidler H M (2008) Assessment of radiology physicians by a regulatory authority. *Radiology*. 247 (3) p 771-8.

Lockyer J (2013) Multisource feedback: can it meet criteria for good assessment? *J Contin Educ Health Prof*. 33 (2) p 89-98.

MacDonald J & Huthwaite M (2012) Two birds with one stone: Peer review groups and audit. *Australian and New Zealand Journal of Psychiatry*. 46 p 47-48.

Macfarlane F, Tavabie A & Desombre T (2003) Accredited professional development: A qualitative study of the feasibility, acceptability and practicality of a new scheme for CPD. *Education for Primary Care*. 14 (3) p 302-09.

Mackillop L, Armitage M & Wade W (2006) Collaborating with patients and carers to develop a patient survey to support consultant appraisal and revalidation. *Clinician in Management*. 14 (2) p 89-94.

Mackillop LH, Crossley J, Vivekananda-Schmidt P, Wade W, Armitage M (2011a) A single generic multi-source feedback tool for revalidation of all UK career-grade doctors: does one size fit all? *Medical Teacher*. 33 (2) p e75-83.

Mackillop L, Parker-Swift J, & Crossley J (2011b) Getting the questions right: non-compound questions are more reliable than compound questions on matched multi-source feedback instruments. *Medical education*. 45 (8) p 843-8.

Mahmood T (2010) Recertification and continuing professional development: The way ahead. *Best Pract Res Clin Obstet Gynaecol*. 24 (6) p 807-18.

Maidment Y G, Rennie J S & Thomas M (2006a) Revalidation of general dental practitioners in Scotland: The results of a pilot study Part 1 - Feasibility of operation. *British Dental Journal* 200 (7) p 399-402.

Maidment Y G, Rennie J S, & Thomas M (2006b) Revalidation of general dental practitioners in Scotland: the results of a pilot study. Part 2 - acceptability to practitioners. *British Dental Journal* 200 (8) p 455-458.

Main P, Curtis A, Pitts J, Irish B (2009) A 'mutually agreed statement of learning' in general practice trainer appraisal: the place of peer appraisal by experienced course members. *Education for primary care*. 20 (2) p 104-10.

Malling B, Bonderup T, Mortensen L, Ringsted C & Scherpbier A (2009) Effects of multi-source feedback on developmental plans for leaders of postgraduate medical education. *Medical education*. 43 (2) p 159-67.

Mason R (2004) Patient appraisal of a service: a pragmatic approach. Clinical Governance Bulletin.

Massagli T L & Carline J D (2007) Reliability of a 360-degree evaluation to assess resident competence. *American Journal of Physical Medicine and Rehabilitation*. 86 (10) p 845- 852.

Mazor K, Clauser B E, Holtman M & Margolis M J (2007) Evaluation of missing data in an assessment of professional behaviors. *Acad Med*. 82 (10 Suppl) p S44-7.

McKay J, Bowie P, Murray L & Lough M (2003) Barriers to significant event analysis: An attitudinal survey of principals in general practice. *Quality in Primary Care*. 11 (3) p 189-197.

McKay J, Shepherd A, Bowie P & Lough M (2008) Acceptability and educational impact of a peer feedback model for significant event analysis. *Medical Education*. 42 (12) p 1210-7.

McKay J, Bradley N, Lough M, Bowie P (2009) A review of significant events analysed in general practice: implications for the quality and safety of patient care. *BMC family practice*. 10 (1) p 61.

Megaw R, Rane-Malcolm T, Brannan S, Smith R & Sanders R (2011) Revalidation and electronic cataract surgery audit: a Scottish survey on current practice and opinion. *Eye*. 25 (11) p 1471-7.

Miller A & Archer J (2010) Impact of workplace based assessment on doctors' education and performance: a systematic review. *BMJ*. 341.

Mitchell C, Bhat S, Herbert A & Baker P (2011) Workplace-based assessments of junior doctors: do scores predict training difficulties? *Medical Education*. 45 (12) p 1190-8.

