Unlocking the potential of GDC Fitness to Practise data

Final Report

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Glossary of Key Terms

Many of these terms are used in common parlance. However, this glossary defines the way in which the terms are used within this report.	
Aggravating factor	Any fact or circumstance that increases the severity of an act or an omission, or the culpability of the registrant.
Big Data	Big data refers to the large, diverse sets of information that grow at ever-increasing rates. It encompasses the volume of information, the velocity or speed at which it is created and collected, and the variety or scope of the data points being covered.
Calibration	Formal and informal processes that seek to ensure consistency of decisions across cases (see also Quality Assurance).
Case Examiner	An individual employed by the regulatory body who works at the investigation stage to gather evidence for fitness to practise cases.
Case File	The information received from regulators about individual fitness to practise cases, used as data for this report.
Code (of conduct)	All health professions regulators have a code of conduct that outlines the standards to which all registrants must adhere in order to maintain a position of good standing with the regulator. Departures from these standards can indicate misconduct.
Conditions (of practice)	A sanction in which a registrant may continue to practise, but the scope of their practice may be restricted in some way, or they are obliged to undertake other measures to address deficiencies in their professional practice.
Consensual disposal	The means by which regulatory panels and registrants reach agreement to conclude a case by deciding in private the outcome that the panel would most likely have reached if the case went to a public hearing.
Consideration	The areas of behaviour or practise related to the incident (the original event that initiated the FtP process). Each incident may have multiple considerations, and considerations include types, subtypes, and categories within the GDC data.
Determination	The official and recorded outcome of a fitness to practise panel.
Engagement	Refers to the registrant's response to all stages of the fitness to practise process, including any written or verbal communications, sharing of relevant evidence, and attendance when requested at a panel hearing.
Grey literature	Information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing.
Guidance documents	Documents published by regulators that describe their regulatory processes, excluding those documents that form part of their statute as a regulator.

Many of these terms are used in common parlance. However, this glossary defines the way in which the terms are used within this report.	
Hearing	An adversarial legal proceeding, usually held in public, to determine the facts of a case based on the evidence, and to determine an appropriate sanction, if deemed necessary.
Impairment	A registrant's lack of capacity to carry out their professional duties in accordance with the standards of the profession and in a manner that protects the public from harm and maintains public confidence in the profession.
Incident	The original reported event that initiated the FtP process.
Insight	In relation to mitigating or aggravating factors, evidence that the registrant understands the consequences of their actions, as well the necessary steps needed to rectify identified deficiencies in their practice.
Interim order	Suspension of a registrant or a restriction on their practice to protect the public for the duration of the fitness to practise process.
Investigation stage	The stage of the fitness to practise process in which evidence is gathered and a decision is made on whether the case needs to go to a public hearing. However, more minor sanctions, undertakings, or consensual disposal may be imposed or agreed upon at this stage.
Misconduct	An act or omission that represents a serious departure from professional standards, to be determined through the fitness to practise process.
Mitigating factor	Any information or evidence presented during the fitness to practise process regarding either the registrant or the circumstances that may result in a lesser sanction, or a decision at the investigation stage not to refer the case to a full panel hearing.
Outcome	The result of a fitness to practise process after a decision is made at any stage of that process.
Panel	A group of individuals, representing registrants of the profession as well as lay people, who decide on the outcomes of cases at adjudication stage of the fitness to practise process.
Professional regulator (health)	Bodies with a statutory responsibility to regulate one or more groups of health professionals.
Quality assurance	Process to ensure that the fitness to practise procedures are of an appropriately high standard.

Many of these terms are used in common parlance. However, this glossary defines the way in which the terms are used within this report.	
Registrant	An individual who is registered with the regulator as having achieved the necessary competency and official qualifications to practise in that profession.
Remediation	The process by which any professional deficiency is remedied in order to return the registrant to safe practice.
Sanction	The actions taken by a panel or case examiners, at either the investigation or adjudication stage of the fitness to practise process, in response to findings related to misconduct and/or impairment/unprofessional conduct.
Seriousness	The severity of an act or omission that determines a) whether that offence, if proven on facts, amounts to misconduct, and b) if found, the level of sanction appropriate in response to the finding.
Suspension	A sanction which suspends the registrant's registration for a specified period.
Threshold	Relating to guidance, a statement of facts or processes that assist decision makers in determining the appropriate course of action or sanction relating to the severity of the case.
Undertakings	Measures agreed between the registrant and the panel or case examiners, that the registrant will undertake in order to address deficiencies in practice while continuing to practise.

Executive Summary

This report contains findings from a mixed methods study, utilising literature review, interviews and focus group data, and in depth qualitative and quantitative analyses of GDC case file data. The research was commissioned by the GDC and conducted between 1st November 2020 and 15th May 2023 by University of Plymouth to investigate the potential to improve systems using GDC Fitness to Practise (FtP) data.

Aims

The project aimed to support the identification and development of high-quality data management and analysis practices to enable the GDC to realise and uncover the full potential of FtP data. The analyses provide a review of, highlight implications from, and will inform development of FtP processes from receipt of the initial concern to final outcome. Multiple processes are included in opportunities for development, including data capture and management as well as decision making and case progression.

The objectives of this research were:

- To review, develop and revise the categorisation and labelling of key issues within FtP cases.
- To enhance understanding of FtP decision-making at all stages of the procedures.
- To identify and develop sustainable approaches for learning from FtP data to support organisational development and upstream regulation.
- To understand and profile FtP related risk in relation to the dental professions, including the complexity of risk.

Background and rationale

The GDC is one of ten health and care professional regulators in the UK. One of the key functions of these regulatory bodies is to investigate concerns about registrants, which may consequently require the imposition of restrictions on their registration to practise. This is widely known as Fitness to Practise or FtP.

FtP procedures generate significant quantities of data related to characteristics of registrants referred to FtP, types of informant and details of each case. Streamlined management of this data and analysis has the potential to unlock evidence about the GDC's work in this area, identify patterns which are concerning and inform future strategies. This report details findings from mixed-methods research into the GDC processes for data collection, management, and use. The research was designed to develop an understanding of how those processes have functioned, to identify improvements and opportunities for learning from the data, including the potential to inform 'upstream regulation'. Datasets routinely produced by FtP processes constitute an important learning source, which has the potential to inform understanding about behaviours and risk factors for misconduct.

This research provided an extensive investigation of GDC data collection and management processes to generate insights to inform the GDC's development of its FtP processes, its data management methods, and its related policies.

Study design

The research used a mixed methods design, including documentary review, primary data collection through qualitative interviews, and combining statistical quantitative with in-depth qualitative analyses of FtP case file data.

The initial phase of the work involved scoping activities to assess the scale, scope, quantity and quality of the data available for use in the project, and familiarisation with existing GDC FtP processes for data collection, management and usage. This involved a Rapid Evidence Assessment of the relevant literature, incorporating a narrative synthesis of one hundred and six (106) documents which met the inclusion criteria. Interviews and focus groups were conducted with key stakeholders managing FtP data (21 participants) as well as key external stakeholders (24 participants) to identify their priorities and learning needs in relation to FtP.

Analyses of GDC registrant data (140,018 rows) and case file data (60,633 rows) provided in-depth interrogation using both quantitative and qualitative datasets. Synthesis of this data was used to allow the identification of new approaches to analysis that GDC can continue to apply and build upon in future.

This project received ethical approval by the Faculty of Health Staff Research Ethics and Integrity Committee at the University of Plymouth on 10th March 2021 (Study Number: 2493).

Summary of findings related to each research question (RQ)

RQ1 - How does the GDC currently capture, store, retrieve and analyse data throughout the FtP process, including other GDC data relating to FtP?

There is a large amount of data from multiple sources collected for each FtP case. Data is heterogeneous in nature and formatting, with missing data and apparent inconsistencies. There were challenges noted in all aspects of data management and storage, including collection of sufficient detail and in an appropriate format to enable inferential statistics to be used effectively to support useful learning and sharing. Where data was missing, inconsistent, or management platforms are perceived to have limited utility, confidence with which conclusions can be drawn when analyses were performed using these characteristics was reduced.

The Phase One interviews described a lack of clear organisational strategy and capacity regarding processes and operation for data management, storage and reporting. The CRM was perceived as being difficult to use, and lacking in appropriate data fields and functionality, with formal staff training and lines of organisational responsibility needing to be clarified.

RQ2 - What method of analysis will produce robust results and offer potential benefits to GDC in the long term?

The approach to quantitative analysis was designed to describe the profile of those involved in FtP cases and explore factors affecting the relative risk of registrants being involved in FtP cases. The specific analyses have utilised descriptive statistics, regression-based analyses, odds-ratios, and chi-squared analyses, along with proposed alternatives that accommodate suggestions for restructured data. Although the structure of the data may change in future to make better use of what is collected, all of these types of analyses will remain applicable to answering questions about risk and identifying areas of potential intervention or improvement.

Thematic and content analysis of case file documents were also utilised as a method of gaining insight into patterns across cases and informing contextual understanding and considerations for future developments. A revised data collection and management system, where specific categorical information was extracted at source could enable more use to be made of inferential and descriptive statistical analyses in future.

RQ3 - How do UK health professions regulators use FtP data?

Some regulators have developed their data collection, recording and auditing processes to support improved analysis, including data on informants and 'geographical' data. They have also increased the range of data that was collected in categorical forms, rather than free text, which facilitates subsequent statistical analysis.

Training was thought to be fundamental for strategy, process and system use, in addition to specific training in FtP. They advise bringing in expert staff and case examiners at the earliest stages of the process to enable cases to be considered fully and closed at the most appropriate time.

There were challenges noted across various aspects of the wider healthcare regulation landscape, with GDC data management and storage challenges reflecting these, including the collection of sufficient detail and in an appropriate format to enable inferential statistics to be used effectively to support useful learning and sharing. A number of different factors were considered by other regulators, including 'contextual' issues, relevant to a Human Factors approach to risk management. All sectors reported wanting an upstream regulation approach and to use FtP data for prevention and learning, but none felt they had operationalised it effectively or optimally.

RQ4 - What are key stakeholders' priorities for or expectations of learning from FtP data?

Stakeholders wanted more open access to contemporaneous data to enable support and development of their own practices and processes. For example, for indemnity providers to support and guide their members, and for education providers to develop curricula and learning to help prevent issues arising in the first place.

Interactive dashboard style platforms were requested to allow customised data extraction when needed. Stakeholders noted some legislative challenges that may need to be taken into account related to data sharing.

RQ5 - How should case data be categorised? How can existing case categorisations be improved?

The findings from the study suggest options for how data can be categorised in various ways, which would enable more detailed and useful analysis. Increased identification of categorical variables would allow greater insight to be gleaned from statistical analyses of FtP data. Application of principles of exclusivity and exhaustiveness in creating categories will also improve the usability of the data captured.

A suggested structure for an updated and revised list of considerations emerged from the analysis of the qualitative data.

Table 1: Proposed new list of considerations and their meta level themes following thematic analysis.

Professional Practice	Clinical Complaints	Substantive criminal actions/convictions
Considerations	**Considerations**	**Considerations**
Patient safety	Record keeping	Conviction/arrest (of any nature)
Practising whilst suspended	Health and safety	Fraud
Personal behaviour	Harm to patients	Assault
Professionalism	Specific treatment issues	Restraining order
Dishonesty	Radiographic practice	
Communication	Hygiene	
Not co-operating with an inquiry	Prescribing issues	
Misconduct (any nature)	Failure to obtain consent	
Rudeness	FtP history	
Bullying	Existing case	
Safeguarding		
English language		
Handling complaints		
Payment for Treatment		

RQ6 - What works best to create aggregatable learning, enabling GDC to better code, weight, capture, store and retrieve FtP and registration case file content?

It may be helpful to consider how to transform what is essentially a case/customer data management system into one which can fully support a 'Moving Upstream' agenda, by recording more relevant data and producing an easily accessed data 'dashboard' which can give real-time information on FtP cases. We have identified areas which are important to include in descriptive statistics and data linkage exercises via inferential statistics to optimise aggregatable learning.

In addition to enhanced categorical data collection, reviewing and developing the formatting and processes of case file data will enhance opportunities for data linkage. Being able to sort by data or file type and date would simplify interrogation of qualitative data to provide more in depth and contextually rich findings. The quality of data files (content, storage and management) affects the quality of data analyses for both qualitative and quantitative work, and so it is fundamental to manage this aspect in a considered manner. Enhanced training for staff outside of organisational structures, along with appropriate overarching management support for the entire FtP process and data systems that might be used in future, may be beneficial for learning.

Using a revised considerations categorisation and bringing in case experts at the earliest stages of the FtP process may improve learning and efficiency by enabling cases to be referred directly to a later stage or closed more effectively at an earlier one. Such improvements to the data and processes highlighted through this study will enable future risk modelling to be enhanced.

RQ7 - How are personal, professional, environmental and technical factors associated with FtP cases? What changes might impact on these associations?

Male registrants, registrants with an ethnicity category other than White and dentists are all overrepresented in the FtP data. Non-UK qualified registrants are also overrepresented in the FtP data. These are also reflected in analysis of the likelihood of members of these groups being involved in FtP cases; however, when considering the likelihood of involvement in an FtP closed at any point after Triage, the main risk factors appear to be being a dentist (rather than a dental care professional (DCP)) and having qualified in a country outside of the UK or EU. Why these factors are associated with involvement in FtP cases is not something the quantitative data provided for this report can directly answer, though the analysis of consideration type provides insight into which areas of practice are problematic. The majority of informants are patients, and the majority of considerations attached to FtP incidents are related to professional knowledge and skills, putting patients' interests first, and effective communication.

RQ8 - What factors determine the risk of entry into, progression through and outcome of, FtP procedures? What gaps exist in the data or analysis that affect risk modelling and how can these be addressed?

Factors related to risk of involvement in, progression through, and outcomes of the FtP process reflect the findings from RQ7. There is a trend that dentists and those whose primary qualification is non-UK may be more likely to be involved in cases that continue to the later stages of the process than other registrant categories or those who are UK qualified. Associations between registrant characteristics, considerations, and decisions is made difficult by the data capture and structure, described elsewhere, but it appears the majority of considerations that progress beyond Triage (Initial Assessment) are related to putting patients' interests first, professional knowledge and skills. Combining existing categorisation and the findings from the thematic and content analysis, both these consideration groups appear to be largely related to specific treatment issues.

Missing data on informant demographics, as well as registrant characteristics, including health data, makes some analyses more difficult, particularly with respect to interactions between informant and registrant types, and intersectionality in risk analyses.

Some of this can be addressed in future, both by retrospectively acquiring missing data (perhaps through regular or targeted registrant surveys or similar), and restructuring the data as described in this report to capture links between process progression, registrant information, and to facilitate analysis of risk factors in isolation and combination.

RQ9 - How can FtP data be used to monitor, support and evaluate FtP and corporate strategy work in other domains of regulatory activity?

The data collected currently by the GDC allows some comparison of the profiles of registrants involved in FtP cases, with subsequent analysis of which groups are over- or under-represented in the case data. It also allows partial analysis of risk factors, which could be repeated annually to monitor any changes in those factors. It has the potential to allow additional policy and theory-based hypothesis testing regarding underlying factors, groups of factors, and their relationship between involvement in an FtP case, the particulars of that case, and also improved understanding of those particulars through data-driven category construction. Non-FtP regulatory work in education standards and training can benefit from the analysis of FtP data, through informing policy and highlighting important areas of need in training and CPD.

Conclusions

It is important to remember that FtP applies to just 1-4% of the registrant population in the wider healthcare sector, and in this study 2.13% of the dental registrant population. Nevertheless, it is a sector wide issue – no one yet has answers about how to optimise FtP data for prevention and upstream regulation, but action needs to be taken to enable and support requirements. The sector all agree that better data collection and management strategies are required before being able to agree how to optimise learning and prevention.

Data storage and management are key to being able to use such data for analysis, learning and prevention. Currently the data systems in place have room for improvement at all stages from collation to analysis. Clear direction and fit for purpose systems are prerequisites to enabling data to be managed in a reliable and meaningful way.

Missing, ambiguous, poorly organised data are currently preventing the GDC from optimising the data they do have, and developing ways to reduce these issues immediately is an important first step in improving processes. This can be as straightforward as ensuring consistent use of terminology, that systems are fit for purpose and that staff are fully trained to use them effectively, and that a minimum sufficient amount of data is collected. By managing case data by registrant, useful registrant demographic information will already be available, and additional contextual data such as area of practice (e.g. NHS and whether full or part time) can be collated. In the short term, revising coding, increasing the amount of categorical data over free text and managing data by registrant (not individual incident) will support analysis and learning. Longer term Big Data solutions may have answers for future improvements in data collection, management, storage and analysis.

To enable better upstream regulation across multiple areas from FtP data, adequate resources need to be directed into the entire FtP arena. By improving process, strategy and systems, the GDC can realise the requirements of the Professional Standards Authority (PSA) for proportionate (i.e. with limited interventions tailored to risk), consistent (i.e. with sensible rules imposed fairly), targeted (i.e. with emphasis on problems and reduction of subsequent negative effects), transparent (i.e. open and friendly to users), accountable (i.e. with ability to justify decisions), and agile (i.e. with anticipation of changes) system of regulation across health and social care.

Implications and recommendations

- Develop a clear strategy for the collection and use of FtP data, now and in the future.
- Train and upskill all GDC staff regarding FtP (process, strategy, systems) regardless of organisational structure.
- Improve current data collection, storage, management and reporting processes for both quantitative and qualitative data. Ideas include for example: centralise FtP admin processes; appoint an overall FtP project manager; data mine at source to identify more detailed and categorical data in the same format for use in descriptive and inferential statistical analysis; use of cover sheet for case files; store by registrant then case; consistent use of terminology across data and processes, expert staff input at Initial Assessment and Casework stages.
- Align terminology related to FtP across all regulator activities.
- Develop a shared and agreed considerations list with associated categorical data collection.
- Explore development of an updated and enhanced data management system.
- Define and share a communication strategy with external stakeholders for use of FtP data across other areas of activity. Consider development of a contemporaneous dashboard for internal use and a shared validated tool for external use.
- Explore potential for additional research to investigate contextual factors in FtP including non-UK qualified registrants, the role of secondarily identified considerations including record keeping, undergraduate and postgraduate exam performance related to later FtP processes, and the use of Big Data to support FtP data management.

1. Introduction

Fitness to Practise (FtP) processes, operated by all UK regulators of health professions, generate significant quantities of data. This report details findings from mixed-methods research into the General Dental Council's (GDC) processes for FtP data collection, management, and use. The project aimed to support the identification and development of high-quality data management and analysis practices to enable the GDC to realise and uncover the full potential of their FtP data. Through analyses of these data, and consideration of their quality, completeness, and accessibility, the research provides a review and will inform development of FtP processes from receipt of initial concern to final outcome. It highlights implications of the current practices of data collection, management, storage and analysis, and suggests revisions or additions that may enable more effective data capture and management in future. In addition, the findings from the project provide evidence to inform upstream regulation [1], future learning opportunities, both internally and externally.

Data are produced, and further used during FtP processes and in other regulatory business, in both quantitative and qualitative forms. Quantitative data includes: numbers of cases (in total and by type); numbers of registrants involved including their personal and professional characteristics; whether or not cases progress from one decision stage to the next; and how long cases take to move through the process. Qualitative data are created in the form of a variety of documents associated with cases, including any evidence collected during investigations, and documents recording the decisions taken at each stage and the rationale behind them. Routinely generated as part of the GDC's operational activities, these rich datasets offer a valuable resource for learning about both the regulator's own processes and FtP activities. FtP accounts for a very small percentage of practitioners and practices, nevertheless analysis of these datasets can support broader learning about dental practice, especially in terms of the concerns about their FtP that dental professionals may face.

The research used a combination of documentary review, analysis of interview and focus group data, and statistical and qualitative analyses of GDC FtP data to provide an extensive investigation of GDC data collection and management processes and generate insights to inform the GDC's development of its FtP processes, its data management methods, and its related policies.

The objectives of this research were:

- To review, develop and revise the categorisation and labelling of key issues within FtP cases.
- To enhance understanding of FtP decision-making at all stages of the process.
- To identify and develop sustainable approaches for learning from FtP data to support organisational development and upstream regulation.
- To understand and profile FtP related risk in relation to the dental professions, including the complexity of risk.

The research addressed a series of detailed research questions as shown in Table 2.

Table 2: Research Questions for the study and sections of the report addressing each.

	Research Question	Section of Report
1	How does the GDC currently capture, store, retrieve and analyse data throughout the FtP process, including other GDC data relating to FtP?	1.1.1 / 2.1 / 3.2 / 4.1
2	What method of analysis will produce robust results and offer potential benefits to GDC in the long term?	2 / 3 / 4.6 / 4.7
3	How do UK health professions regulators use FtP data?	1.1 / 3.1 / 3.2 / 3.3
4	What are key stakeholders' priorities for or expectations of learning from FtP data?	1.1 / 3.2
5a	How should case data be categorised?	3.2.5 / 3.3.2 / 3.3.3 / 3.3.4
5b	How can existing case categorisations be improved?	3.3.3 / 3.3.4 / 4
6	What works best to create aggregatable learning, enabling GDC to better code, weight, capture, store and retrieve FtP and registration case file content?	3.3.5 / 4
7a	How are personal, professional, environmental and technical factors associated with FtP cases?	3.2 / 3.3 / 4
7b	What changes might impact on these associations?	3.3.2 / 3.3.3
8a	What factors determine the risk of entry into, progression through and outcome of, FtP procedures?	3.3.1 / 3.3.2 / 3.3.4 / 4
8b	What gaps exist in the data or analysis that affect risk modelling and how can these be addressed?	3.3.2 / 3.3.3 / 4
9	How can FtP data be used to monitor, support and evaluate FtP and corporate strategy work in other domains of regulatory activity?	3.1.4 / 4

1.1 Background

1.1.1 General Dental Council and Fitness to Practise

The GDC is one of ten health and care professional regulators in the UK. These regulatory bodies are statutory bodies, with their objectives and functions mandated by parliament through legislation. All these regulators must fulfil four core functions [2, 3], namely: maintaining a register of qualified and eligible registrants; setting competency- and conduct-related standards that registrants are required to follow in day-to-day work; assuring the quality of higher education and training; and investigating concerns against registrants to identify instances of impaired performance that may subsequently require the imposition of restrictions on their registration to practise. The last function is widely known as Fitness to Practise or FtP.