Moss E L, Owen G, Jones PW, Sarhanis P, Nordin A, Luesley D & Redman C W E (2012) The British Gynaecological Cancer Society Delphi consultation exercise on expected standards of practice for doctors specializing in the area of gynecological oncology. *Int J Gynecol Cancer*. 20 (4) p 488-91.

Murphy D J, Bruce D & Eva K W (2008) Workplace-based assessment for general practitioners: using stakeholder perception to aid blueprinting of an assessment battery. *Medical education*. 42 (1) p 96-103.

Murphy D J, Bruce D A, Mercer S W & Eva K W (2009) The reliability of workplace-based assessment in postgraduate medical education and training: a national evaluation in general practice in the United Kingdom. *Adv Health Sci Educ Theory Pract*. 14 (2) p 219-32.

Mynors-Wallis L, Cope D, Brittlebank A & Palekar F (2011) Case-based discussion: A useful tool for revalidation. *Pysychiatrist*. 35 (6) p 230-34.

Nelsen J & Cudeiro A (2009) Lasting Impression: Targeted Learning Plan Has a Maximum Impact on Teacher Practice. *Journal of Staff Development*. 30 (5) p 32-34.

NHS Revalidation Support Team (2012) Colleague and patient feedback study 2011-12.

Norman G R, Shannon S I & Marrin M L (2004) The need for needs assessment in continuing medical education. *BMJ*. 328 (7446), 999-1001.

North East London NHS Foundation Trust (2012) Clinical Audit Policy.

O-Connor C R & Herrelko J (2003) Individual Professional Development Plans: In Search of Learning for Teaching. *Mid-Western Educational Researcher*. 16 (2) p 27-31.

O'Loughlin K, Guerandel A, & Malone K (2012) A reflection on continuing professional development. *The Psychiatrist*. 36 p 189-193.

Overeem, K, Faber, MJ, Arah, OA, Elwyn, G, Lombarts, K M J M H, Wollersheim, HC, Grol, R P T M (2007) Doctor performance assessment in daily practise: does it help doctors or not? A systematic review. *Medical education*. 41 (11) p 1039-49.

Overeem K, Wollersheim H, Driessen E, Lombarts K, van de Ven G, Grol R & Arah O (2009) Doctors' perceptions of why 360-degree feedback does (not) work: a qualitative study. *Medical Education*. 43 (9) p 874-82.

Overeem K (2011) Doctor Performance Assessment Development and impact of a new system. ISBN: 978-90-817924-0-0

Overeem K, Wollersheim H C, Arah O A, Cruijsberg J K, Grol R P T M & Lombarts K M J M H (2012) Evaluation of physicians' professional performance: an iterative development and validation study of multisource feedback instruments. *BMC Health Serv Res*. 12 (1) 80.

Parrigin R (2009) Accountability and Professional Development: Use of the 360-Degree Feedback Appraisal. *Proquest LLC*. 789 East Eisenhower Parkway, POBox 1346 Ann Arbot, MI 48106.

Paskins Z, John H, Hassell A & Rowe I F (2010) Eight years' experience of regional audit in rheumatology: What have we learnt? *Rheumatology*. 49 p 166-7.

Patel J P, Sharma A West D, Bates I P, Davies J G & Abdel-Tawab R (2011) An evaluation of using multi-source feedback (MSF) among junior hospital pharmacists. *Int J Pharm Pract*. 19 (4) p 276-80.

Picker Institute Europe (2012) Evaluation of Supporting Evidence Types for Revalidation Stage 1.

Potter T B & Palmer R G (2003) 360-degree assessment in a multidisciplinary team setting. *Rheumatology (Oxford)*. 42 (11) p 1404-7.

Rees C & Shepherd M (2005) The acceptability of 360-degree judgements as a method of assessing undergraduate medical students' personal and professional behaviours. *Medical Education*. 39 (1) p 49-57.

Reuther W, Shekar V, Southorn B, Anand R (2013) Who audits audits in oral and maxillofacial surgery! *British Journal of Oral and Maxillofacial Surgery*. 51 (6) p e79-e136.