The GDC maintains a register [145], at present consisting of over 116,000 dental professionals, including the titles dentist, clinical dental technician, dental hygienist, dental nurse, dental technician, dental therapist and orthodontic therapist. The GDC regulatory functions of setting standards for dental education and practice, registering professionals and dealing with concerns are underpinned by the legislative framework provided by the Dentists Act 1984 (as amended) [5].

Concerns raised about dental professionals are referred to the GDC from a number of sources, including patients, employers, and the police [6]. Registrants also have a duty to self-refer in some circumstances, for example in the event of health issues or involvement with the police or other authorities. The GDC's FtP process is composed of four stages: namely Initial Assessment or Triage, Casework or Assessment, Case Examiners and Practice Committees [7]. All concerns that relate to a registered dental professional undergo the Initial Assessment stage. Cases outside the GDC's remit (such as problems concerning compensation, or employment disputes) are then closed and/or re-directed to the appropriate organisation, such as the National Health Service (NHS) or other employers. Cases containing clear FtP issues then progress to the Casework stage.

FtP relates to clinical performance (both in terms of skills and conduct), health, and actions affecting public confidence in the profession (e.g. misconduct and criminal offences) [6, 8]. At the Casework stage, additional information is gathered (e.g. through reports, patient records, clinical advice) and the registrant involved is notified. This stage does not aim to establish the presence or absence of impairment of FtP, but rather to verify the need for in-depth investigations. Should it be decided that there is a need to consider the information in more depth, cases are moved into the next stage where they are further scrutinised by two case examiners (one dentally trained and one lay) who examine all the evidence as well as comments from the registrant and informant. Serious cases, those containing allegation(s) that identify a reasonable prospect of the registrant being found to be impaired, and those with conflicting evidence, are referred directly to the final stage of the process via one of the Practice Committees (Professional Conduct, or Professional Performance, or Health Committee). Otherwise, case examiners may close cases without further action, or with some advice, or a warning, or undertakings that are mutually agreed upon with the registrant. At the Practice Committee stage, hearings are scheduled in which registrants appear before independent panels composed of dentally trained professionals and lay members. Hearings usually take place in public, with some instances where parts or even the whole hearing could occur in private. Both the GDC and registrants are entitled to formal legal representation in such hearings. Committees adjudicate whether or not there is indeed any impairment of FtP and determine the appropriate courses of action, which may include no further measures, or a reprimand, or conditions on or suspension of practice, or complete removal from the register [9].

When a registrant's ongoing practice constitutes an immediate risk to patient safety and/or public confidence in the profession, the GDC may refer the case to the Interim Orders Committee [9]. This committee has the power to impose appropriate restrictions on a registrant's registration, as a temporary measure until a formal hearing is carried out.

1.1.2 Upstream Regulation

In its *'Road map 2016-2019'*, the GDC emphasised the complexity of the existing concern system (i.e. concerns being submitted to multiple organisations, either inadvertently or deliberately) and the limited understanding of data created from FtP cases [10]. Along the same lines, a few years later, *'Shifting the balance'* reported significant shortcomings of the dental regulation system, including failing to meet increasing patient expectations from dental care and provide reassurance that concerns are addressed in a timely fashion. It also highlighted an inability to retain registrant support, due to long FtP processes being perceived as oppressive and triggering a 'climate of fear' along with a cognitive association of 'regulation' with 'enforcement' [11].

To respond to these challenges, the GDC expressed a desire to shift regulation from enforcement to prevention, thereby more effectively satisfying the inherently preventative nature of functions concerning developing standards for education and practice and controlling the register [11]. This transformation of regulation has been described as the 'upstream' approach. The term 'upstream' was first conceptualised in 1975 by McKinlay to describe healthcare professionals' actions in saving patients from a river in motion, but not watching upstream to explore why patients ended up in the water [12]. According to McKinlay, systemic problems lying 'upstream' are frequently left neglected, solely focusing on 'downstream' interventions to retrospectively confront the consequences of poor practice.

To achieve the ambition of moving regulation 'upstream', the GDC proposed a series of objectives. These included: emphasis on learning, especially in relation to patient protection, as a means to enhance services and avoid concerns in the future; liaison with stakeholders (e.g. wider profession, educators, other regulators, NHS, indemnity providers) to exchange learning and design standards; collaborative, prompt handling of patient feedback and concerns, as close as possible to the setting where they arose, to minimise referrals to the regulator; and a restructured FtP process, in which learning and remediation play a predominant role and regulatory disciplinary actions are reserved only when risk to patients and/or professional standards is clearly apparent.

These initiatives were reiterated in '*Right time, Right place, Right touch'* [13] and *'Moving upstream'* [14], released in late 2019 and early 2020 respectively, in which there was further elaboration of the progress in and remaining plans for establishing a learning-based model of regulation. Both documents explicitly refer to a data-driven approach in determining positive actions for the profession. Data was to be used to drive decisions in relation to professionalism and practice, as well as refinements in the GDC's internal processes, and a 'right-touch model' for enforcement, with enforcement decisions being proportionate to seriousness.

It has been acknowledged that the rich datasets routinely produced by FtP processes can and should inform upstream activity [13-15]. FtP data constitute an important learning source which has the potential to inform understanding about behaviours, types of practice, and day-to-day problems (relating, for example, to working arrangements, settings, roles and institutional cultures) that constitute risk factors for misconduct and referrals to the GDC. Insights from FtP data could therefore be valuable for dental education, practice and regulation in designing risk prevention strategies, updating training with real-life scenarios, and establishing levels of seriousness to tailor responses to the severity of risk. In addition, analysis of FtP data could foster the GDC's organisational development and assist the refinement of internal processes, including quality as well as amount, of data collection and management procedures.

1.1.3 The wider picture and knowledge gaps

All these recent changes in the way the GDC operates, largely reflect the Professional Standards Authority's (PSA) guidance and plans for 'right touch regulation' [16]. The PSA advocates for a proportionate (i.e. with limited interventions tailored to risk), consistent (i.e. with sensible rules imposed fairly), targeted (i.e. with emphasis on problems and reduction of subsequent negative effects), transparent (i.e. open and friendly to users), accountable (i.e. with ability to justify decisions), and agile (i.e. with anticipation of changes) system of regulation across health and social care. Therefore, shifts towards career-long learning and evidence-based processes in regulation are not unique to the GDC, but rather a more widespread phenomenon in the light of PSA recommendations. It is not entirely clear, however, exactly how learning approaches are followed by different regulators and what their precise impact is on registrants, regulatory staff and other stakeholders.

A recent literature review found persistently negative feelings and defensive attitudes by registrants towards regulators, as well as regulatory frustration about outdated legislation hampering the implementation of more preventative approaches [17]. A scoping review of literature concerning use of data in different regulators reported that, while a comparable four-stage FtP process exists across the board, there are significant inter-regulator variations in terms of data categorisation and recording (including classifications used, amount of sociodemographic details captured, extent of missing data in databases), nomenclature employed in case files and documents, panel compositions and decision-making procedures [18]. A mixed-methods study looking solely at the GDC found that it is feasible to analyse its FtP data and proposed descriptive statistics and regressions as the most sensible methods to pursue [19]. Indeed, another piece of research successfully analysed the GDC's FtP datasets, however, the depth and breadth of analysis were bound by complicated hierarchies in data categorisation [20].

Data are created throughout all stages of the FtP process and involve quantitative and qualitative information organised across numerous files, documents and reports [20, 21] and consequently generate a large, heterogenous dataset as noted above. Examples of quantitative data include: the volume of FtP cases; numbers of registrants subject to concerns and their characteristics; numbers of informants and their characteristics; the number of cases progressing through the various stages of the FtP process; and the duration of cases. Qualitative data generated by FtP processes include all written documents associated with cases, from initial written submission of concerns, responses from the registrant concerned, reports from clinical experts, and any documents recording GDC actions and decisions in a case, such as meeting notes, case examiner reports, and Panel determinations. This study conducted analyses of both quantitative and qualitative dataset samples to answer the research questions and identify areas of learning that will support the profession in operationalising upstream regulation, and the GDC in optimising their processes and statutory requirements.

1.1.4 Ethical Approval

This project received ethical approval by the Faculty of Health Staff Research Ethics and Integrity Committee at the University of Plymouth on 10th March 2021 (Study Number: 2493).

2. Methods

This research used a mixed-methods approach. The project consisted of three phases:

1. Background and scoping.
2. Review and analysis of quantitative and qualitative data contained within GDC files relating to FtP cases.
3. Synthesis of findings.

2.1 Phase 1 Background and scoping

2.1.1 Rapid Evidence Assessment

A Rapid Evidence Assessment (REA) was undertaken as a scoping exercise from 1st November 2020 – 1st January 2021. REA is a literature review methodology used to locate, appraise, and synthesise evidence from previous studies and is carried out within a fraction of time needed for traditional systematic reviews whilst still maintaining a clear search strategy [22, 23].

The overall aim of the REA was to identify evidence on how FtP data is analysed and used to support learning for regulators and other stakeholders. The REA was designed to address four specific questions:

1. What methods have been used by different regulators to analyse quantitative and qualitative FtP data?
2. What insights have been achieved through analysis of FtP data?
3. What changes have regulators made to the ways in which they collect and manage FtP data?
4. How does learning from FtP data inform regulatory decision-making?

Scoping activities are defined as exploratory research to synthesise core concepts, available evidence, and gaps in knowledge on a topic [24, 25]. Details of how the REA was conducted can be found in Appendix A.

One hundred and six (106) documents in total met the inclusion criteria and were included in the REA. Of these 106 documents, 90 were grey literature (including FtP reports, business plans or strategies, policy-related documents, and research reports) and 16 were research articles published in peer-reviewed journals.

The technique of narrative synthesis was used to report findings of the REA. Narrative synthesis is an approach to systematic/literature reviews, in which findings and key messages from diverse types of individual studies are summarised and explained in a textual manner (i.e. using text and words) even in the presence of statistical figures [26].

2.1.2 Additional data – focus groups, interviews

Additional data collection was undertaken between May 2021 and February 2022. This strand of work included engagement with three groups of participants, as shown in Table 3.

Table 3: Detailing participant groups for Phase1 additional data collection.

Participant group	Focus groups (total n participants)	Interviews
GDC staff	4 (18)	3
External stakeholders (indemnifiers, education related (undergraduate and postgraduate), heads of professional bodies	-	17
Representatives of other UK health professions regulators	-	7

The GDC forwarded an initial invitation email to its case managers, case workers and to people from non-FtP departments likely to be using FtP data in the course of their work. This invitation email contained the Participant Information Sheet and asked participants to contact the research team should they wish to participate. External stakeholders, including selected other UK health regulators and individuals involved with indemnity organisations, postgraduate and undergraduate education, were invited to one-to-one interviews. They were directly approached by the research team using the team's existing networks.

In total, four online focus groups with GDC staff were conducted, including one with case managers, one with case workers and two with non-FtP staff. In addition, three interviews were conducted with people from the GDC who were unable to participate in the focus groups. With regards to external stakeholders, 13 one-to-one interviews and one group interview were conducted. Finally, interviews with seven representatives from three other UK health regulators were carried out. Focus groups and the group interview lasted approximately one hour, whereas one-to-one interviews lasted from 15 minutes to one hour. All focus groups and interviews were semi-structured, and audio recorded.

Audio-recordings were transcribed verbatim, and transcripts were analysed using interpretative thematic analysis. Data from each of the three participant groups were analysed separately (i.e. different coding schemes were used).

The six steps of thematic analysis described by Braun and Clark were adopted: familiarisation with data, initial coding, theme searching, reviewing themes, refining and naming themes, and producing the report [27]. Coding was reported through NVivo 12 © qualitative data analysis software. Initial codes were independently generated by GDK and MV. Coding schemes were then refined in discussions between GDK, MV and MB. Data identified by the same code were collated and categories were developed. Categories were united into themes with associated sub-themes. Categories and themes were collectively developed by MB and GDK and were then verified by the whole research team.

2.1.3 Additional data - observations

Due to the Covid-19 pandemic and its impact on working arrangements, we were unable to undertake in-person ethnographic observations as originally proposed. However, we remotely observed two meetings of the GDC's Initial Assessment Decision Group (IADG) and were provided with access to papers from a meeting of the GDC's Quality Assurance Group (QAG). For the remote meeting observations, a researcher joined the GDC-organised meeting by Microsoft Teams and, keeping their camera off and microphone muted, took notes during the meeting using a template document focusing on how data was used or discussed within the meeting. No notes were taken on the details of the cases discussed. Members of IADG attending the meeting gave their informed consent for the observation to take place.

2.2 Phase 2 Quantitative and qualitative FtP data

Following the GDC's data request process and data asset owner approval, GDC quantitative data on the characteristics of FtP cases and the registrants and informants associated with them, plus data on the characteristics of all GDC registrants were shared with the research team initially in September 2021. The quantitative dataset was reviewed, and queries shared with, and addressed by, the GDC. An updated dataset was shared with the researchers in October 2021.

Case file data for in-depth qualitative exploration was provided by the GDC. Over 500 case files were provided and the final agreed sample of 125 cases were explicitly associated with their related quantitative data and included cases closed across all stages of the FtP process. The case files covering only later stages of the process (Case Examiner and Practice Committee) were not utilised where they could not be explicitly linked to their associated quantitative dataset so that completion of the study was not delayed. Additional qualitative datasets could be used in future to add to and/or further test the secondary content analysis. However, as described later (section 3.3.4) for this additional content analysis to be feasible, the data may need some modification, or a prospective analysis could be undertaken once data collection and management challenges have been addressed.

The various documents included in case files are listed in Appendix B and these formed the final dataset for qualitative analysis.

2.2.1 Quantitative Analyses

The quantitative data provided contained both Registrant (140,018 rows) and case data (60,633 rows), with columns recording relevant and required information. This included:

- **Unique Identifiers**
  The unique identifiers in the Registrant dataset ('contact').
- **Incidents**
  The case data provided contained 60,663 rows pertaining to incidents.
- **Dates**
  The case data was a subset, including only those cases recorded between 1st January 2017 and the date of the data download (September 2021). This resulted in 55,858 rows of data.
- **Stage and Closure**
  In order to focus these analyses on closed cases, the status of each case (open versus closed) was coded based on information about the stage at which each record was, and the decisions made at those time points.
- **Demographic variables**
  Relevant registrant demography.

Additional information: For each unique incident, the following additional information was compiled or calculated: year of registrant birth, date the initial reporting of the FtP incident was received, the year it was received, the age of the registrant at the time of the incident, the registrant profession category, year of first registration, their ethnicity, gender, and their country of qualification. Further details of these variables can be found in the findings sections 3.3.1 and 3.3.2.

To provide an overview of the characteristics of registrants and those involved in FtP cases, descriptive summaries are provided by key factors, along with profiles reflecting the proportional composition of the groups of interest. Risk factors associated with involvement in FtP cases are compared using regression modelling and odds-ratios, predicting the likelihood of a registrant with particular characteristics being involved in FtP. Where distributions or profiles were compared between groups, these were analysed using chi-squared tests of association.

Further details of the analyses are included in the relevant sections as required, and additional discussion of data structure and quality is included in sections 3.3.1 and 3.3.2.

2.2.2 Qualitative Analyses

For the qualitative analysis, data from an agreed sample of 125 collated case files closed across various stages of the GDC FtP process were utilised. Documents embedded within these files included original concern contacts (e.g., emails or letters), triage case information, case assessment information (including all correspondence such as information requests and copies of notification to the registrant), case examiner files, and Practice Committee files. All final collated documents creating a 'case file' were provided in pdf format with various file types embedded and covering a range of dates.

To enable relevant exploration of the data for the purposes of this study, data from these case files closed at all levels were analysed with reference to specific complaints, processes, outcomes or elements of malpractice and misconduct. Sampling units were specific phrases from case files relating to those areas. Individual words were not deemed an effective sampling unit, as specific words occurred in various other contexts.

Thematic analysis of the entire case file data was undertaken to code into themes the types of incidents and related considerations used across all closed cases in the data sample. Themes and subthemes of the data were established using Braun and Clarke's [26] six recursive steps (as previously described in section 2.1.2) to develop an overarching structure relating to considerations and reported incidents. A final list of suggested revised considerations was then produced to support future reporting of the data in a meaningful way. These derived themes were also used as a way to reconsider existing considerations, and how they related to decisions. This was done by replicating the quantitative analysis of association between decision and consideration in the original quantitative dataset with those same outcomes in the case file data used for the qualitative work, but incorporating the revised considerations.

Once completed, a secondary content analysis was conducted, considering the revised considerations list. All GDC formal FtP documents within the full data corpus of the 125 case files were reviewed in light of the revised considerations and the frequency of each of the new considerations reported. Through this secondary content analysis we were able to confirm that the thematic analysis had taken all cases and initial incidents into account effectively and also map where and how they related to the three overarching meta level themes.

The thematic analysis was conducted by MB and LC. LC conducted the content analysis with support from SH. Final codes and themes for both analyses were subject to iterative considerations and final agreement by the entire team. Data were analysed with the assistance of NVivo © software for reporting. The mapping on to existing considerations with quantitative data associated with each incident was conducted by DZ.

2.3 Phase 3 Synthesis

Findings from phases 1 and 2 were synthesised using a narrative approach to form the basis for discussion and implications for practice. Phase 3 synthesis was undertaken primarily by SH. Where queries arose, subject expert TOB was consulted to reach an agreed insight, point for discussion or implication.

3. Findings

The findings from phases 1 and 2 are reported separately before being synthesised and reported in phase 3.

3.1 Phase 1 FtP data usage – wider healthcare context

Findings from phase 1 (the REA, thematic analysis of interviews with representatives from external stakeholders and other regulators) are drawn together to demonstrate the extent to which FtP data have been exploited for learning by the UK health regulation sector to date, including:

- The current methods used to analyse FtP data.
- Insights gained from the data.
- How data collection and management has changed.
- Learning derived from FtP data.

3.1.1 Methods used to analyse FtP data

Three main approaches have been used to analyse FtP data across the sector: descriptive statistics, inferential statistics, and qualitative designs.

Descriptive statistics: The first approach, observed across all UK health regulators, was the use of descriptive statistics [20, 28-94]. Various parameters were summarised, drawing on data from a single year or several, including:

- Total numbers of concerns and concern numbers by source (i.e. informant type) and nature (i.e. incident type).
- Characteristics of registrants involved in concerns, such as age, gender, ethnicity, home or country of primary qualification, route to registration, region of practice and/or domicile, employment details and previous concerns.
- Registrant engagement with the FtP process (i.e. attendance and/or legal representation at hearings).
- Caseload (i.e. number of cases open or closed after determination) and workload (i.e. number of meetings or hearings and duration) across the stages of the process.
- Outcomes (i.e. decisions on cases, including sanctions applied), appeals against decisions, and restorations to the register.
- Length of time for cases to progress through the process.

For regulators covering more than one profession and in some of the work commissioned by the PSA, data were broken down by profession and inter-professional comparisons were made, either concerning professions under the same or across regulators. For General Medical Council (GMC) data, there were also comparisons between different medical specialties. Descriptive statistics were the sole data analysis method encountered in reports from some of the smaller regulators, specifically the General Chiropractic Council (GCC), General Osteopathic Council (GOsC) and Pharmaceutical Society of Northern Ireland (PSNI).

Inferential statistics: The second approach involved the use of various statistical tests to explore statistically significant associations across data [20, 52, 72, 83, 92, 95-102]. Characteristic examples of statistical tests included chi-squared tests, multivariate or univariate logistic or linear regression analysis, Fisher's exact tests and transformations, McNemar's test, relative risk calculations, correlation analysis (e.g. Pearson's or Spearman's correlation, correlation matrices), analysis of variance (ANOVA) tests, path analysis tests, cluster and sequential analysis. Common examples of correlations explored through these tests included relationships between:

- Certain mitigating (e.g. insight, behaviour) or aggravating (e.g. harm, dishonesty) factors identified in decision-making guidance and case files, and outcome seriousness [95, 96, 97,102].
- Registrant characteristics and concern type [57, 77, 88, 99].
- Case progression or outcome seriousness and registrant characteristics, concern source, engagement with process [12,77, 88, 97, 99].

Less frequent examples included association of:

- Performance in the Test of Competence (ToC) with case examiner recommendations or outcomes [98, 100]. ToC is a GMC-led assessment used to identify knowledge/dexterity gaps for registrants referred to GMC, thereby assisting investigations and development of appropriate action plans.
- Registrant characteristics and concern background to case costs, a relationship explored in the Health and Care Professions Council (HCPC) data [83].

A subcategory of this approach to find correlation or associations within data was data linkage studies, exploring data originating from more than one organisation [102-104]. Linkage studies were carried out only for data relating to doctors and involved analysis of GMC data alongside education-related data (e.g. data from the Royal College of Physicians or medical schools).

Qualitative methods: The third approach identified through the REA was the use of qualitative methods. Characteristic examples included:

- Thematic, narrative or content analysis, or unstructured review of case files, from various stages of the FtP process, to identify patterns and/or numerous factors (e.g. recurrent case types or features relating to guidance documents, organisational failings, mitigation or aggravation of sanction likelihood, moral mindsets, character flaws) [79, 84, 87, 90, 92, 95, 96, 98, 101, 105-110].
- Surveys, interviews and focus groups with registrants and other stakeholders to explore perceptions (e.g. perceived risk) [60, 87, 98, 105].

In the vast majority of cases, qualitative techniques were part of mixed methods studies, and the extracted details were either used in subsequent quantitative analysis (e.g. associations to certain concern features) or simply corroborated or contradicted observed patterns in quantitative data. Less common qualitative methods included the use of:

- Machine learning topic analysis to capture recurrent themes in hearing files from various regulators [111].
- Discourse analysis of GMC case files to identify institutional and professional discourses [105].
- Cognitive interview techniques to understand the decision-making process of GMC staff and the fairness of outcomes [97].

3.1.2 Insights from FtP data

Various insights have been achieved through analyses of FtP data. In general, it is difficult to identify specific patterns and make comparisons between regulators, due to the lack of standardisation in reporting methodologies as well as in variables reported. It is possible, however, to extract and present some predominant themes:

Concern numbers

In terms of concern numbers, research accounting for data between 2011 and 2016 reported a steady increase in total concern numbers in all regulators, with the exception of the PSNI and the GCC [91]. However, this trend was not necessarily continued into later years. For most regulators there were fluctuations from year to year in total numbers of concerns received (i.e. some years there was an increase whereas other years a decrease compared to the year before) [13, 31-33, 48, 50, 51, 54-56, 58, 59, 61, 62, 68-71, 80-82, 85, 86, 88, 89, 94, 112-114]. In some instances, moreover, there was no explicit statement with regards to the magnitude of concern numbers in comparison to the previous year [28, 53, 57, 63-66, 73-78, 115].

What is very clear from the REA is that only a small proportion of registrants are involved in FtP cases annually, with percentages ranging from below or about 1% to 3-4% maximum [50, 51, 56-59, 62, 67, 81, 85, 86, 88, 89, 94].

Concern source

For nearly all regulators, the largest proportion of concerns came from patients/service users or their family members or the public (in general) [20, 28, 31-33, 42, 44, 48, 56-59, 62-66, 68-71, 80-82, 85, 86, 88-90, 93, 115]. This was a consistent trend over the years, despite fluctuations in the precise percentages. The only exceptions were the NMC regulated professions (i.e. nurses and midwives) where, between 2015 and 2020, employers steadily

constituted the largest source of referrals in each year [50, 51, 53-55, 94], and the PSNI where self-referrals from registrants occasionally surpassed referrals by members of the public [74-76]. Another observation is that referrals by the police have declined, due to new legislation enabling disclosure to the regulator only at conviction or when there are pressing social needs [81, 94].

Over-representation

A common theme was the disproportionate representation in FtP cases of certain demographics and roles [20, 48, 49, 52, 55, 60, 61, 67, 79-82, 84, 85, 87-90, 92, 101, 102, 110, 114, 116, 117], which included: male gender; ethnicity categories other than White, especially Black, Asian and minority ethnic groups; primary qualification obtained overseas; older age-groups, usually specified as registrants aged 50 or above; longer serving registrants, as mirrored in time on register or experience; overrepresentation of specific roles [dentists, midwives, optometrists, social workers, paramedics, GPs, other general practice or mental health roles, occupational health or psychiatry-specialist doctors]; and those registrants undertaking locum work.

Case progression and outcome seriousness

With regards to outcomes in FtP cases and how regulators apply their FtP processes, adherence to decision-making guidance and lack of discrimination by regulators were the findings of the highest prevalence [52, 95-97, 105]. Overrepresentation of certain demographic groups in cases escalating through the process, therefore, was often attributed to potential discrimination in referrals (e.g. high proportions of registrants with ethnicity categories other than White referred by employer [52, 79, 80, 116]), rather than to regulatory decision-making processes. Consequently, those demographic characteristics were found to constitute potential risk factors for referrals to regulators but not necessarily predictors for case progression and outcome seriousness [52, 72, 79, 99, 100].

Outcome seriousness was closely associated with employer referrals [52, 79-81, 85, 86, 88, 89]. Concerns raised by employers were the cases most likely to progress through FtP processes, reach adjudication stages and receive serious sanctions. Cases involving repeated offences or elements of dishonesty, risk of harm or criminal convictions were also found to have a significant relation to the potential for severe outcomes [79-81, 87, 95, 96]. Conversely, referrals by patients/members of the public were less likely to be opened for investigation and further escalated through the process. Additional mitigating factors leading to case closure and/or less serious outcomes included the presence of insight (i.e. registrant understanding of the incident or behaviour), allegation acceptance and/or regret, evidence of or willingness for remediation, unblemished behaviour since the incident, and engagement at hearings (i.e. physical attendance and/or legal representation) [72, 79, 85-87, 89, 90, 95, 96, 99, 106, 110].

For doctors, outcome seriousness and FtP involvement (in general) were also associated with performance in some postgraduate examinations [98, 100, 102, 103]. As noted above, such analyses have not been undertaken for other professional groups.

Finally, another trend observed across regulators was the persistent reduction in the volume of cases escalating through the process (i.e. continuous increase in the proportion of cases closed at triage/initial assessment and investigation), and of cases closed with some sort of sanction (i.e. consistent decrease in the overall number of sanctions, applied at all stages of the FtP process) [31, 32, 50, 51, 53, 54, 57, 61, 71, 80-82, 85, 86, 112]. The decreasing number of escalations was often attributed to more effective decision-making in early stages of the process, following collection of detailed information on receipt of a concern and the introduction of senior oversight at initial assessment/investigation.

3.1.3 Changes in how FtP data are collected and managed

Limited information could be extracted from the literature with regards to changes introduced by regulators in the collection and management of FtP data. Modifications in case categorisation, a few plans for additional analyses, and some procedural changes were the only common themes that could be identified.

Case categorisation

Some documents described changes in the way FtP data were classified [31, 51, 56, 60, 67, 71, 89]. These documents described, for example: the development of new coding systems to capture more detail regarding

the nature of concerns; identification and recording of every concern type contained in an allegation, rather than only considering the most serious one, and of all standards deemed to be breached by the registrant involved; and development of separate files for every registrant involved in a case to enhance data integrity, since there were often different outcomes for different registrants involved in the same case.

Plans for analysis

There were also some references to plans for additional analysis of collected FtP data [11, 13, 14, 51, 54, 89, 109, 118-120]. Examples included: commitments to exploit FtP-related or relevant data held by other organisations, for example, professional bodies, NHS and other service or indemnity providers; to examine the intra- and inter-regulator integrity of data; to identify areas of 'risk' and 'seriousness', for example, activities or settings that could trigger regulatory referrals and/or lead to more severe outcomes due to their potential detriment to patient safety or a profession's reputation; and to discover additional associations, for example, impaired FtP to public confidence in the profession and risk of patient harm as well as human factors (such as demographics) to likelihood for 'errors' to occur.

Procedural changes

The vast majority of the included documents presented procedural changes (i.e. changes in the broader FtP process of regulators) [10, 11, 13, 14, 32, 33, 44, 50, 51, 53-58, 61-66, 68-70, 77, 78, 82, 85, 86, 88-90, 93, 94, 112-114, 116-127], rather than direct modifications in data collection and organisation. There were no direct references to the impact that these procedural changes had on collection and analysis of FtP data. Procedural amendments identified across multiple regulators included:

- Local resolution of concerns, in an effort to reduce regulatory caseloads, aided by implementation of: concern services at a local level that are more transparent to the public; development of written guidance and self-filtering functions to signpost members of the public as to which organisation their concern needed to be submitted; decrease in employer referral rates, through concern redirection to and collaboration with employers and thresholds for referrals to regulators.
- Introduction of case examiners (i.e. decision-makers at the end of investigation stage, responsible for deciding whether to refer cases to an FtP panel or not) and in-house legal and clinical advisory teams (rather than seeking external advice) to minimise unnecessary escalations in FtP processes.
- Accounting for the broader context of the case (e.g. human factors, health environment, system failures) in decision-making.
- Increased liaison with informants and registrants involved in FtP cases, including guidance and emotional support.

From interview data, representatives from UK health regulators, other than the GDC, typically described their organisations' development of FtP data as a 'journey', and the three regulators that these participants worked for were at different stages in a process of developing and exploiting their FtP data. One organisation, recognised by peers as leading the field in terms of data development and analysis, was reported to have made considerable efforts over a five to ten year period to develop its data collection, recording and auditing processes to support improved analysis, including by informant type, and place-based reporting using registrants' locations. Other developments made by this organisation included increasing the range of data that was collected in categorical forms, rather than free text, to enable statistical analysis.

For another regulator, at an earlier stage in this data development journey, recent improvements focused on introducing comprehensive categories for coding data about practice settings. Other early efforts focused on using FtP data to improve FtP processes and case management, and included looking at data on the time taken for cases to progress through each stage of the FtP process, the types of cases being referred that did not meet the regulatory threshold for action, and the types of cases closed at each stage. Representatives of this second organisation also described a focus on the recording of contextual factors involved in FtP cases, and projects to improve the recording of Equality, Diversity and Inclusion (EDI) data.

The final regulatory body represented by participants was described as being at an early stage in the development of its FtP data. It had undertaken work to classify allegations in FtP cases to ensure these were consistently labelled, and work to extract EDI data from its systems.

Participants from all three regulatory bodies discussed the importance of developing or commissioning appropriate database systems or data management platforms to enable their plans to modernise their processes for FtP data recording and storage in order to allow for greater use of the data to support insight. Additionally, participants from across the three organisations also referred to the need to have clearly developed data and insight strategies.

3.1.4 Learning from FtP data and regulatory decision-making

The usefulness of learning extracted from FtP data and the importance of sharing this learning (via reports, bulletins, newsletters, online tools, learning sessions) were widely acknowledged in the documents included in the REA [10, 11, 14, 32-34, 48, 58, 59, 62, 69, 76, 112, 113, 117, 119, 122, 123, 127, 128]. Especially in light of recent switches in regulatory priorities from enforcement to prevention, there have been ongoing attempts (across regulators) to transform FtP data from a driver for fear and blame to a source of education for registrants about circumstances containing risk of misconduct and appropriate preventative strategies [11, 13, 14, 55, 60, 76, 77, 81, 82, 109, 116, 117, 120, 122, 126].

Despite recognition of the significance of learning derived from FtP data, however, there were limited references (often composed of broad statements) to how to operationalise this learning informed regulatory decision-making. A few common examples of FtP data-guided decision-making included:

- Updating undergraduate and postgraduate training, and CPD courses, as well as standards of practice in accordance with findings from FtP data analysis, particularly in relation to risk management and avoidance [10, 11, 57, 61, 67, 108, 119-122].
- Releasing guidance following observations in FtP data, for example, directions for adaptations in day-to-day practice including in communication skills, catalogues with conditions eligible for advertisement, maps with circumstances stimulating concerns etc. [11, 33-47, 89, 122].
- Outcomes in the FtP process driven by risk, for example, investigations and enforcement decisions pursued only for cases that were found (in previous analyses of FtP data) to negatively influence ability for safe practice [11, 13, 80, 81].
- Commissioning of research to further explore notable patterns in FtP data, for example, overrepresentation of certain demographics [55, 85, 90, 112, 114, 117].

Although not necessarily clear whether they were actually adopted and translated into decision-making, there were also numerous action plans recommended to regulators by independent research involving FtP data [52, 60, 84, 87, 92, 98, 101, 105-107, 110]. Characteristic examples included: educational frameworks; models to better record and organise data from FtP cases, including improvements in case files and reports; and various pieces of guidance, including prompts for collaboration between different stakeholders, instructions targeting regulatory functions, and employer-related processes.

Although the literature identified through the REA found limited information on learning from FtP data and its impacts, interviews with staff in regulatory organisations provided additional insights on this topic, including the challenges of using FtP data in this way. Participants from all three regulators represented by our interviewees described the challenges of using operational data, collected during FtP cases for procedural reasons, for analysis and learning:

> **'…in common with a lot of other regulators, probably initially set up systems to manage FtP data which were essentially about the management of cases and case process, they weren't developed as systems to generate insight that could be used. And so we're all of us on a bit of journey to try and turn systems created for one purpose into something new that allows us to use data for insight…'**
> (Participant 39, other regulator)

One participant noted that seeking to exploit the potential of FtP data to generate insights and support learning was a major change in organisational thinking, necessitating culture change:

> **'…So the sort of big story is we don't make as much use of it as we should do or want to, and there's a lot of system change, and probably a bit of culture change involved in getting us into a better place. And I say culture change because you know […] it's quite hard for people on the ground who are just sort of managing cases to think about the**

insight value of what they've got in front of them, and to make sure that they enter it in ways that it can be retrieved and used. So there's a mindset thing about everyone in the [organisation] understanding the data they're holding to be something with insight potential.'
(Participant 40, other regulator)

Another participant highlighted additional challenges arising from the legislative frameworks within which regulators operate, noting that current legislation placed restrictions on the extent of data capture and data sharing. They argued that loosening these restrictions would enable better support for upstream interventions by opening up greater possibilities for data sharing between stakeholder organisations.

Despite these challenges, participants identified a number of ways in which FtP data is used to support decision-making and wider learning. Examples included assessing risk factors in FtP, EDI fairness analyses using data about registrants' protected characteristics, and investigating the appropriateness of incoming complaints and referrals.

Several participants from other regulators discussed ways in which their organisations sought to share learning from FtP data with other stakeholders. In some instances, this involved working with employers to seek to reduce the number of unnecessary referrals to FtP processes. In other cases, professional regulators were working collaboratively with systems regulators and/or NHS bodies to target priorities in relation to healthcare safety and quality. Other examples of sharing learning from FtP data, centred on the identification of themes or trends in FtP cases and feeding these back into training, to professional bodies or to employers to try to reduce future instances of those types of cases. Indeed, most of the references made to upstream interventions by these participants referenced this form of sharing learning.

3.2 Phase1 FtP data usage – GDC context

Having established the ways in which FtP data has been developed and used for analysis and learning by UK health professions regulators generally, drawing on the literature and interviews with regulatory representatives, this section looks in depth at the GDC's current arrangements for recording, managing and using its FtP data. Findings are presented from focus groups and interviews undertaken with members of GDC staff and external stakeholders, including both those working in roles within FtP and in other parts of the organisation. The table below gives more information about the participants.

Table 4: Showing detail of the GDC participants involved in interviews and focus groups.

	Roles
Case Managers (n=5)	Managing: case review teams, which deal with cases referred to committees, initial assessment and triage teams, teams dealing with cases post-investigation or with criminal- or health-related cases or with cases referred to GDC by external bodies or cases combining multiple streams (i.e. cases with several allegations of varied subjects), teams supporting case examiners.
Case Workers (n=4)	Members of: the initial assessment teams, teams dealing with cases being investigated or referred to case examiners, teams dealing with cases on which sanctions have been applied at any stage.
Non-FtP staff (n=12)	Senior members from the research and financial planning analysis teams: senior managers from legal operations, quality, strategy, business intelligence (i.e. dealing with reporting functions), project management office (PMO) and delivery (i.e. designing, delivering, and monitoring portfolios of work for GDC), education and quality assurance teams, and registrar operational advisors.

Four themes were identified from the data:

- Data recording.
- Data extraction.
- Date use.
- Upstream approaches.

3.2.1 Data recording

Many participants commented on the extensive quantity and variety of data from FtP processes that needed to be recorded and questioned the usefulness of certain data types. There was a perceived absence of a clear organisational rationale behind the requirement to record data. The purpose of collecting certain data was not always clear to those tasked with recording it. Despite the plethora of recorded data, some individual participants highlighted useful information not being captured, including the setting in which the FtP incident occurred, the precise guidance offered to registrants, and/or time invested in certain activities so that individual staff could justify their performance to managerial teams (see also 'data use' theme).

The majority of FtP data is recorded on the GDC's customer relationship management (CRM) system, its central database. There were, however, instances of manual recording of data reported by participants, which were attributed to a perceived inability to input certain information into CRM (i.e. lack of relevant fields in CRM that would have enabled recording of data) and difficulties in building reports (also see 'data extraction' theme).

Several participants reported that entering data into CRM was complicated by cumbersome upload functions, including an inability to automatically insert chains of emails and/or attachments, a need to manually convert files to certain formats to enable subsequent bundling functions, and a requirement to fill in a series of descriptive fields as part of naming protocols.

A number of participants also commented on the complexity of the available system of categorisations (i.e. pre-determined codes entered to classify data, for example, the type/nature of the allegations involved, the sources of information at the various stages of the FtP process, the characteristics of all parties involved in FtP cases etc.).

Several participants claimed that the laborious process of entering and sorting data in CRM, in combination with workload pressures arising from perceived inadequate resources, often led to inadvertent recording errors, for example, data not being uploaded at all, insufficient information added in document descriptions, or incorrect categories assigned.

Additional factors that, according to the majority of participants, sustained defective data entries included the limited formal training sessions and guidance, as well as the absence of regular quality assurance and feedback procedures. Conflicting workload priorities amongst different staff members were deemed to further reduce the quality of data in CRM by negatively affecting recording consistency. Several participants complained about limited user input in the design of CRM, which involved overly hierarchical procedures (i.e. required approvals from various teams for any user-suggested modifications, aiming to simplify data entries, to be introduced).

A few participants called for central leadership, such as a CRM project manager, to oversee and facilitate changes in the means of recording data and promote the quality of the retained data.

3.2.2 Data extraction

Most participants claimed that data extraction from CRM was a difficult and onerous process for users due to several factors, including: CRM's intricate interface in terms of data organisation and presentation; insufficient training in relation to understanding the full potential of the database; mistakes in data entries, and the presence of manually created spreadsheets (see 'data recording' theme), which translated to missing data and difficulties locating desired pieces of information.

> **'The information is stored in the CRM in a fairly unstructured way to enable easy reporting… there's opportunities for the system to present data in a more intuitive way, so, all the information on a few screens rather than needing to navigate between multiple screens… sometimes data is not all in one place, and it's structured in a complex way, which means that caseworkers may find it very difficult to query the data themselves.'** (Participant 16, non-FtP staff)

In addition, data retention policies were believed to adversely influence the long-term availability of information e.g. a policy where emails are deleted after 12 months, preventing retrieval of documents.

Varied access permissions (i.e. different teams subject to different permissions) and occasional technical malfunctions in CRM further restricted accessibility to extract data, according to some participants. Most participants usually had to resort to pursuing data requests, when data retrievals from CRM were desired; both formal (i.e. through Project Management Office [PMO] and business intelligence teams) and informal (i.e. through colleagues from FtP teams already familiar with the data) approaches to data requests were described.

According to participants, however, requesting data from the business intelligence team was not a straightforward procedure and entailed the provision of explanatory details (in writing) for which there was not necessarily awareness. Many participants, therefore, often had to seek extensive feedback (either from business intelligence teams and/or colleagues with experience in CRM) on their data requests, before submitting them, to ensure that their requests were properly formulated. Moreover, a few participants reported that datasets obtained through data requests frequently diverged, in terms of content, from those extracted directly themselves. One participant viewed these variations in datasets as potential risks (i.e. inconsistent conclusions that might trigger opposing organisational decisions) and wondered whether data extraction should be performed exclusively by a dedicated team.

Apart from internal data requests by GDC staff, participants also referred to data requests by external parties, for example, lawyers, local press, NHS bodies, Public Health England, Health Education England, and various research groups. External data requests, according to participants, were usually submitted as freedom of information (FOI) enquiries and mandated extensive arrangements (by the requester) in relation to data retention and handling. Some FOI requests, participants mentioned, were only partially fulfilled or not satisfied at all, due to either non-existence of data or difficulties in setting up the relevant datasets. One participant also believed that FOI requests occasionally turned out to be detrimental to the GDC's reputation, as the datasets extracted and provided to requesters were of poor quality and integrity.

To facilitate data retrievals and in parallel reduce the volume of internal and external data requests, two proposals were put forward by participants.

First, there was a call for wider, open-access publication of FtP datasets and results from research based on FtP data in a systematic manner (e.g. through regular website posts and/or emails). Data could be provided in a usable format for others outside of the GDC and facilitate easier ways to respond to FOI requests.

Second, most participants asked for interactive CRM dashboards to enable extractions customised to individual needs at given times.

> **'I would like to be able to do open-ended enquiry with a self-service tool [in CRM], so that I can start exploring the data in new and different ways, and seeing the relationships between it.'**
> (Participant 19, non-FtP staff)

3.2.3 Data use within the GDC

Some participants claimed that FtP datasets extracted from CRM were not necessarily in a usable format and some preparatory work related to data cleansing, prior to any exploitation, was often needed e.g. de-duplicating data where more than one decision on a case had been made.

A number of exploitations of FtP data, in both collated and non-aggregated formats, were described. Non-aggregated formats were described as being used in auditing decisions and collecting/organising data for individual registrants subject to FtP processes. With aggregated formats, many participants reported that FtP data was frequently employed to obtain figures on caseload and case progression timeframes, as a means of evaluating organisational performance and planning workflows accordingly (i.e. scheduling activities and priorities of individuals to achieve performance-related goals).