Roberts C, Cromarty I, Crossley J & Jolly B (2006) The reliability and validity of a matrix to assess the completed reflective personal development plans of general practitioners. *Medical Education*. 40 (4) p 363-70.

Roberts M J, Campbel, J L, Richards S H & Wright C (2013) Self-Other Agreement in Multisource Feedback: The Influence of Doctor and Rater Group Characteristics. *Journal of Continuing Education in the Health Professions*. 33 (1) p 14-23.

Rogers S N & Lowe D (2011) British Association of Oral and Maxillofacial Surgeons first national audit in support of revalidation. *Br J Oral Maxillofac Surg*. 49 (6) p 478-9.

Roland M, Roberts M, Rhenius V & Campbell J (2013) GPAQ-R: development and psychometric properties of a version of the general practice assessment questionnaire for use for revalidation by general practitioners in the UK. *BMC family practice*. 14 (1) p 160.

Rubin P (2012) Commentary: the role of appraisal and multisource feedback in the UK General Medical Council's new revalidation system. *Academic Medicine*. 87 (12) p 1654-6.

Rughani A (2001) GP appraisal and revalidation based on the personal development plan. *Journal of Clinical Governance*. 9 (4) p 175-179.

Saedon H, Salleh S, Balakrishnan A, Imray C H E & Saedon M (2012) The role of feedback in improving the effectiveness of workplace based assessments: a systematic review. *BMC Med Educ*. 12 (1) p 25.

Saidi G & Weindling AM (2003) An evaluation of a national scheme for continuing professional development (CPD) for career grade doctors: the Royal College of Paediatrics and Child Health's programme for paediatricians evaluated by focus group methodology. *Medical education*. 37 (4) p 328-34.

Sargeant J, Mann K, & Ferrier S (2005) Exploring family physicians' reactions to multisource feedback: perceptions of credibility and usefulness. *Medical Education* 39 (5) p 497-504.

Sargeant J, Mann K, Sinclair D, van der Vleuten C & Metsemakers J (2007) Challenges in multisource feedback: intended and unintended outcomes. *Medical education*. 41 (6) p 583-91.

Sargeant J M, Mann K V, van der Vleuten C P & Metsemakers J F (2009) Reflection: a link between receiving and using assessment feedback. *Adv Health Sci Educ Theory Pract*. 14 (3) p 399-410.

Setna Z, Jha V, Boursicot K A M & Roberts T E (2010) Evaluating the utility of workplace-based assessment tools for speciality training. *Best Pract Res Clin Obstet Gynaecol*. 24 (6) p 767-92.

Shah N M & Turner G P (1986) Medical QA activities: incorporating essential elements. *Dimensions in Health Service*. 63 (1) p 25.

Shakespeare T P, Mukherjee RK, Lu J J, Wynne C J, Kumar M B & Back M F (2004) A comparison of RANZCR and Singapore-designed radiation oncology practice audit instruments: how does reproducibility affect future approaches to revalidation? *Australas Radiol*. 48 (2) p 195-203.

Sharma N, Cui Y, Leighton J P & White J S (2012) Team-based assessment of medical students in a clinical clerkship is feasible and acceptable. *Medical Teacher*. 34 (7) p 555-61.

Shepherd A & Cameron N (2010) What are the concerns of prospective responsible officers about their role in medical revalidation? *Journal of Evaluation in Clinical Practice*. 16 (3) p 655-660.

Solent NHS Trust (2013) Research, Service Evaluation & Clinical Audit Strategy.

Southgate L, Cox J, David T, Hatch D, Howes A, Johnson N, Jolly B, Macdonald E, McAvoy P, McCrorie P & Turner J (2001) The General Medical Council's Performance Procedures: peer review of performance in the workplace. *Medical Education*. 35 (Suppl 1) p 9-19.

Sparke J I & Rowe S (2004) Clinical governance: its effect on surgery and the surgeon. *ANZ J Surg*. 74 (3) p 167-70.

Staples I, Wakeling J, & Cameron N (2010) A review of further training for GP appraisers in Scotland. *Educ. prim. Care*. 21 (1) p 25-31.

Starke I & Wade W (2005) Continuing professional development-supporting the delivery of quality healthcare. *Ann Acad Med Singapore*. 34 (11) p 714-6.

Stewart G D, Teoh K H, Pitts D, Garden O J & Rowley D I (2008) Continuing professional development for surgeons. *Surg*. 6 (5) p 288-92.

Thammasitboon S, Mariscalco M M, Yudkowsky R, Hetland M D , Noronha P A & Mrtek R G (2008) Exploring individual opinions of potential evaluators in a 360-degree assessment: four distinct viewpoints of a competent resident. *Teach Learn Med*. 20 (4) p 314-22.

Thomas E (2007) Thoughtful Planning Fosters Learning Transfer. *Adult Learning*. 19 (3-4) p 4.

Thomas H & Qiu T (2012) Work-Related Continuing Education and Training: Participation and Effectiveness. Journal of Workplace Learning. 24 (3) p 157-176.

Thompson A M, Ritchie W & Stonebridge P A (2005) Could sequential individual peer reviewed mortality audit data be used in appraisal? *Surg*. 3 (4) p 288-92.

Thompson A & Fellows S (2011) How paediatricians can prepare for revalidation. *Arch Dis Child*. 96 (10) p 983-6.

Violato C, Lockyer J, & Fidler H (2003) Multisource feedback: a method of assessing surgical practice. *BMJ*. 326 (7388) p 546-8.

Violato C, Lockyer J, & Fidler H (2006) Assessment of pediatricians by a regulatory authority. *Pediatrics*. 117 (3) p 796-802.

Violato C, Lockyer J, & Fidler H (2008) Changes in performance: a 5-year longitudinal study of participants in a multi-source feedback programme. *Medical education*. 42 (10) p 1007-14.

Violato C, Worsfold L & Polgar J M (2009) Multisource feedback systems for quality improvement in the health professions: assessing occupational therapists in practice. *J Contin Educ Health Prof*. 29 (2) p 111-8.

Wallace, Louise M; Boxall, Matthew; Spurgeon, Peter; Barwell, Fred (2007) Organisational interventions to promote risk management in primary care: the experience in Warwickshire, England. *Health Serv Manage Res*. 20 (2) p 84-93.

Walsh K A, Smith K M, & Armitstead J A (2012) Patterns of pharmacist continuing education and concordance with practice areas in an academic medical center. *Hospital Pharmacy*. 47 (8) p 626-632.

Wilkinson J R, Crossley J G M, Wragg A, Mills P, Cowan G & Wade W (2008) Implementing workplace-based assessment across the medical specialties in the United Kingdom. *Medical education*. 42 (4) p 364-73.

Wilson H J & Ayers K M S (2004) Using significant event analysis in dental and medical education. *Journal of dental education*. 68 (4) p 446-53.

Wood J, Collins J, Burnside E S, Albanese M A, Propeck P A, Kelcz F, Spilde J M & Schmaltz L M (2004) Patient, faculty, and self-assessment of radiology resident performance: a 360-degree method of measuring professionalism and interpersonal/communication skills. *Academic radiology*. 11 (8) p 931-9.

Woodcock A, White P, Smith H, Coles C, Campion-Smith C & Stannard T (2000) GP selection of postgraduate education courses has implications for colleagues: messages for course providers and for those writing practice professional development plans. *Br J Gen Pract*. 50 (459) p 785-90.

Wright P D & Franklin C D (2007) The use of significant event analysis and personal development plans in developing CPD: a pilot study. *BDJ*. 203 (1) p 43-47.

Wright C, Richards S H, Hill J J, Roberts M J, Norman G R, Greco M, Taylor M R S & Campbell, J L (2012) Multisource feedback in evaluating the performance of doctors: the example of the UK General Medical Council patient and colleague questionnaires. *Academic Medicine*. 87 (12) p 1668-78.