According to several participants, patterns in relation to prevalence and behaviour (i.e. progression through FtP stages) of different FtP case types were also identified and assisted in allocating resources and developing case management policies (e.g. regulatory responses to different case types). Some participants, however, pointed out the difficulty in establishing trends in FtP data due to ambiguous categorisations:

> **'I find the way the considerations are recorded isn't particularly insightful for looking at trends and cases… the considerations are so detailed, but kind of binary..., it's hard to aggregate the data, basically, and you have to look through about what was considered [look extensively behind categorisations].'** (Participant 12, non-FtP staff)

These difficulties in being able to recognise and extract developing trends, along with the intricacies in acquiring desired datasets (see also 'data extraction' theme), were perceived to restrict endeavours to actively seek and analyse FtP data. As a result, according to several participants, the plethora of data held by the GDC was not being explored to its full potential.

3.2.4 Data use by external stakeholders

Non-GDC participants described several instances in their day-to-day work in which they used data released by the GDC. Characteristic examples involved: the employment of individual FtP cases and/or themes in FtP data (in relation, for example, to common patient concerns, ongoing performance problems in certain geographical areas, trends in outcomes in different case types) to shape the content of undergraduate, postgraduate and CPD training courses, based on actual risks in dentistry; to enrich teaching sessions (e.g. lectures and workshops) with real case scenarios; and to monitor organisational performance as well as schedule activity, plan staffing and pricing (in indemnity bodies).

Some participants, members of professional bodies, also exploited information relating to the profile of registrants nationwide in an effort to maintain equality and diversity in the workforce; and commentaries from FtP panels on the quality of expert advice, as a means of verifying whether and how guidelines produced by their organisation were used and interpreted by other experts.

Although there was recognition of the GDC's increasing transparency in terms of data dissemination, some participants reported instances of data not being readily accessible (e.g. details on outcomes of FtP cases, such as conditions placed on registrations) and suggested better indexation of categories of data on the home page.

Complicated sharing arrangements were also believed to negatively influence data availability and dissemination.

> **'when we do have exchange of data that's where the difficulties sometimes arise... and we've got to be very [careful] about which data we supply to the GDC and what they're able to give out basically.'** (Participant 12, non-FtP staff)

Some participants reported that data not being easily accessible, along with the absence of a self-service portal in terms of retrieving data and monitoring the progress of FtP cases, necessitated data requests which were not straightforward. There were several limitations in the granularity of detail in regulatory data released, which was largely attributed to insufficient data collection. There were several calls for additional data (from both FtP procedures and other areas of the GDC's operations) to be used as learning tools and also to further assist with upstream approaches (see 'Upstream approaches' theme below), organisational planning, comparisons between regulatory data and data held by other organisations relating to the state of dental care and practice, spotting variations in risk and shaping risk management and patient safety initiatives appropriately.

With regards to FtP data, several participants asked for the identification of additional themes. These included trends in relation to the nature of FtP cases, for example, most prevalent types of concerns (as submitted to the regulator) and misconduct (as identified in investigations), any variations between different types of informants as well as cohorts of professionals and career stages, and root causes behind common types of misconduct. Suggested themes also involved trends in relation to the progression of FtP cases, such as case types closing early in the process and 'aggressive referrals' into hearings that were rejected. Other themes suggested included associations between FtP

involvement and route to registration, institution of primary qualification, clinical area and practice setting. Some other participants called for the disclosure, in a timely manner, of timelines for hearings and the specific outcomes, as well as for information about the profile of FtP panels (e.g. numbers and specialties of clinical panel members, clinical advisors and other experts).

As for non-FtP data, there was a perceived need for extra information in relation to the register, such as qualifications and countries from which these were obtained, registrant numbers in each route to registration as specialist dentists, the precise specialist list(s) under which each registrant belonged, and the age profile and employment models (e.g. practice setting, full-time versus part-time) within each list. Participants from academic institutions requested publication of the most common breaches of professionalism in undergraduates, although it should be noted that the GDC currently do not have responsibility for collecting this information. Participants from academic institutions also requested guidance on clear boundaries that they could set in terms of punctuality, attendance and professional conduct (e.g. extent of attendance at clinics or thresholds in terms of exam cheating, dishonesty, and alcohol use) as prerequisites for registration with the GDC.

Some participants expressed concerns about the reliability of conclusions extracted from FtP data, including scepticism that annual reports did not necessarily capture a rapidly changing landscape (especially amid the recent pandemic) with regards to problems and misconduct in dental care. Limitations were identified in extrapolating inferences about corporate dentistry due to the low number of FtP cases which are fully investigated.

To maximise uptake, it was suggested that regulatory data be published in user-friendly formats (e.g. sorted into themes, headlines, or even videos, instead of unstructured information) and tailored to the intended audience (e.g. accounting for specific geographical locations, workplace and workforce contexts).

3.2.5 Expectations and aspiration for GDC FtP data

This subsection reports participants' views on the potential further uses of GDC FtP data, including suggestions from GDC staff and from external stakeholders. There were several calls from external stakeholders for additional data (from both FtP procedures and other areas of the GDC's operations) to be used as learning tools and also to further assist with upstream approaches (organisational planning, comparisons between regulatory data and data held by other organisations relating to the state of dental care and practice, spotting variations in risk and shaping risk management and patient safety initiatives appropriately).

Additional analyses and data linkage potential

Most GDC participants called for additional exploration of FtP data, including combining FtP data with registration, qualification, and EDI information. Characteristic examples involved: identifying common concern types received by the GDC; unveiling and understanding the representation in FtP overall as well as in specific case types, of different registrant groups; measuring and interpreting FtP involvement per age-group, gender, career stage, years in the profession, ethnic background; and seeking associations between FtP cases and institutions or geographical regions in which primary qualifications were obtained. Several participants also emphasised the need to compare or link FtP data with that of other organisations, including other regulators, indemnifiers, and employers (NHS England and CQC data). Linking academic performance data from undergraduate and postgraduate programmes to FtP involvement could be useful.

Upstream regulation and FtP data

Several GDC participants commented on the GDC's upstream agendas and the role of FtP data in accomplishing these initiatives. Many participants claimed that FtP data could aid the prevention of misconduct by informing appropriate adjustment of curricula in academic courses, including as part of quality assurance/accreditation procedures; and personal choices for CPD in terms of skillsets and behaviours, thereby offering patients an enhanced experience of dental care.

'Themes [in FtP data] are really important… if we identify, for example, that professionalism is an issue over a number of areas [in dental practice] then we will look how we can better encourage the education providers to integrate that into their programmes at undergraduate level… [also] if there are particular schools that are producing graduates who have got issues in certain areas… then we can go back to the dental school, tell them about it, and we can focus our QA [quality assurance] activity on those specific areas.'
(Participant 21, non-FtP staff)

There was a debate, amongst participants in one of the focus groups, on whether a published gazette with the latest FtP cases should regularly be distributed to all registrants. While some participants supported the idea of a gazette as a learning tool for registrants and students, others claimed that ongoing exposure to FtP data would ultimately hinder upstream approaches by sustaining the fear of the regulator.

Several participants reported that identifying qualifications and other demographics overrepresented in FtP data could assist the GDC and its stakeholders (e.g. the UK Committee of Postgraduate Dental Deans, COPDEND) in targeting support at registrant cohorts most in need. Some participants, however, were worried about the reliability of extrapolations from FtP data and the subsequent effect on upstream initiatives.

Several participants emphasised the need to explicitly define 'FtP' and disclose these definitions to all stakeholders, as a means of minimising the number of misconduct cases arriving at and/or being dealt with by the regulator. Stratifying cases according to severity was viewed as an important contributor to this effort of specifying 'FtP' remit. For example, participants proposed case types without findings of FtP impairment to be submitted directly to or referred to other organisations (such as the NHS at a local practice level; private dental care companies; and ombudsman, which is a parliamentary body independently handling complaints that have not been resolved by the NHS); whereas case types more likely to close with sanctions to constitute the scope of FtP due to their likely inherent risk to patient safety and/or public confidence in the profession.

A few participants also highlighted the importance of expediting FtP processes, and thereby reducing the impact on registrants arising from lengthy procedures, by deploying trends in the traffic of different case types as paradigms. As such, these few participants mentioned, FtP cases could instantly be processed to the same decision point (e.g. closure without action or referral to a hearing) with previous cases of similar type in terms of the subject of allegations.

3.3 Phase 2 GDC Case File Data

This section will lay out the main findings from the quantitative and qualitative analyses of the datasets provided by the GDC. In preparing the data for analysis, we encountered a number of challenges, some of which arose from the complexity of the data, while others related to the way in which data had been collected, prepared, stored or entered into the database. Additional problems impacting the interrogation of the qualitative data arose from the volume, usefulness and heterogeneity of original documents embedded within each of the pdf case files.

Specific areas of challenge with the data will be reported within the sections they relate to, and all findings are situated with this understanding of the challenges in mind.

3.3.1 Using GDC FtP data for analysis: data quality and structure

The quantitative dataset provided contained unique identifiers for each registrant, incident identification numbers, date information, stage and closure information, and assorted demographic variables. Some variables presented issues, and others were used to create new variables or subset the data. These are described below:

- **Unique Identifiers:** The unique identifiers in the Registrant dataset ('contact') were found not to be unique, with some numbers having multiple entries. Where a contact had such multiple entries, the records with the most recent 'last-registration date' or the most associated data were kept, resulting in 135,685 'unique contacts'.
- **Incidents:** The case data provided contained 60,663 rows pertaining to incidents. However, each incident had multiple records, reflecting additional rows per consideration and per change to each consideration record. This made the data complex and required careful consideration during analysis. Issues and processes are discussed in the relevant analysis sections. Broadly, for the purposes of these analyses, each unique incident was treated as an individual instance e.g. if one male was involved in three incidents, these would be counted as three instances of male involvement in an incident. This ensures the analyses focus on incidents and FtP cases, rather than individual registrants, and reflect the percentage of incidents handled by the GDC that involve a registrant with a given characteristic.
- **Dates:** The case data was a subset to include only those cases recorded between 1st January 2017 and the date of the data download (September 2021). This resulted in 55,858 rows of data.
- **Stage and Closure:** In order to focus these analyses on closed cases, the status of each case (open versus closed) was coded based on information about the stage at which each record was updated (Initial Assessment [triage], Casework [assessment], Case Examiner, and Practice Committee), and the decisions made at those time points. Subsetting the data using this information to select only closed cases within the above-mentioned date range resulted in a dataset of 6,955 rows, from 3,637 unique incidents involving 2,896 individual registrants.
- **Additional information:** For each unique incident, the following additional information was compiled or calculated:
  - Year of registrant birth (YoB; calculated as 2021-Age).
  - The date the FtP incident was received.
  - The year it was received.
  - The age of the registrant at the time of the incident (calculated as year the incident was received-YoB - this is an approximation +/-12months).
  - The registrant profession.
  - When they were first registered.
  - Ethnicity.
  - Gender.
  - Country of Qualification (CoQ).

- **Demographic variables:** In the registrant data, new EDI variables contained very little data, in large part due the adoption of new, more inclusive, EDI categories for each variable having been implemented during the period covered by the data. As a result, older categorisations were used to ensure sufficient data for meaningful analyses. Descriptions of the registrants and those involved in FtP cases are included in the analysis sections.

Expanding on the challenges described above, problems were found with missing data and the way in which 'unique' identifiers were assigned and used. This both complicated the data analyses and limits the conclusions that can be drawn. Adding new rows of data when considerations were updated confounded the analysis due to the existence of data relevant to the same case in several places, particularly in analyses focusing on the decisions made within cases, and relating to case progression.

As for the granularity of the data, the way in which data was recorded limited its utility. For example, although the country of qualification was recorded, there was no indication of the 'route' to registration; whether registrants had been admitted to the UK register after passing the ORE or the LDS examinations. Data on the efficacy of these assessments could be of considerable benefit to the GDC's educational function and useful to be able to analyse.

In some variables, unexpected data is included in the dataset. This is particularly the case in relation to the 'informant age' variable, where age data is included for informants representing organisations. The reason for this seems to be that the informant age is a mandatory field, forcing users to input an age for organisations; e.g. where the informant is the GDC, informant age has variously been recorded as 120 and 121. This unnecessarily complicates the dataset, but provides a good example of how process and system choices (e.g. mandatory fields) could be changed to facilitate future analyses.

Similarly, the dataset contains some historic categories, such as '(PCT or NHS) – Do Not Use', which raise unanswered questions about why they are used, and how they should be treated in any analysis.

There were high levels of missing data, especially regarding demographic data, and where new categories had been added to these by creating new variables (often to accommodate changing norms and naming conventions). For example, ethnicity categories are recorded under both the older 'new_ethnicorigin_ displayname' and 'new_edi_ethnicgroup_displayname', yet the latter only has information for entries updated since the introduction of this new variable (and its new categories), so remains empty for all older records. In these cases, the variables with the most complete records have been used, though they may not reflect the most up-to-date categories used by the GDC. As this issue is due to a change in process, it may not impact future use of this data in the same way, if or when the new EDI fields are completed for all registrants.

We made the decision not to try to combine old and new variables where both were made available. This was due to noting in some cases, where data had been recorded in both, there appeared to be a mismatch, e.g. in 'new_disability_display name' and 'new_disability check_displayname', there appeared to be different categorisations of the same registrants, with no clear or consistent reason.

Another notable example is informant characteristics. Very few records contain much information on informants. The analyses conducted here have tried to make best use of available data, but some variables have been omitted due to lack of differentiations (e.g. vast majority of one category), or lack of sufficient data (e.g. informant disability or religion). In relation to informant characteristics data, age presents an illustrative example of the lack of clarity and additional detail captured by the current system. There were a number of informants listed with ages of 120 or greater, which were removed as system values (i.e. related to having to input an age where the informant was an organisation), and a number of records listing 1, 2, and 3-year-old informants. These have been included (e.g. in the <=30 group in Section 3.3.2 under Informant Characteristics) as it is unclear whether they are erroneous or may indicate incidents involving children.

In addition, some variables within the dataset contain a large number of categories, such as 'new_qualificationidname', which has 343 categories. This makes analysis challenging, particularly when creating subgroups across multiple variables. The reasons for such a range of categories, or how they might be collapsed, are unclear. Where we have made decisions to provide more meaningful analyses, details are provided in the relevant sections.

The structuring of the quantitative data also introduces a number of challenges. These are described below, with suggestions for alternative data structures discussed where relevant, in our recommendations, and illustrated in Appendix C.

Two main variables record decisions: 'new_decisiontypeidname' which records the stage of the process that a decision is being made at and/or who it is being made by (e.g. the Registrar, or case examiner), and 'new_decisionoptionidname' which records the outcomes of those decisions. As all decision types appear in the same variable, it is difficult to follow the sequential ordering of the records, which impedes analysis of case progression. Date information is also difficult to use, as a number of date variables appear to be updated to reflect the latest entry – with multiple rows of data, covering each change to each consideration for each incident for each registrant, including appeals, all having the same (most recent) 'new_closuredate' information, which doesn't always align with other date fields such as 'new_decisiondate'.

The organisation and structuring of the decisions data may also be an area where amending the data structure to better mirror the procedural flow of the FtP process would facilitate analysis, for example, restructuring the data to group decision outcomes by the stage of the FtP process at which they occur.

Furthermore, there is potential to disaggregate data from processes which are related and in parallel to but distinct from the core FtP process, from the main dataset generated by that FtP process. In particular, data from each stage of the process could be categorised separately, or the associated stage made more readily apparent to allow this level of analysis. For example, data from other sources (e.g. the Interim Orders Committee) could be categorised separately.

Likewise, data from FtP cases where a substantive outcome has already been reached, but where an appeal process is underway or a sanctions review process is required, could be categorised separately from the main decision dataset. This would enable these cases to be easily identified and distinguished from cases progressing through the system for the first time, and would allow them to be included or excluded from analysis as required.

3.3.2 Quantitative Analysis of FtP dataset

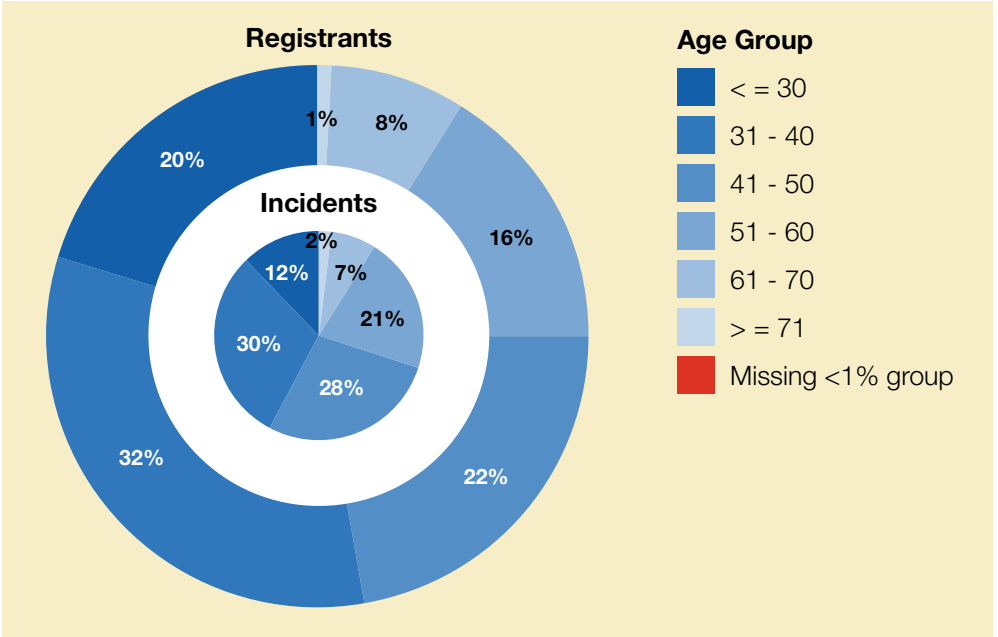
Characteristics of Registrants

The following describes the relative proportions of registrants with given characteristics, and the proportion of incidents involving registrants with given characteristics. This section considers Age, Gender, Ethnicity, Profession, Country of Qualification, and Time on Register. Summaries of the proportion of registrants with given characteristics overall compared to registrants involved in one or more incidents are provided in Appendix D.

Age

Distribution of individuals is skewed towards the lower age groups for registrants overall, relative to those involved in incidents (at the time of the incidents), i.e. the group of individuals involved in incidents tends to be older (M=44yrs, StDev=12yrs) than the population of registrants overall (M=42yrs, StDev=13yrs, $X^2(6, n=139,322) = 289.85, p<0.001$).

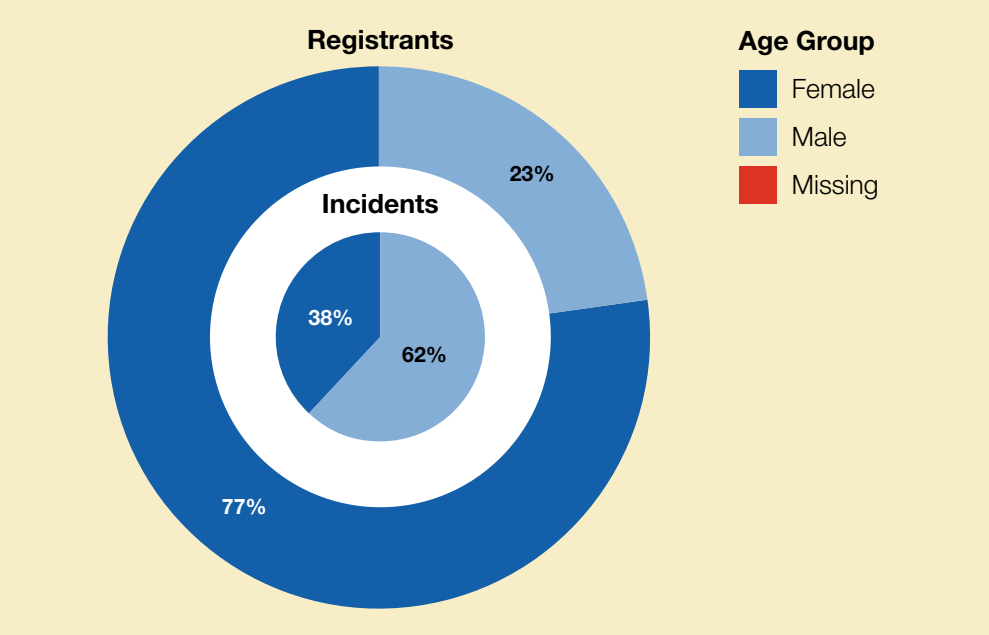
Figure 1: Percentage of Registrant Population and Incidents by Age Group.



Gender

Whilst the registrant population is primarily female (77%), incidents primarily involve males (62%), showing a significant gender difference in the profiles of registrants overall and those involved in incidents, (X^2(2, n=139,322)=3,034.30, p<0.001).

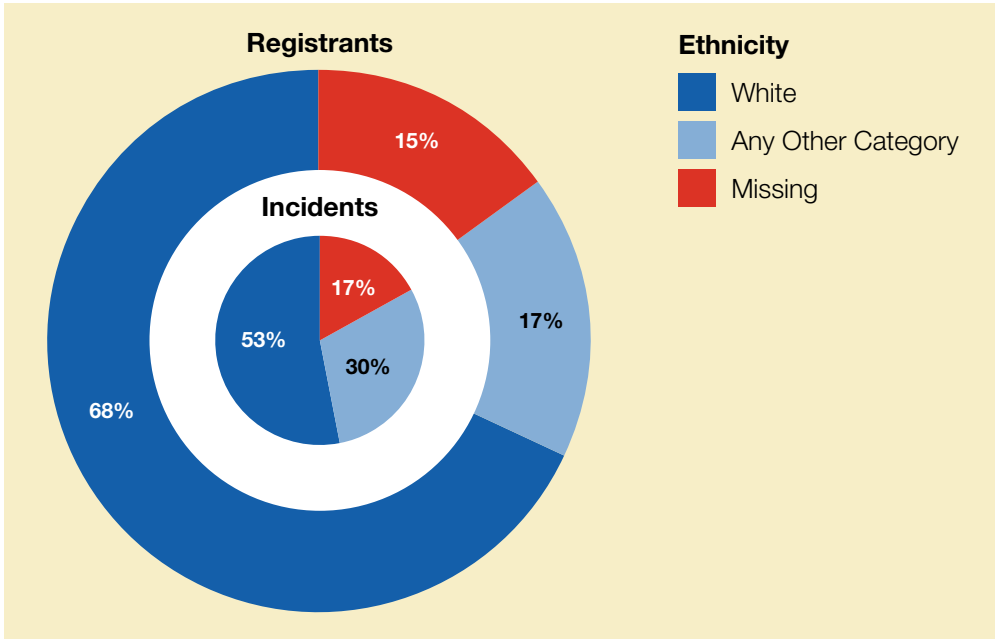
Figure 2: Percentage of Registrant Population and Incidents by Gender.



Ethnicity

For the purpose of these analyses, Ethnicity has been grouped into White, and Any Other Category (Black or Black British, Asian or Asian British, Chinese or any other ethnic background, Mixed Ethnic Background), and Unknown ('Prefer not to say' and missing). The profile of ethnicity within incidents shows proportionally more representation of registrants with ethnicity categories other than White than are present in the registrant population overall, (X^2(2, n=139,322)=486.41, p<0.001).

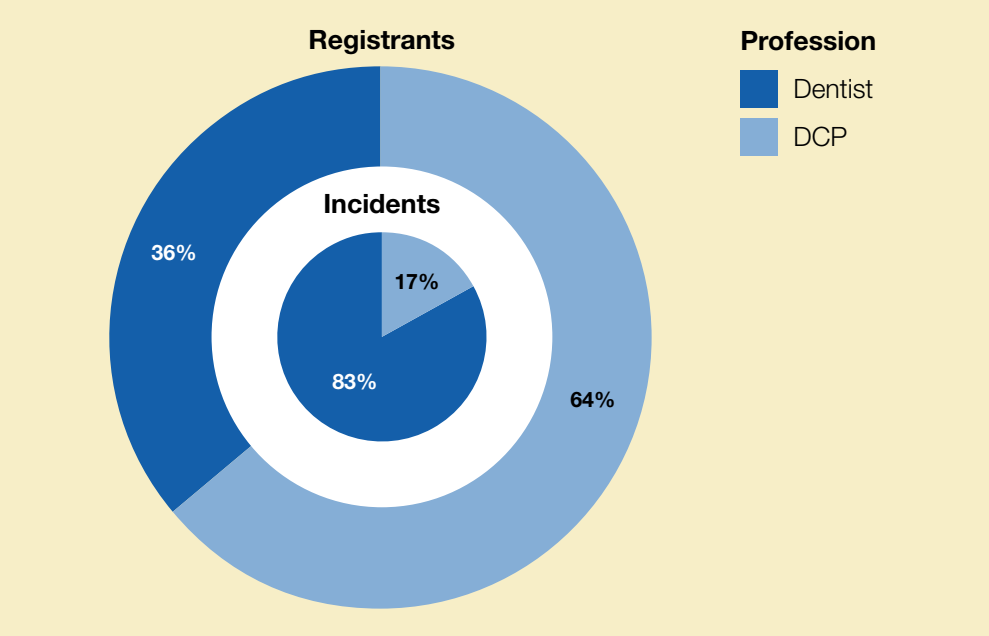
Figure 3: Percentage of Registrant Population and Incidents by Ethnicity.



Professional Registrant Category

Whilst in the registrant population DCPs make up the majority (64%), the majority of incidents involved Dentists (83%; $X^2(4, n=139,322)=3,426.90$, $p<0.001$). Those registered temporarily (n=3), listed as Visiting Dental Care Professional EEA Practitioner (n=1), and Visiting Practitioner Dentist (n=5) have been recoded as 'Other' for analysis of Profession.

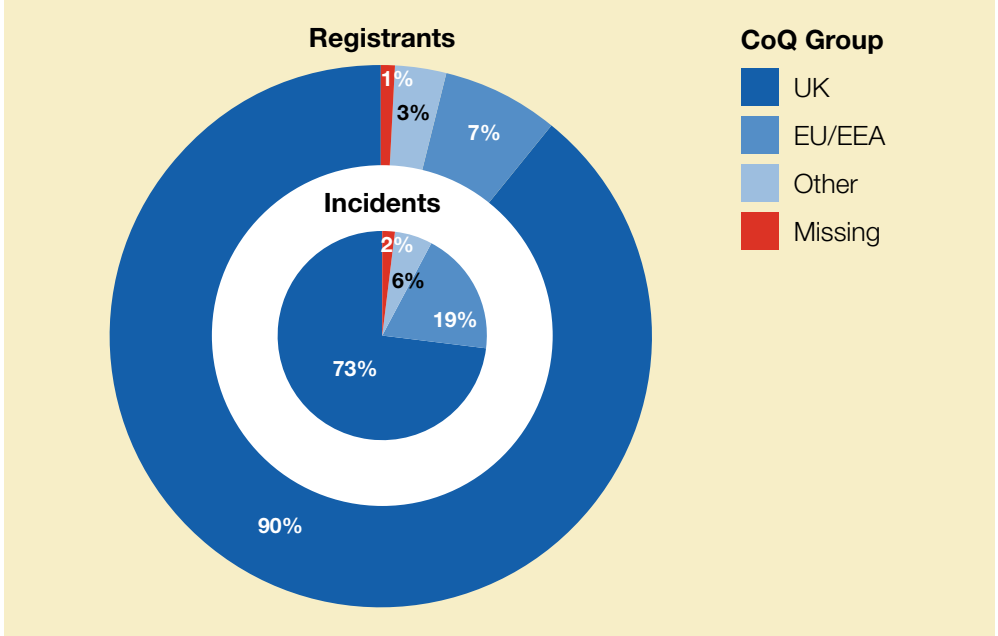
Figure 4: Percentage of Registrant Population and Incidents by Profession.



Country of Qualification

Whilst 90% of the registrant population qualified in the UK, only 73% of incidents involve a registrant who qualified in the UK, ($X^2(3, n=139,322)=1,092.4$, $p<0.001$).

Figure 5: Percentage of Registrant Population and Incidents by Country of Qualification ('Other' includes registrants who qualified in countries overseas, outside of the EU).

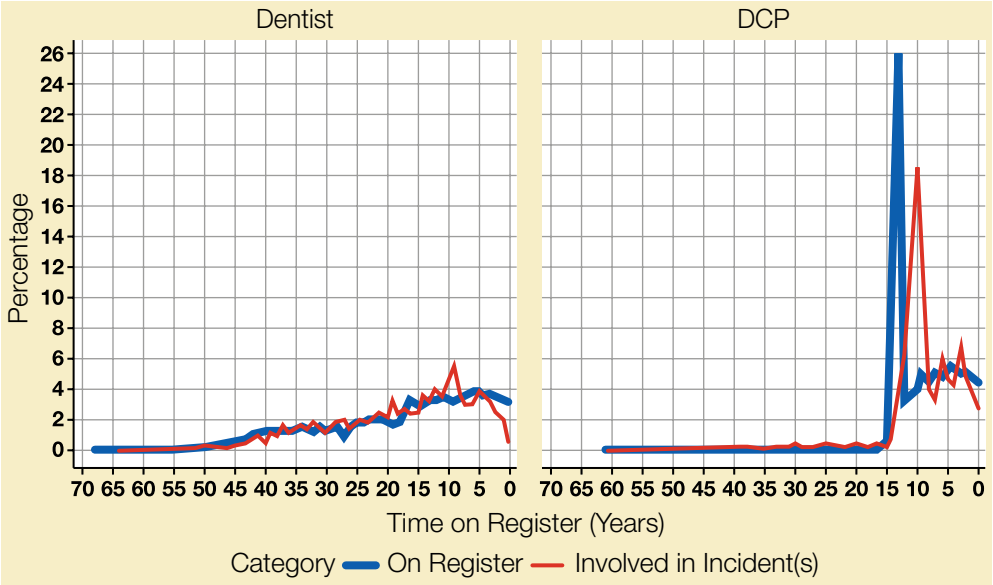


Time on Register

Most incidents involve registrants who have been on the register between 9 and 11 years, and most registrants have been on the register for 13 years. This does not however say anything about working pattern and if this is full or part time. One incident appears to have been reported a year before the registrant involved first registered with the GDC. This incident has been excluded from these analyses due to the data being questionable, and not having additional data to mitigate or revise in a meaningful way.

Dental nurse registration becoming mandatory in July of 2008 would seem the likely cause of the spike in DCP FtP cases, and therefore does not reflect a higher risk of being involved in an FtP incident for this group of registrants during this period of registration. In both panels of Figure 6, the red line indicating percentage of incidents broadly tracks the heavier blue lines of percentage of registrants, suggesting no particular period of registration is over-represented in the FtP incident data.

Figure 6: Percentage of registered Dentists and DCPs, and the percentage of incidents involving Dentists and DCPs, by Time on the Register (Years).

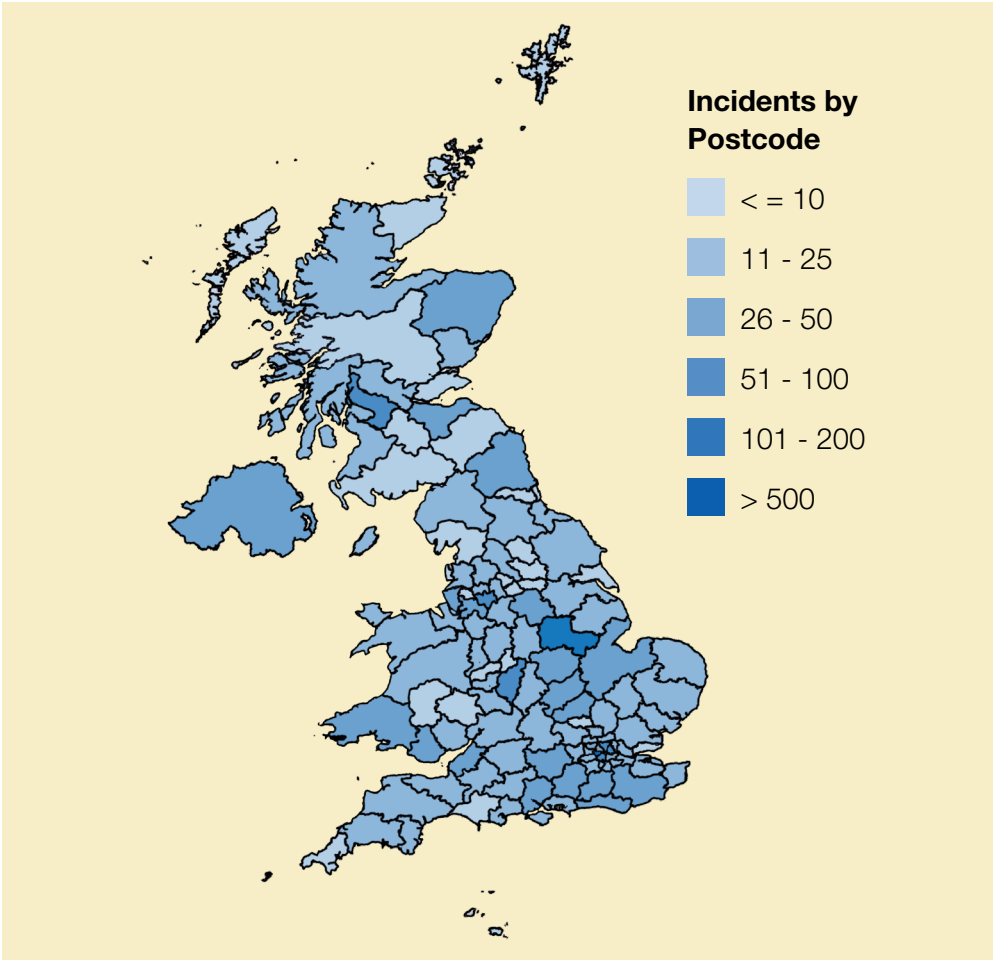


Characteristics of Informants

Alongside registrant characteristics, informant location (postcode region), type, and age group were also considered.

Most incidents are associated with informants from London postcode 'W' (n=526), followed by Nottingham postcode 'NG' (n=163). All other regions are associated with fewer than 100 incidents (Figure 7).

Figure 7: Incidents by UK Postcode Region.



The largest informant group is patients (49%; see also Table 5), and, excluding those for whom information was not available, are fairly evenly distributed across the age groups from ≤30 to 51-60, with fewer informants being in the 61-70 and ≥70 age groups (see Figure 8).

Table 5: Incidents by Informant Type.

Informant Type	n	%
Patient	1,766	48.56
Registrant	414	11.38
GDC	274	7.53
Member of Public	225	6.19
Whistleblower (any type)	223	6.13
Other Informant	197	5.42
Anonymous	182	5.00
Self-referral	148	4.07
NHS	103	2.83
Employer	56	1.54
Other Public Body	30	0.82
Police or other investigatory body	15	0.41
Private Provider	4	0.11

Figure 8: Percentage of Incidents by Informant Age Group.

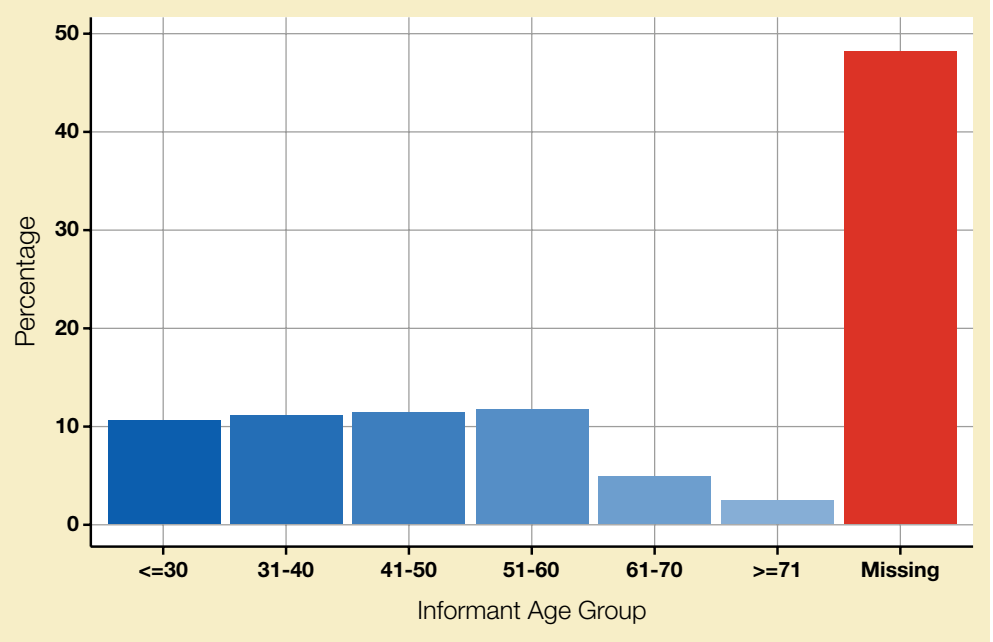
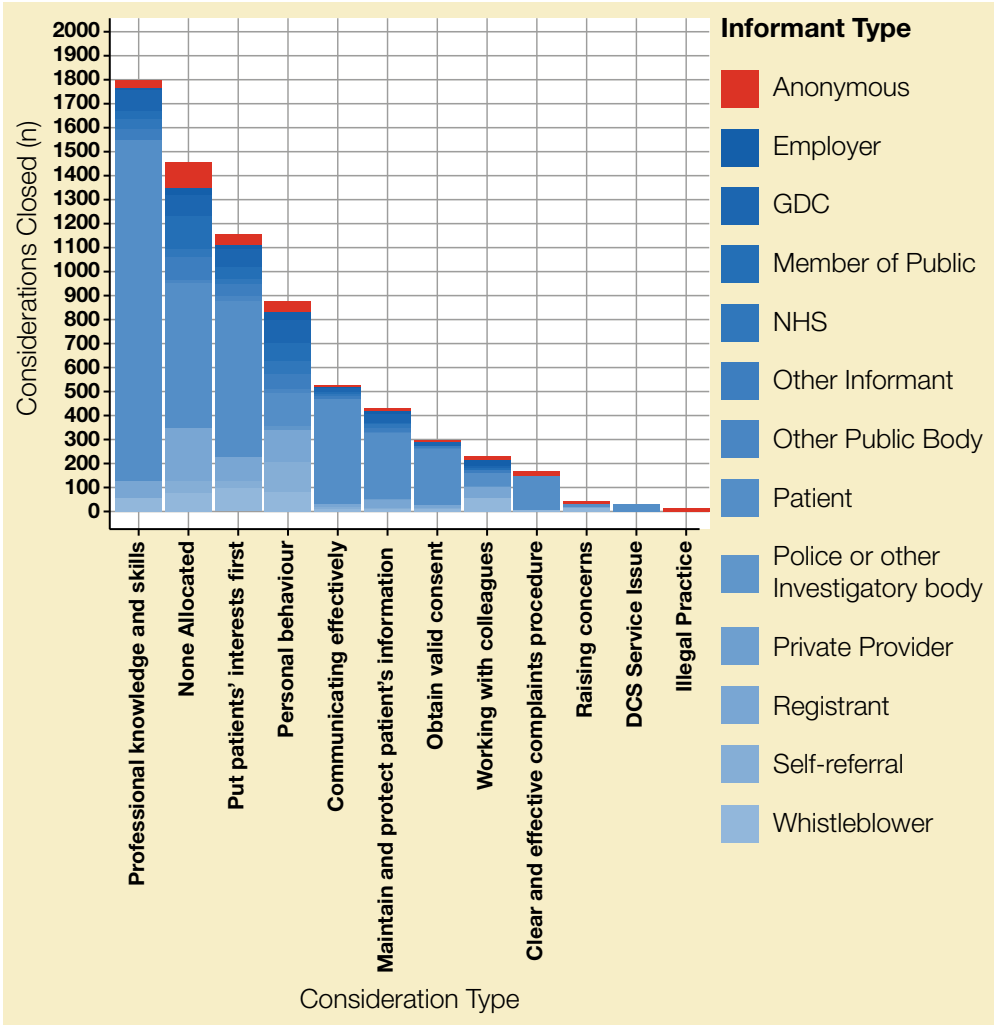


Figure 9 shows Informant Type by Consideration, and suggests that across informant types, the largest consideration groups are related to professional knowledge and skills, putting patient interests first, and personal behaviour. There is also a large group of incidents with no allocated consideration. This is likely due to a combination of data capture during GDC processes and the majority of incidents being closed at Triage (a conclusion supported by later analyses), and so not having a consideration attached. Full details are provided in Appendix E.

Figure 9: Incidents by Informant and Consideration type.



Risk Factors for Involvement in Incidents

For the purposes of calculating the odds-ratio for involvement in at least one incident by demographic and other factors, an involvement-in-incident variable was added to the registrant database; coded as 'Yes' (1) if the registrant contact appears in the list of unique incidents at least once, or 'No' (0) if the registrant contact does not appear in the list of unique incidents. As noted above, there were 135,685 unique contacts in the registrant data, and there were 2,896 unique contacts (registrants) in the dataset of 3,637 unique incidents. This suggests that only 2% of registrants had been involved in incidents during the time-period being analysed. Furthermore, this makes the number of unique incidents closed at each stage small relative to the registrant population size: 1,354 closed at Triage (initial assessment), 1,747 at Assessment (Caseworker), 378 at Case Examiner, and 87 at Practice Committee respectively. There remain 71 unclassifiable closed incidents.

To simplify the regression analyses and the interpretation of results, registrant and incident data where information is missing for Gender, Age Group, Ethnicity, Profession, Country of Qualification, or Time on Register have been excluded. Furthermore, these factors have been simplified to; Gender (Female/Male), Age Group (<=30, 31-40, 41-50, 51-60, 61-70, >=71), Ethnicity (White/Any Other Category), Profession (Dentist/DCP), and Country of Qualification (UK/EU or EEA/Other). Time on Register was included as a continuous variable (Years since First Registered). This resulted in a dataset of 134,938 contacts with the requisite risk factor information, of which 2,845 had been involved in at least one incident (2% involved in incidents).

Interpretation of risk factor data

The plots depict odds-ratios for risk of being involved in an incident closed at any stage, closed at Triage (Initial Assessment), closed at Assessment (Case Worker), closed at the Case Examiner and closed at Practice Committee. The odds-ratios can be interpreted as 'times more likely to be involved for one group versus another'. For example; if the value above the point plotted for Male:Female is 2.13, that suggests that Males are 2.13 times more likely to be involved in an incident than Females; or Dentists being more or less likely than DCPs; and registrants in ethnicity categories other than White being more or less likely than White registrants to be involved in incidents.

For Age Group, the comparisons are 'more or less likely than 31-40 year olds' (which make up the majority of the registrant population). For Country of Qualification (CoQ), comparisons are 'more or less likely than registrants who qualified in the UK'. For Time on register, the interpretation is 'for each additional year on the register' how many times more likely is a registrant to be involved in an incident. Values of less than 1 can be read as 'less likely', and where the error bars (representing upper and lower 95% confidence intervals), do not cross the OR=1 line, the difference in likelihood is statistically significant (i.e. there is very little chance that the odds of being involved in an incident are equal, 1:1, for each group).

Figure 10: Odds-ratio of Involvement in an Incident Closed at Any Stage.

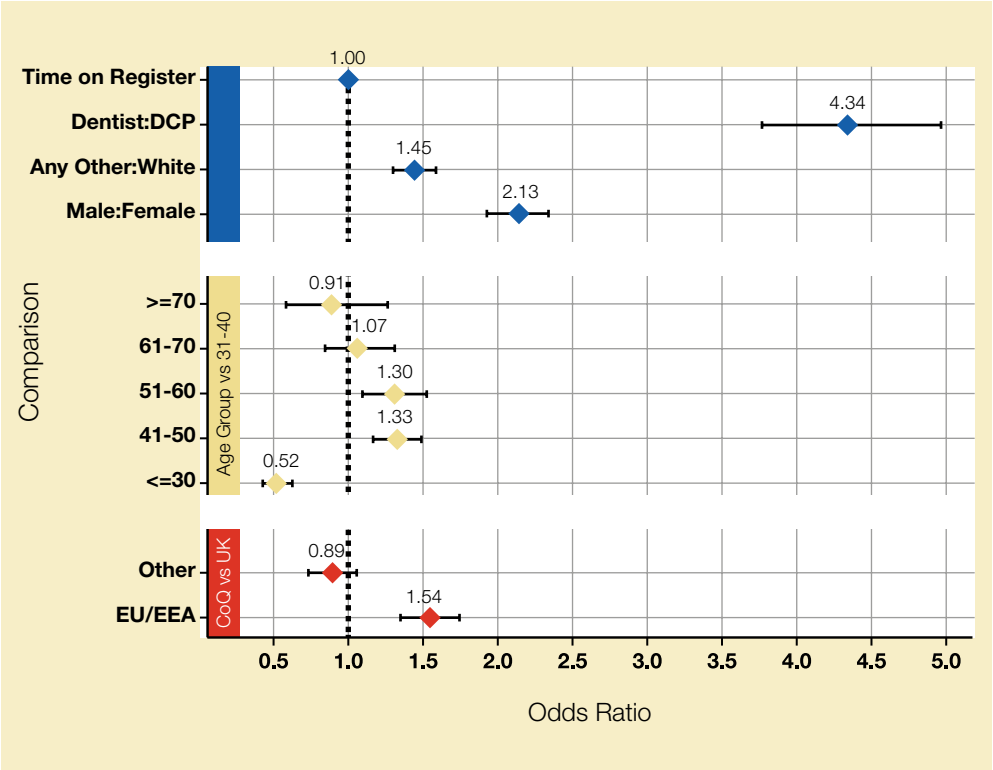


Figure 11: Odds-ratio of Involvement in an Incident Closed at Triage.

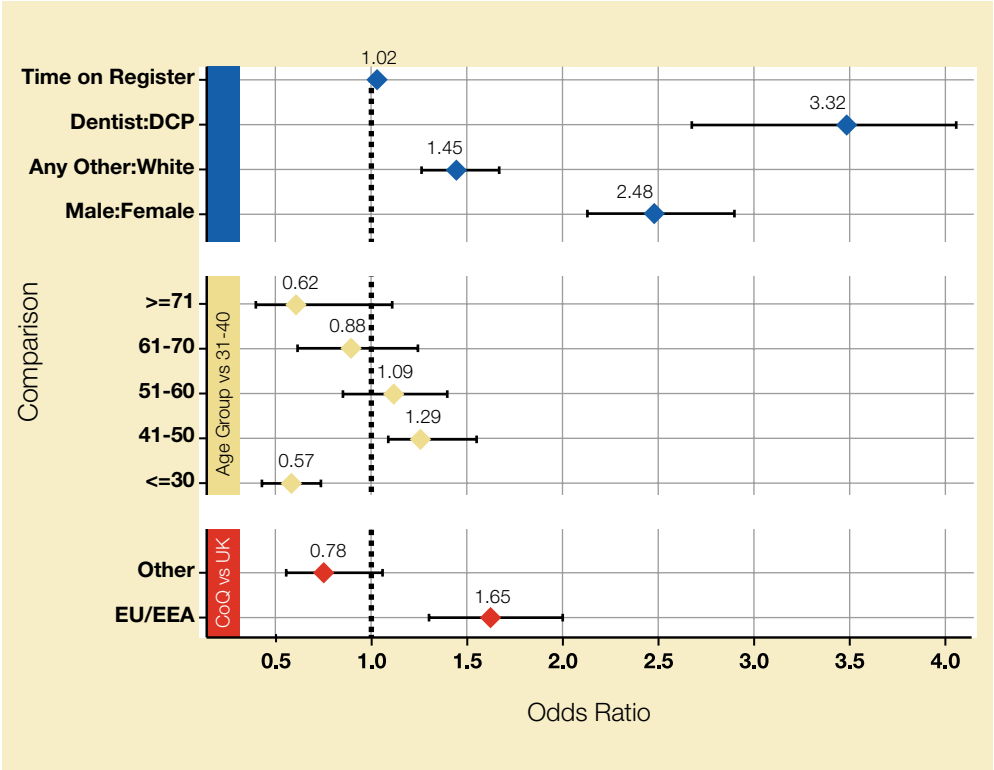


Figure 12: Odds-ratio of Involvement in an Incident Closed at Assessment.

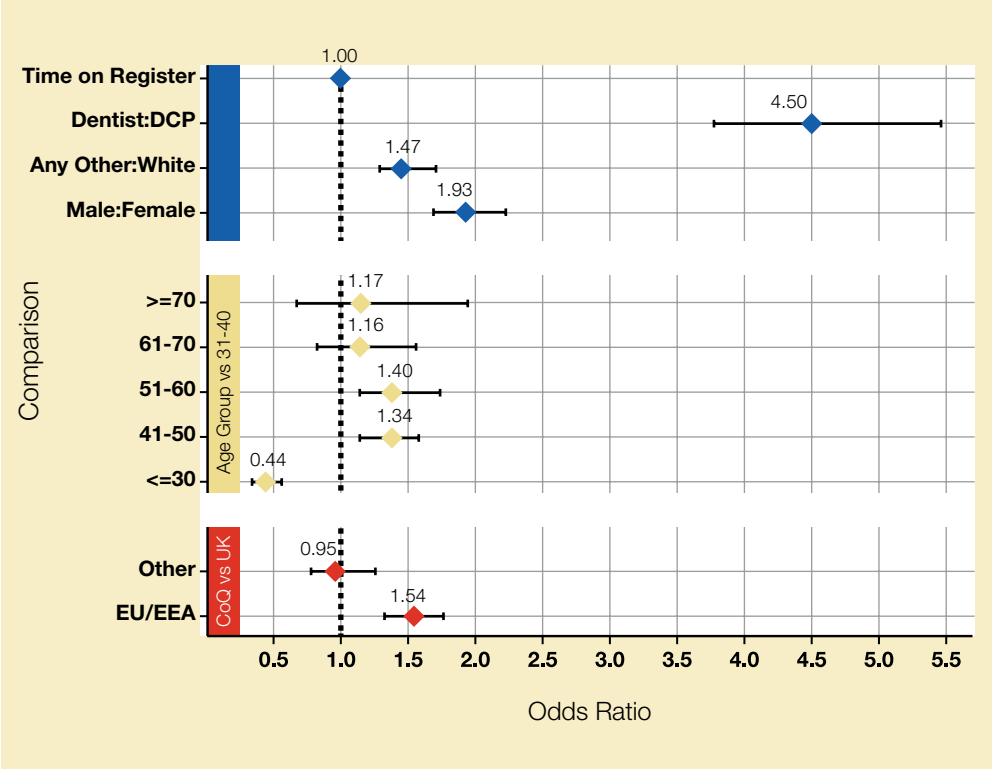


Figure 13: Odds-ratio of Involvement in an Incident Closed at the Case Examiner Stage.

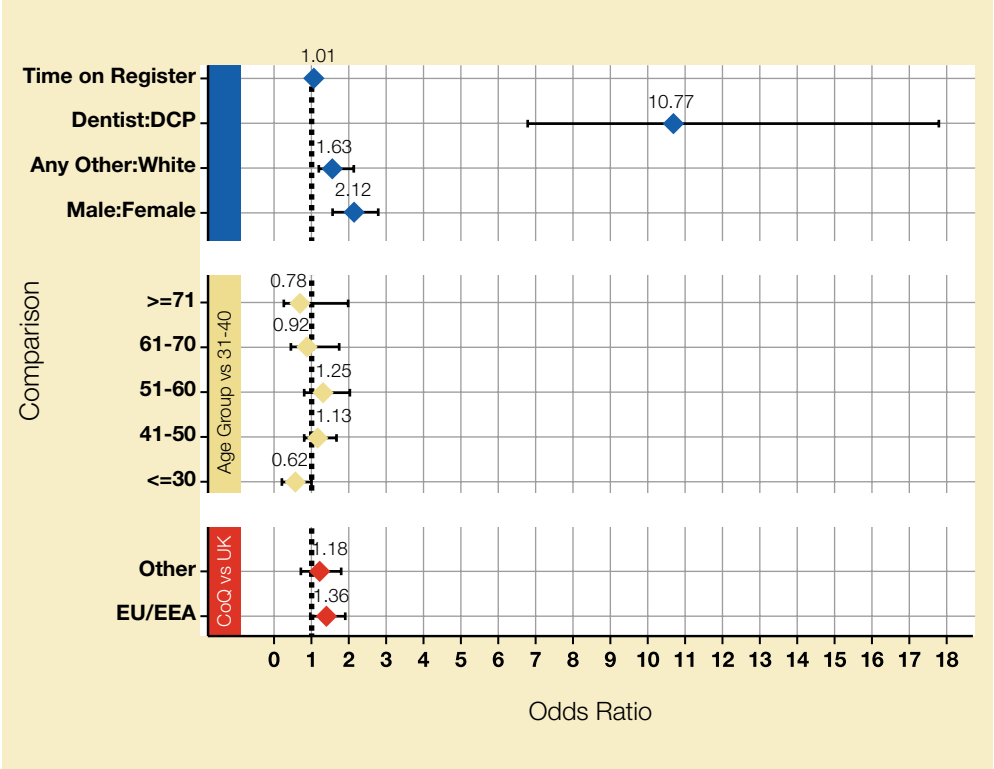
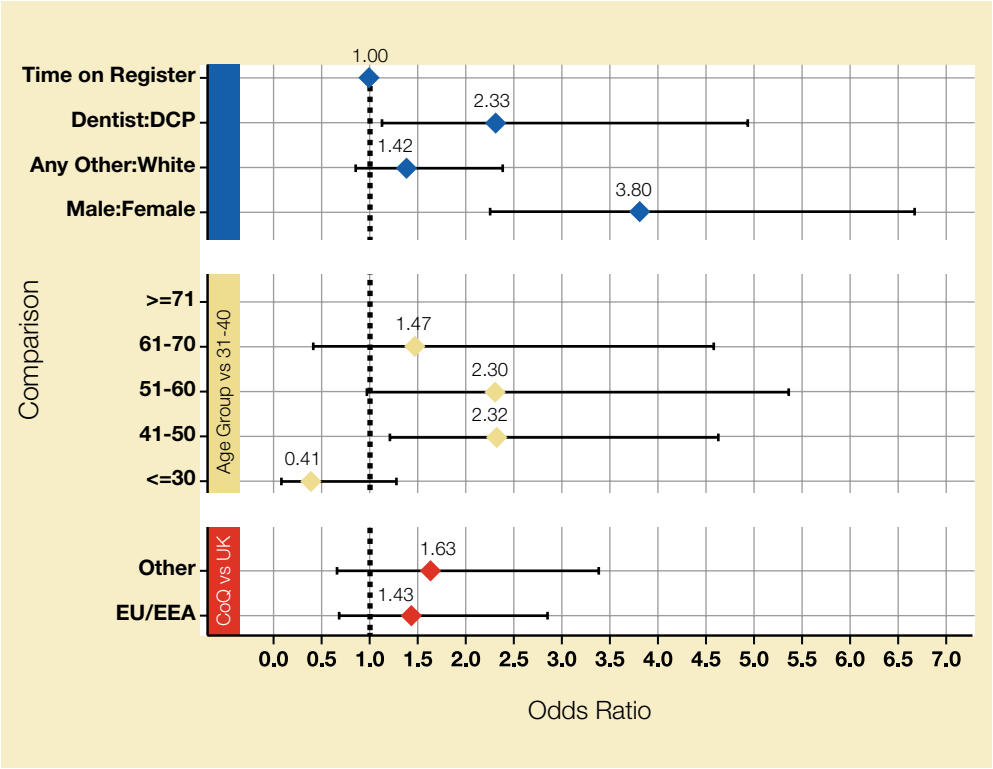


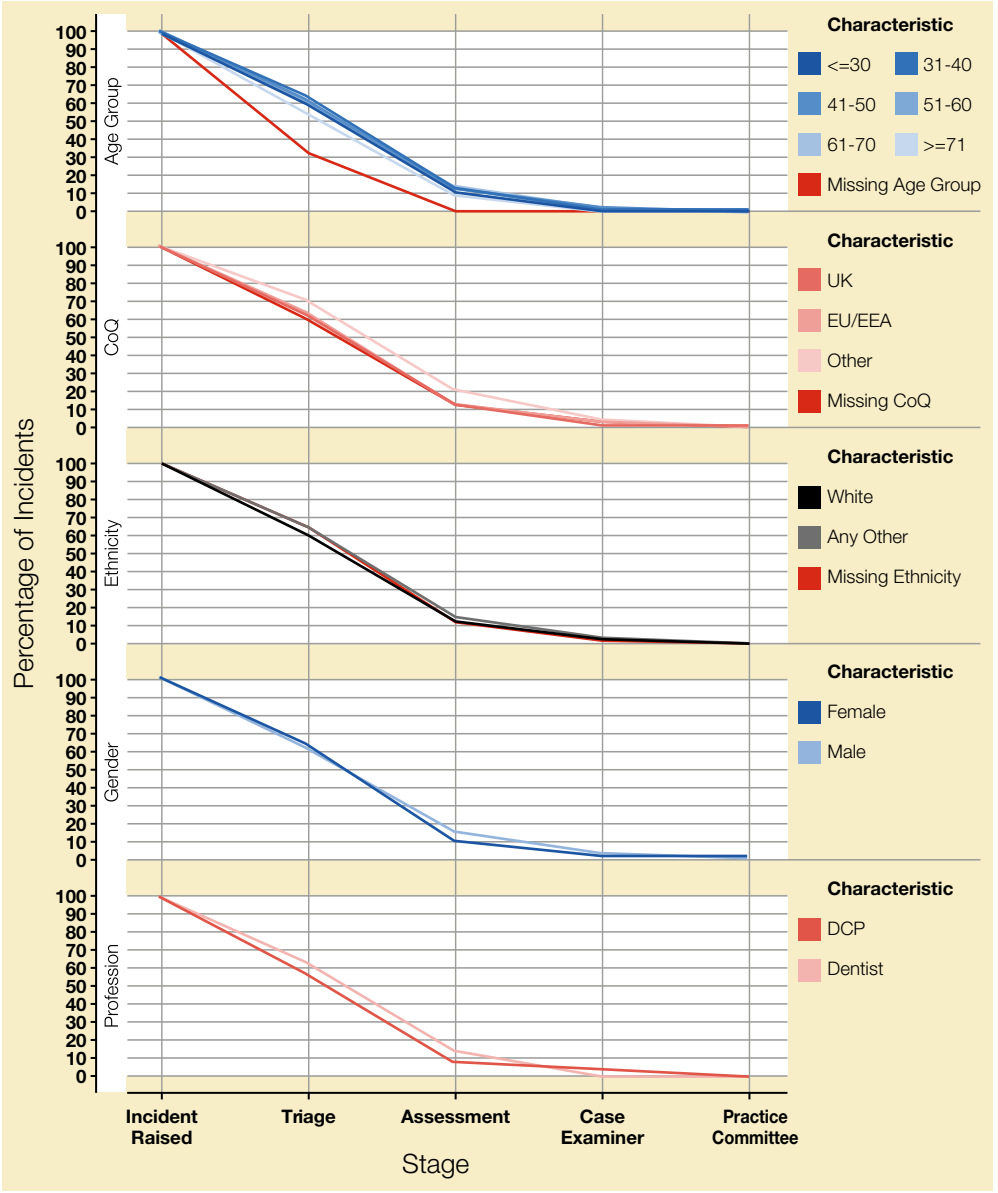
Figure 14: Odds-ratio of Involvement in an Incident Closed at Practice Committee.



Survival Analysis

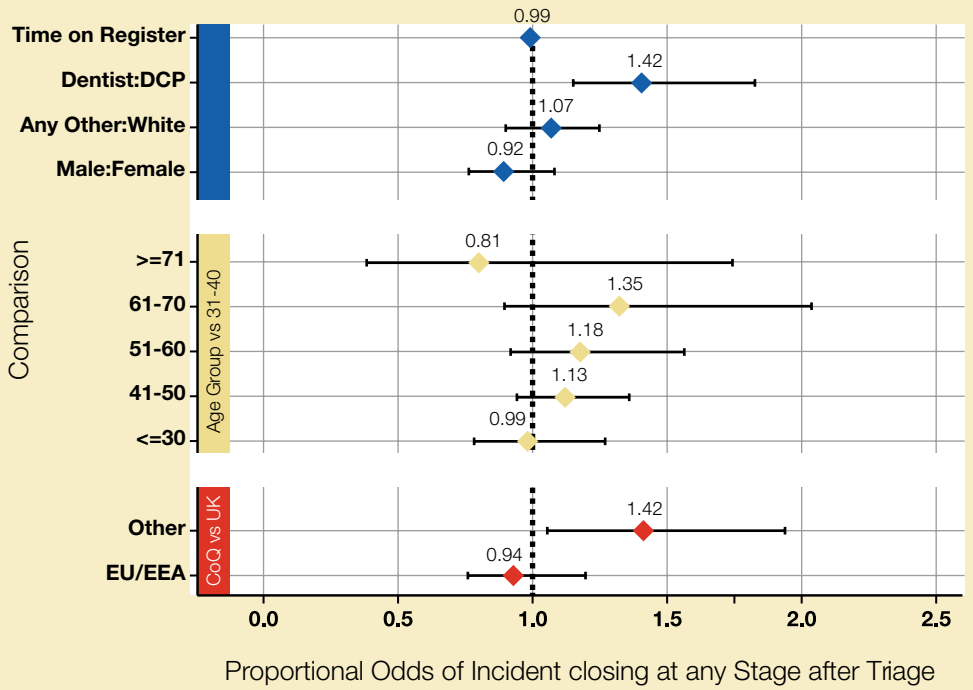
In order to explore which stages incidents are closed at, survival curves were plotted; these show little to no difference in terms of incidents involving registrants with particular characteristics closing in greater or lesser proportions across stages than other groups.

Figure 15: Percentage of Incidents remaining at each Stage by Registrant Characteristics.



For the purposes of the below, using ordinal logistic regression to predict the stage of incident closure from the characteristics of the registrants involved in them, the same sub-setting has been used as described above, e.g. removal of missing or unknown groups. The results, shown in Figure 16, suggest that in general, registrant characteristics do not affect the odds of being involved in a case that progresses beyond Triage, and to note that there is a trend that dentists and those whose primary qualification is non-UK may be more likely to be involved in cases that continue to the later (Assessment/Casework, Case Examiner, and Practice Committee) stages of the process than other registrant categories or those who are UK qualified.

Figure 16: Odds-ratio of being involved in a case closed at any stage after Triage.

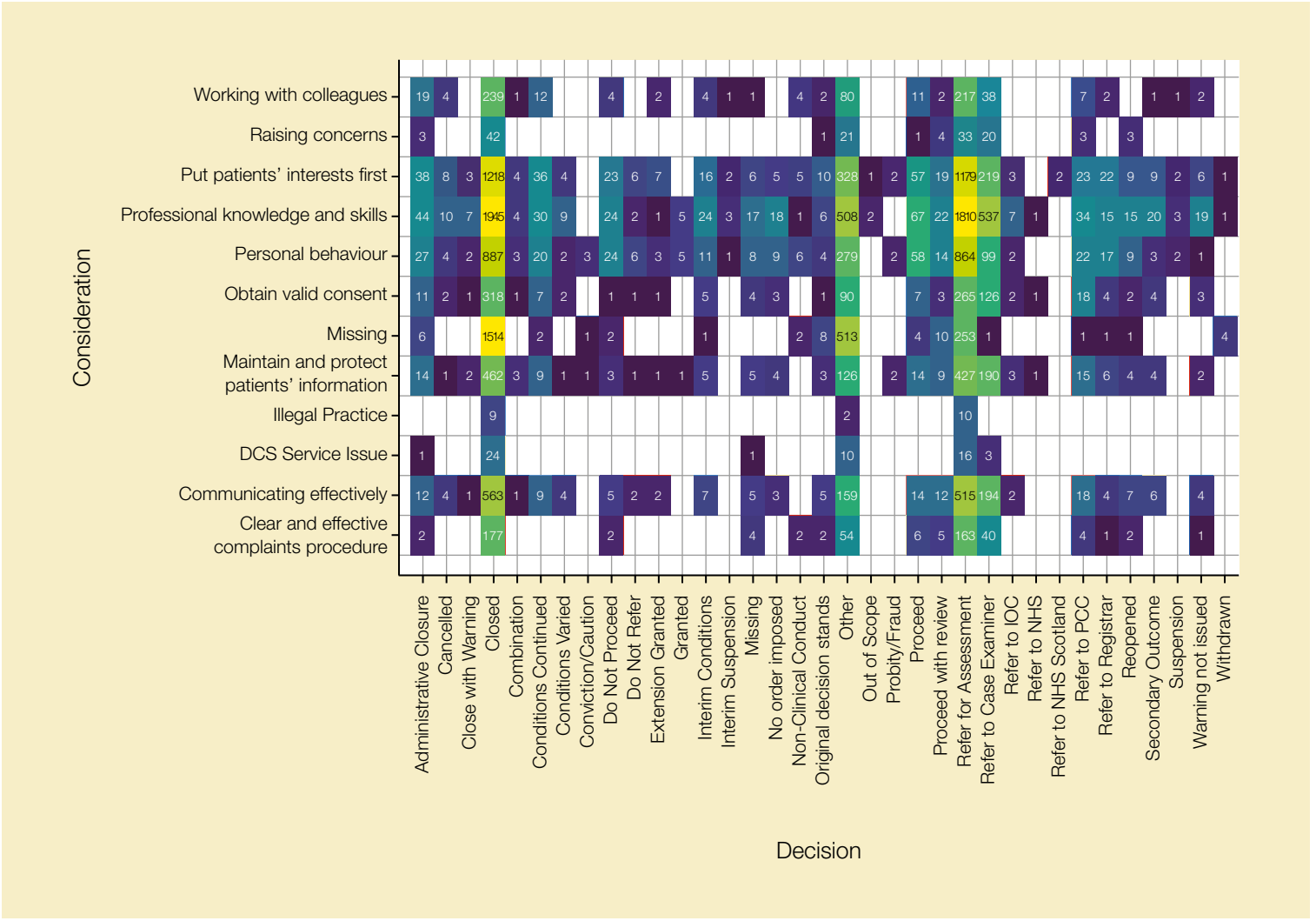


Considerations

As each unique incident could have multiple considerations and decisions attached, a new dataset was constructed which included all rows of case data for each closed unique incident. This resulted in 18,291 rows of data covering 3,637 unique incidents, with, between them all, 65 unique 'new_decisionoptionidname' (35 after recoding into 'DecisionSubtype') and 12 unique consideration types.

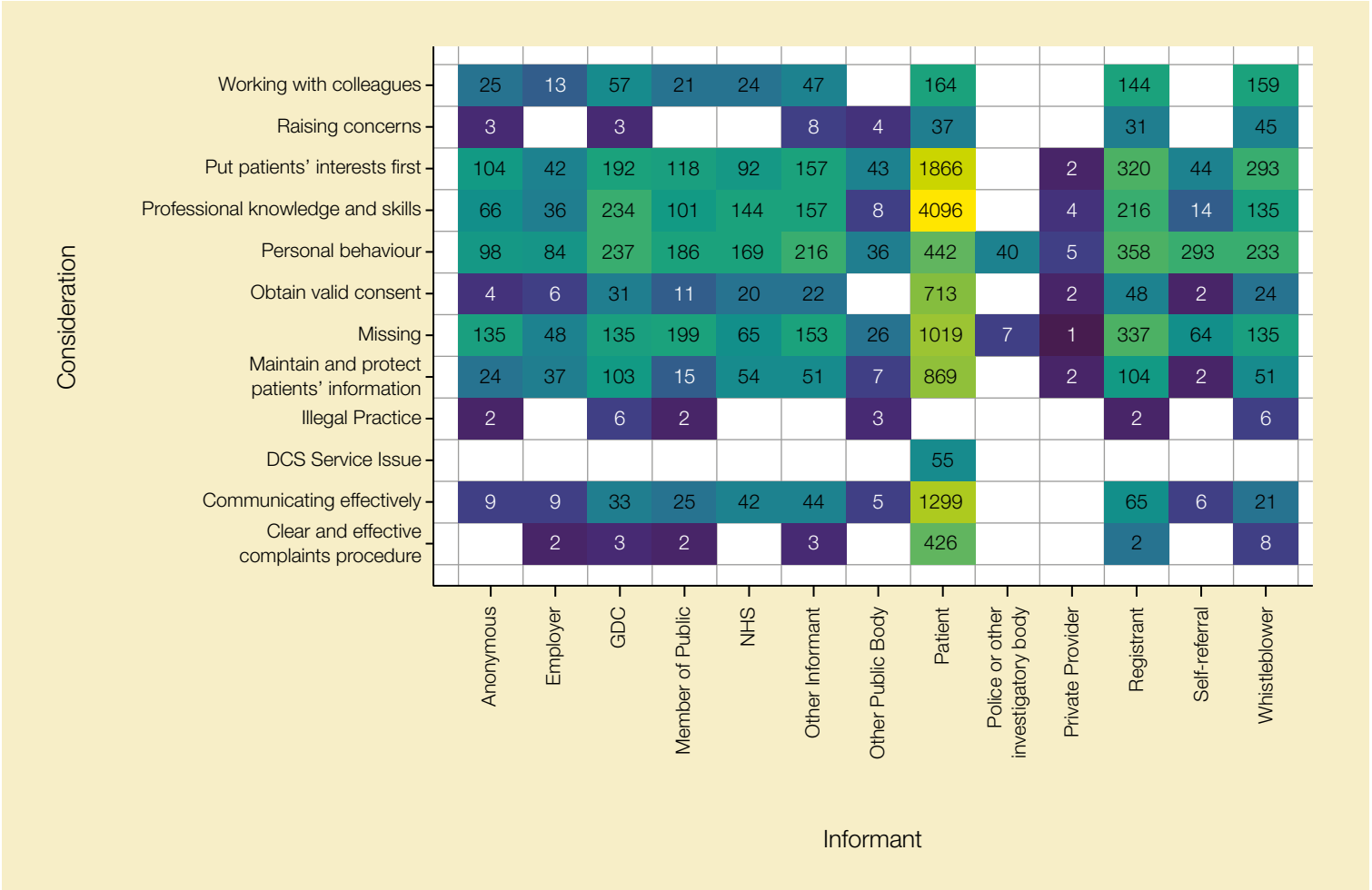
A statistically significant association was found between considerations and decisions, which appears to be driven by closure or referral for assessment decisions accounting for the majority of recorded decisions types ($X^2(374, n=18,291)=2,043.80$, $p<0.001$). This is depicted in Figure 17, which shows a heat-map representation of the number of incidents in each Consideration-Decision category. The colour scale goes from dark blues, representing categories containing the fewest incidents, to bright yellows for those with the most incidents.

Figure 17: Decisions by Consideration type.



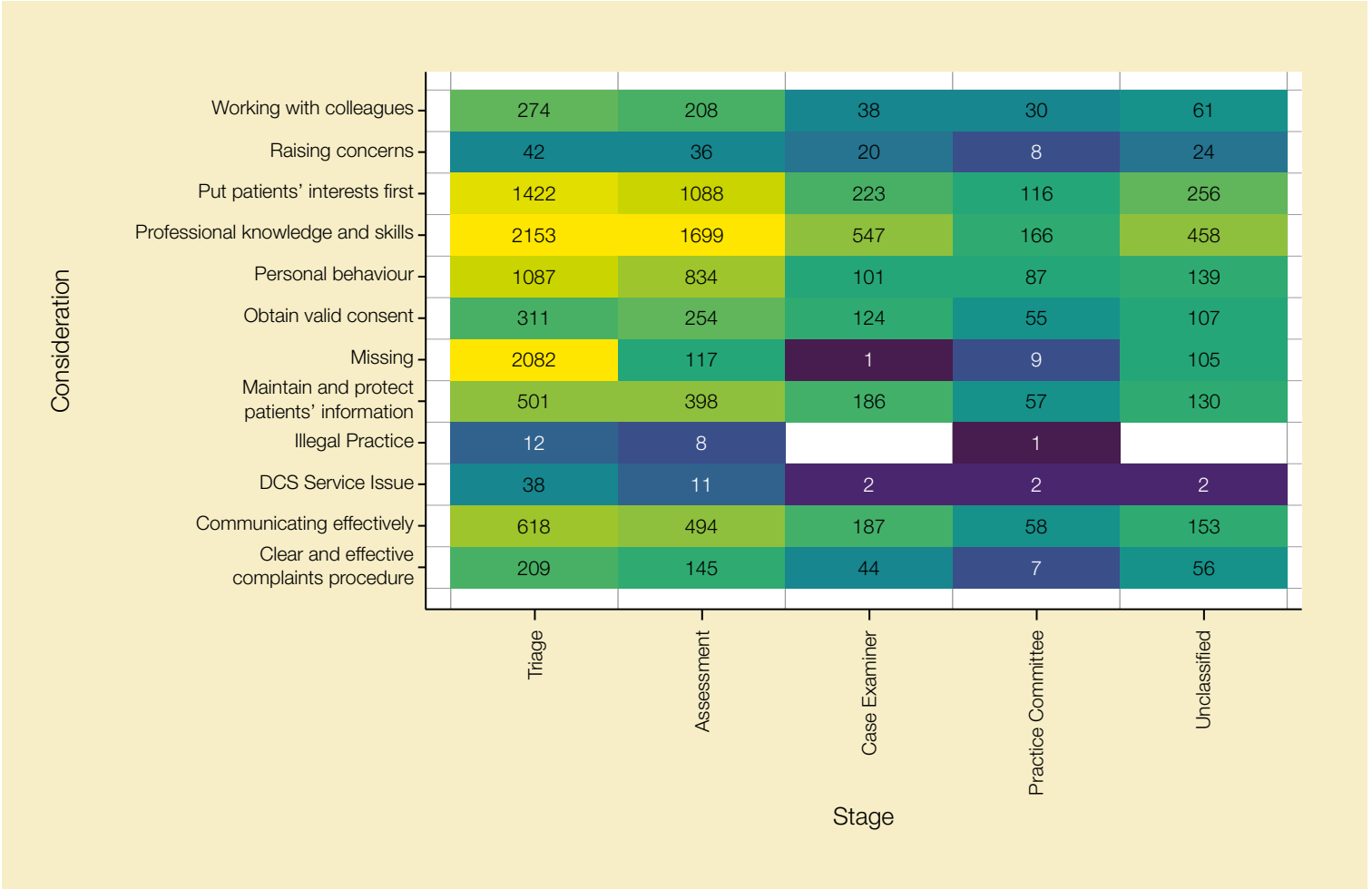
A statistically significant association was also found between informant type and considerations, which appears to be driven by the majority of incidents being reported by patients, and involving patients interests, and registrants' knowledge and skills, and their communication ($X^2(132, n=18,291)=5,809.10$, $p<0.001$). This is depicted in Figure 18, which shows a heat-map representation using the same colour scale as above.

Figure 18: Informant Type by Consideration Type.



Comparing considerations against stage also revealed a statistically significant association, which appears to be driven by the majority of incidents being closed at triage and assessment ($X^2(55, n=18,291)=2,338.30$, $p<0.001$). This is depicted in Figure 19, which shows a heat-map representation using the same colour scale as above.

Figure 19: Stage by Consideration Type.



Decision by Registrant Characteristic

It is difficult to determine the types of decisions made by registrant characteristics given the current data structure; the vast majority of cases have a decision of ‘Closed’, and the timeline of each incident is difficult to follow for the reasons discussed previously. However, excluding decisions related to closures or referrals, the distribution of other decisions by registrant characteristics (Gender, Ethnicity, Profession, and Country of Qualification) are shown in the following plots. From these it can be seen that the majority of decisions outside of referrals and closures fall under an ‘other’ classification.

Figure 20: Percentage of each Decision type within Gender groups.

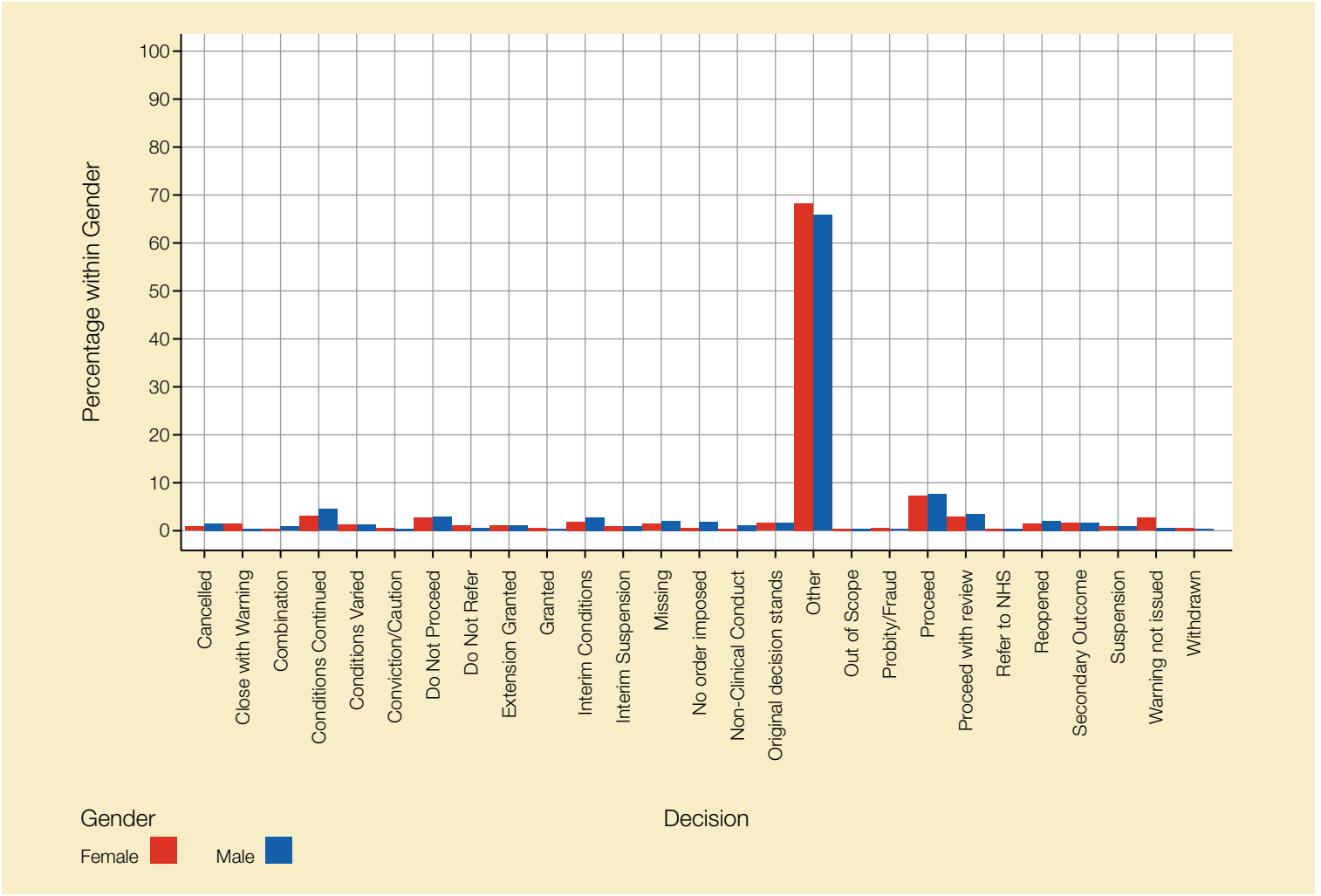


Figure 21: Percentage of each Decision type within Ethnicity groups.

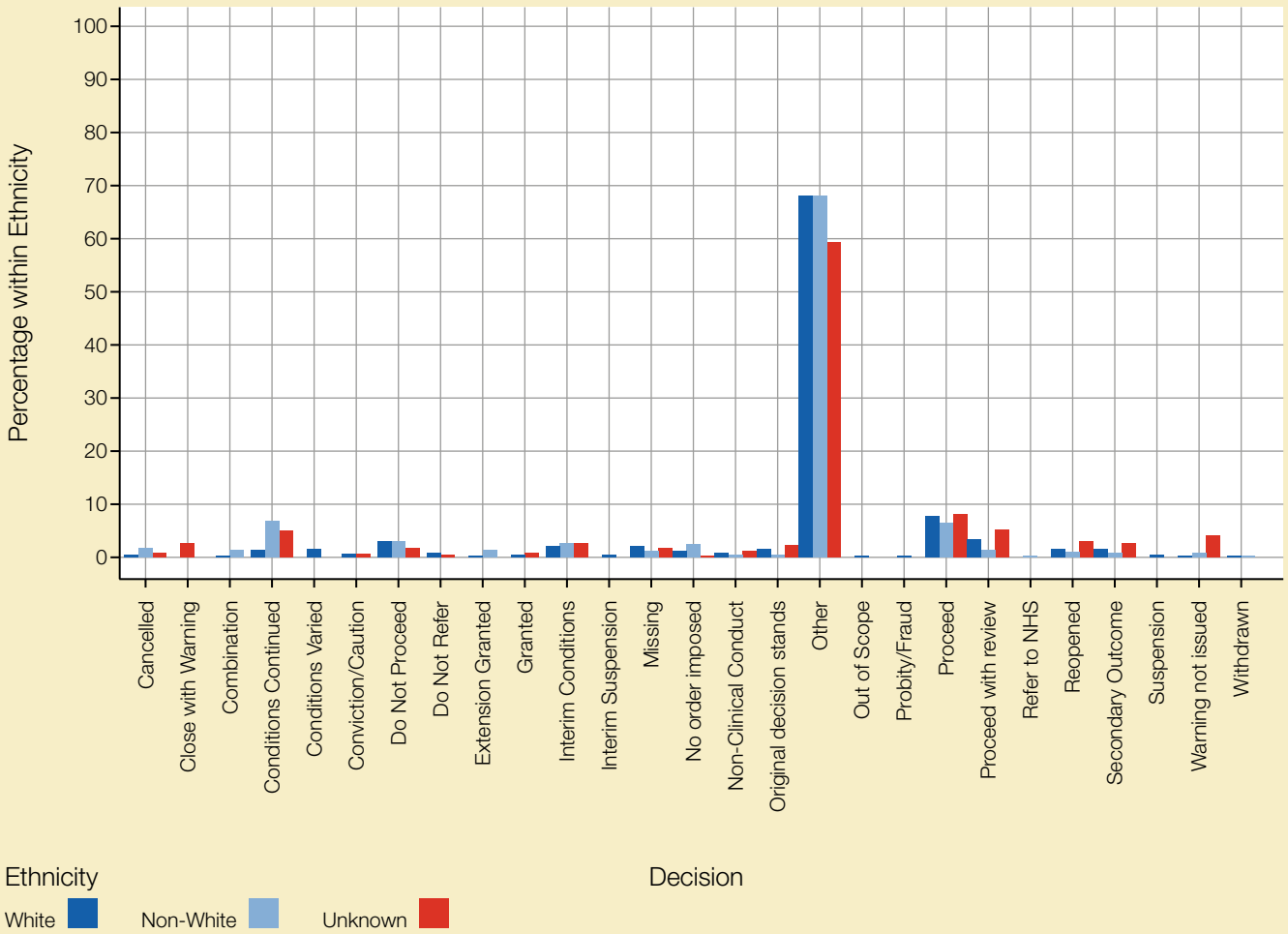


Figure 22: Percentage of each Decision type within Profession groups.

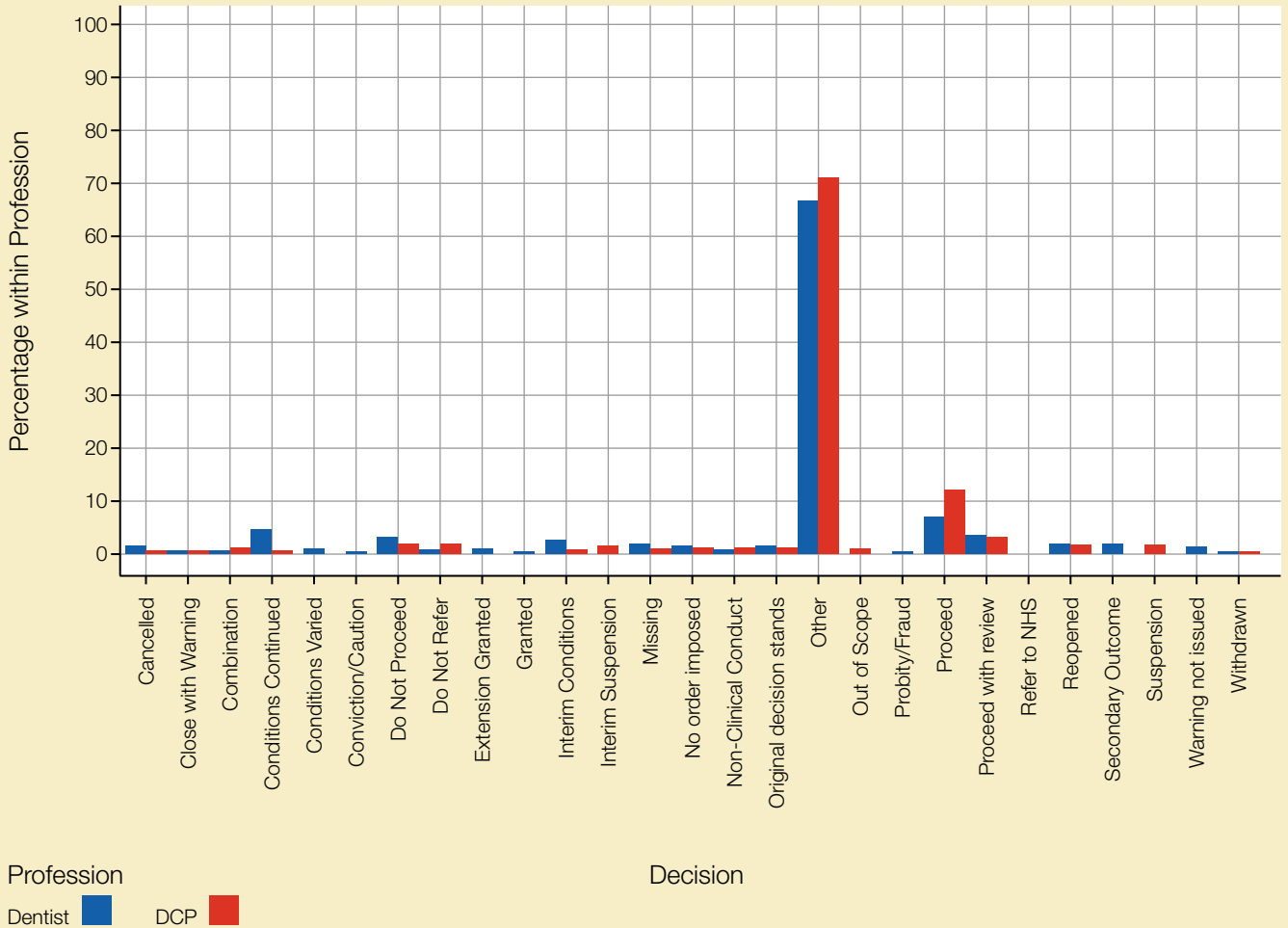
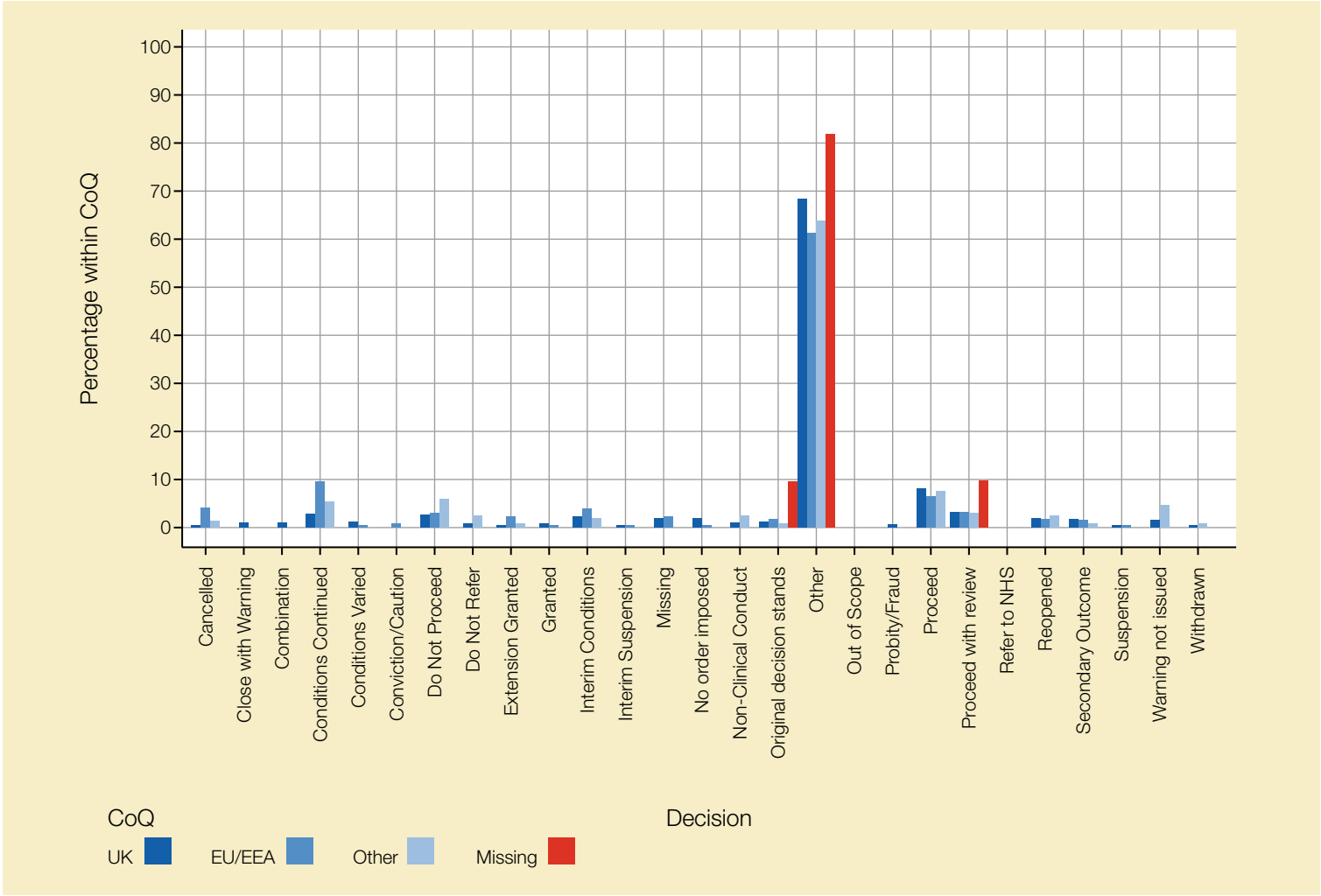


Figure 23: Percentage of each Decision type within Country of Qualification groups.



3.3.3 Summary of findings from quantitative analysis of case data files

Registrants involved in incidents are, in general, more likely to be older, in ethnicity categories other than White, male and dentists, who have been registered for a decade and qualified in the EU/EEA. There has been no consideration of intersectionality and each of these associations are mutually exclusive of the others.

Of these characteristics, it seems that profession, gender, and ethnicity have the largest impact on the odds of being involved in an incident. Dentists, Males, those identifying as ethnicities other than White show increased odds of being involved in incidents that close at any stage, Triage (Initial Assessment), Assessment (Casework), or Case Examiner.

Registrants who qualified in the EU/EEA are more likely to be involved in incidents closed at any stage, at Initial Assessment (Triage), and at Casework (Assessment) stages; though the impact of EU/EEA qualification has less impact on the odds of being involved in an incident which is closed at the Case Examiner or Practice Committee stages.

Excluding incidents with missing considerations data, most incidents, across considerations, are raised by patients, followed by similar numbers of incidents being raised by the GDC, the registrant themselves, and Whistleblowers. Relatively few come from employers, private providers, or other public bodies; and most considerations attached to incidents are related to professional knowledge and skills, personal behaviour, and 'putting patients' interests first', regardless of informant type. The vast majority of considerations are closed at Triage (Initial Assessment) and Assessment (Casework) stages, regardless of type.

Most decisions recorded in the data are for referral to another stage, or for cases to be closed. This is likely an artefact of the data structure. Other than these decisions, most incidents are linked to similar decisions such as Administrative Closure, Continuing Conditions, Do Not Proceed, or similar.

Given the limitations of the data, exploration of intersectionality has been limited, largely based on controlling for each additional characteristics when estimating the influence of another. However, with a stricter data structure other approaches might be used in conjunction with those presented here to further explore the interaction of registrant characteristics, incident involvement, and incident characteristics, as well as incorporate theoretical insights from thematic, qualitative work in other ways. One such example, structural equation modelling, is presented in Appendix F.

3.3.4 Qualitative Analysis of Case File Data

Case files were shared in two stages, and in total 125 distinct cases provided sufficient useable data for inclusion in the final thematic and content analyses. The final dataset covered cases closed at all levels of the FtP process and were able to be linked explicitly to their associated quantitative dataset to enable further testing of the findings via the rerunning of the inferential statistics with the revised considerations list created.

As described at the beginning of this findings section, analysis of qualitative case file data had limitations related to the way the data had been collated, managed and subsequently shared. Appendix B details the types of documents that were included in the case files and that had been presented in various formats before being combined into one pdf. These included scanned documents (some handwritten), redacted comments and long involved informant letters or chains of communications with registrants that formed evidence in the initial complaint to the GDC. The case files then appeared to contain every and all elements of the administration related to a single case, thus becoming a 'data dump' that was challenging to penetrate meaningfully, unless using a different methodology such as ethnography or case study (where a small sample of the case files would have been used and the results generalisable in a different way to answer different research questions). While all the embedded documents were relevant to the FtP process itself, many were much less useful for this type of analysis and future learning.

Additionally, the case file data were not linked explicitly to any outcome, consideration or final decision and within the documents were not structured by any clear factors including date, consideration type, registrant characteristics, or outcome. This further limited IT aided interrogation of the entire data corpus.

For the purposes of the thematic and content analyses, the formal GDC documents relating to the FtP process were explored electronically using key phrases rather than individual words to increase the specificity and relevance of the results. The discussion and implications section of this report suggests ideas on different ways of collecting, collating, storing and managing such data in the future to enhance its availability for analysis and use for learning. The final data corpus was a smaller sample than originally anticipated and additional case files had been made available originally for potential analysis. Due in part to the constraints mentioned above, and with additional constraints of ensuring explicit linkage to the related quantitative data, and to ensure that completion of the study was not delayed, the smaller dataset was used to ensure transparency and confirmability of the findings. Further content analysis would be useful to ensure the new revised considerations list is trustworthy and exhaustive across a wider range of cases closed at any level. As mentioned previously a prospective analysis would be recommended, to overcome some of the challenges experienced with the formatting and limited data mining opportunities of the current data.

Thematic analysis

Through an iterative thematic analysis a clear interpretation of the existing GDC considerations was gained, with a view to creating a revised list of considerations to understand, code and collate the FtP data held by the GDC. The intention was to more easily indicate where and how specific cases and/or incidents might be coded.

To ascertain a comprehensive list of FtP incidents and concerns across all the case files, data from case files closed at all levels were analysed with reference to specific complaints, processes, outcomes or elements of malpractice and misconduct. Samples were coded according to specific phrases in the case files that detailed a particular factor, rather than individual words. This enabled more specific exploration of the data and reduced the number of individual words found that linked to other areas not directly related to the FtP issue. References within sampling phrases to specific complaints, processes, outcomes or elements of malpractice and misconduct were then noted as recording units. Thematic Analysis of this newly mined data was then undertaken to code into themes the types of incidents and considerations used across all closed cases in the data sample. Recording units were initially coded into categories and sub-categories (following Braun and Clarke as detailed in section 2.2.2) that informed the suggested revised list of considerations. Recording units were then further analysed against their relevant sampling phrases and three meta level overarching areas of consideration conceptualised, into which each of the new consideration categories were fitted. The revised suggested considerations list is taken from the lowest level of coding – the category and subcategory levels of data to enable enhanced analysis. Table 6 demonstrates how these relate to each of the overarching themes.

Table 6: Displays the proposed new list of considerations and their meta level themes following thematic analysis.

Professional Practice	Clinical Complaints	Substantive criminal actions/convictions
Considerations	**Considerations**	**Considerations**
Patient safety	Record keeping	Conviction/arrest (of any nature)
Practising whilst suspended	Health and safety	Fraud
Personal behaviour	Harm to patients	Assault
Professionalism	Specific treatment issues	Restraining order
Dishonesty	Radiographic practice	
Communication	Hygiene	
Not co-operating with an inquiry	Prescribing issues	
Misconduct (any nature)	Failure to obtain consent	
Rudeness	FtP history	
Bullying	Existing case	
Safeguarding		
English language		
Handling complaints		
Payment for Treatment		

Supporting verbatim quotations from the data obtained are reported as examples to indicate the nature of all data in the selected theme or subtheme. See Table 6.

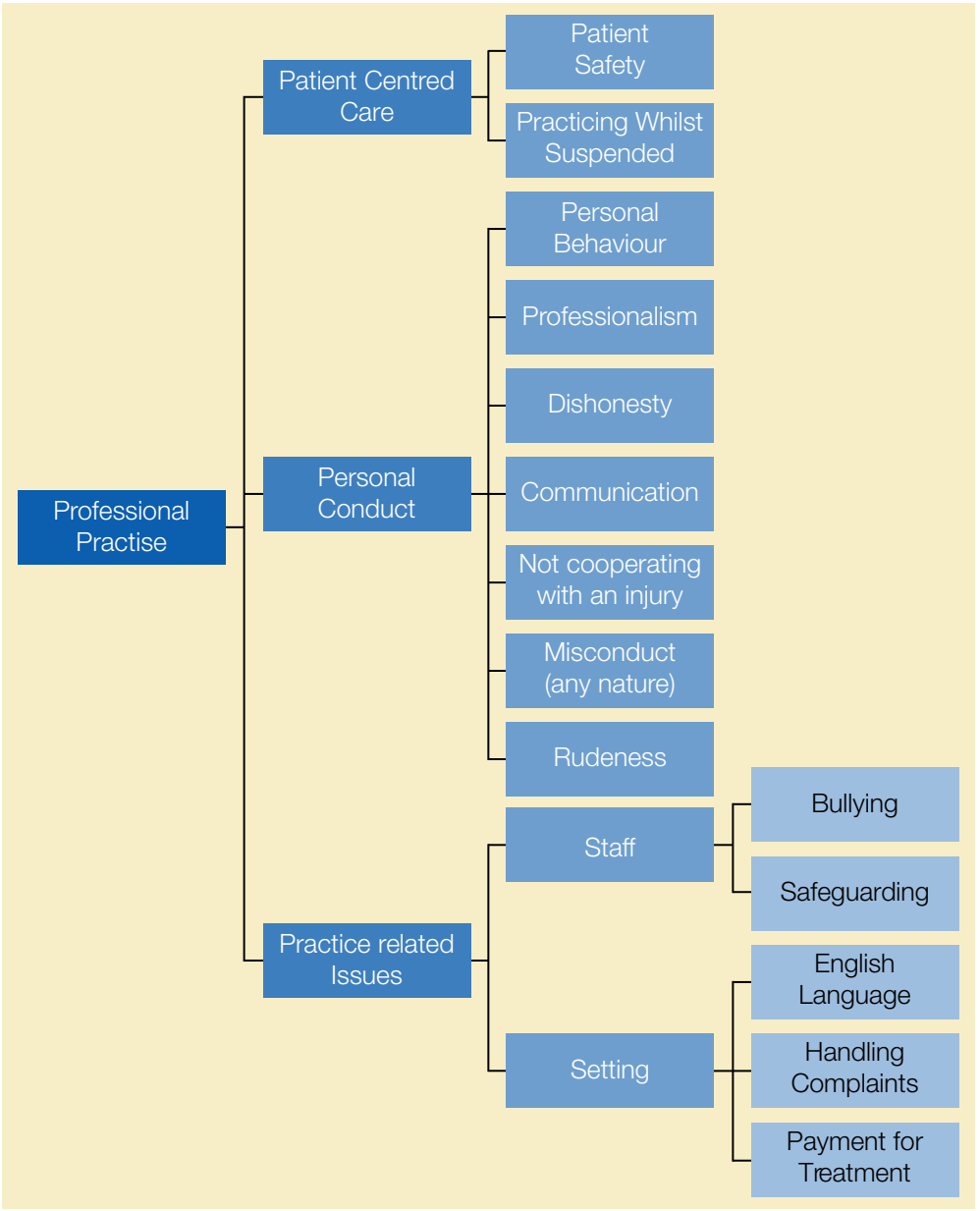
From the data, three themes were established as in the overarching considerations: Professional Practice, Clinical Complaints and Substantive Criminal Actions/Convictions.

Professional Practice

Professional Practice had three subthemes (Figure 24).

- **Patient Centred Care** with two further subthemes; Patient Safety and Practicing whilst Suspended.
- **Personal Conduct** with seven further subthemes; Personal Behaviour, Professionalism, Dishonesty, Communication, Not Cooperating with an Inquiry, Misconduct (any nature), and Rudeness.
- **Practice Related Issues** with two further subthemes; Staff and Setting, each with further sub theme. Bullying and Safeguarding were further subthemes of Staff; and English Language, Handling Complaints, Payment for Treatment are further subthemes of Setting.

Figure 24: Professional Practice thematic map.



Patient Centred Care: Patient Safety

Data concerning both physical and mental safety of patients was coded and both physical and emotional safety issues were reported in the case files. For example:

> '... he did not take heed of these signs and symptoms of heart palpitations and chest pain. He did not... exercise cautiousness and vigilance but continued to cause severe pain to me by extracting my tooth without proper anaesthetic effect.'

Personal Conduct: Personal Behaviour

Whilst it may be argued that all components of practice are a part of personal behaviour, this subtheme encompassed more social aspects of practice. The data that are coded to this category relate to the non-clinical skills of the registrants, and their choices regarding exhibited behaviours in the workplace.

> '[name] is often quite demanding of her team... it can be difficult for the team to respond quickly to her demands.

> '[she is] too emotionally attached, tries to do too much on her own - health and mind suffers, not a consistent rewarder.'

Personal Conduct: Professionalism

Interlinked with personal behaviour is the concept of professionalism. This subtheme relates directly to professional behaviour in the workplace with regards to all regulations, standards for practice and personal and professional choices that affect the registrant's quality of service provision.

> '[name] also does consultations when [name] is not at the practice. He does consultations for both Invisalign and Dentures. He has no current dentistry qualifications and also takes the photographs and places the mirror in the patient's mouth for the Invisalign consultation. He discusses costs and also explains the treatment to the patient. I am unsure whether he is allowed to do consultations.'

Personal Conduct: Dishonesty

Dishonesty refers to any form of dishonest practice. The case file data indicated several types of dishonest practice, from not informing the GDC of convictions, to being dishonest with patients regarding NHS treatment provision arrangements.

> 'You only offered a private filling to [patient] when there was a clinical need to treat the tooth, and treatment should therefore have been offered under NHS arrangements.

> 'Your conduct in relation to allegation 9 above was:
> a. misleading, b. dishonest.

> '3. You confirmed to a patient's parent, that NHS treatment would result in the treatment being delayed

> '4. Your actions at 3 above was:
> a. misleading, b. dishonest. 5. You submitted inappropriate claims for treatment. 6. Your actions at 5 above was: c. misleading, d. dishonest.'

Personal Conduct: Communication

Communication encompasses all forms of communication the registrant may have with other professionals, the GDC, and their patients. The data included communication issues between patient and registrant where communication was neglected, and the lack of, or poor quality of communication between professionals within practices and dental settings.

> 'It is impossible to get any replies from your office staff. I often have to send up to 5 emails before I get a response. I have called the office number on several occasions which is diverted to a mobile number which has never once been answered. On a couple of occasions I have been redirected to a call centre who always promise to get someone to call me straight back but never happens. This level of service is unacceptable.'

Personal Conduct: Not Cooperating with an Inquiry

The data included multiple references to registrants failing to cooperate with inquiries in a variety of ways. The most common issue was not responding to correspondence, particularly when the GDC requested information from registrants.

> **'From [date] to at least [date] you failed to cooperate with an investigation conducted by the GDC, including by not providing: a. proof of your indemnity insurance, b. the details of your employment, c. medical reference from your GP or another medical practitioner, d. consent to attend a health assessment.'**

Personal Conduct: Misconduct (any nature)

This subtheme noted any element of misconduct related to a registrant where it specifically noted 'misconduct' in the case files. The umbrella term encompasses the multitude of practice misconduct recorded in the data. This subtheme relates to any act that has been seen to violate the GDC 'Standards for the Dental Team'. Minor and major issues will fall into this category and can be further separated into additional specific considerations at the relevant stage of investigation dependant on the gravity of the case once misconduct has been noted.

> **'That being registered as a dentist [name] fitness to practise is impaired by reason of misconduct, in that:**
>
> **'1. On or around [date], you published on a video entitled "**** **** *****", in which you stated, in relation to the GDC proceedings against you, that lawyers had told you "it is a really serious situation because of what ** had wrote" or words to that effect.**
>
> **'2. At the time of making that statement you knew, or ought to have known, that documents previously posted by you on ******, which included reference to the work place of **, had led to ** receiving abusive emails.**
>
> **'3. Your conduct at paragraph [2] above: (a) was unprofessional; (b) created a risk that ** would receive further correspondence of an abusive and/or unpleasant nature.'**

Personal Conduct: Rudeness

This subtheme relates to the subthemes of communication and professionalism, but is separated explicitly in order to differentiate and enhance specificity. This potentially negates further unnecessary investigations, allowing decisions to be made at an earlier stage.

> **'... I found her very rude she shrugged her shoulders... I told her I suffer with bad depression and anxiety... I said to her I will pay if you can do something for me she raised her arm and said in a rude manner it's not all about money.'**

Practice related issues were further separated to both staff (how they perform), and setting (context) to allow determination of whether the issue should be considered at an individual level with the registrant, or a practice level with the entire staff group or the service delivery at a setting.

Practice related issues: Staff

Bullying

Bullying referred to an individual's performance at a registrant level as this behaviour was seen in the data to affect the way the registrant behaves at work. Data inferred biases including staff favouritism and negative comments towards specific staff members.

> **'Staff gave the following examples of bullying behaviour:**
>
> **'[Employee 1], described an incident when she needed to leave work to pick up her child from school and had arranged with her colleagues to leave at the appropriate time. [Employee 1] stated that [name] told her that she couldn't leave and that "social services" would have to pick the child up from school. As a consequence [Employee 1] stated that she became very upset as her child had a learning disability. [Employee 1] was visibly distressed when recounting this experience. [Employee 2] also referred to this incident.'**

Safeguarding

Safeguarding became a further subtheme to more explicitly categorise staff behaviour that affects others during situations that require safeguarding considerations or specific staff safety both in, and outside of the workplace.

> **'[Registrant] was safeguarding lead and failed to protect [name] from proximity to possible domestic abuse. [name] 's child attended the surgery on at least 2 separate occasions one of which I witnessed where she had severe facial bruising. On the occasion I witnessed, she had bruising to bridge of her nose and both her eyes and her arm. I am told she also attended the surgery on another occasion with bruises to arms consistent with finger marks.'**

Practice related issues: Setting

English Language

Numerous data references recounted issues relating to use of the English language. Although this may relate to the communication between staff, or staff and patients, there were also multiple references to records not being kept in the English language, therefore investigations regarding individual registrant practice were not easily undertaken. Similarly, there were references to unsatisfactory completion of IELTS exams for registrants to practise in the UK. Despite links to communication and record keeping as individual considerations, the specificity of English language as a singular consideration is necessary to avoid confusion with other matters and to more precisely be able to determine investigation pathways.

> **'You did not complete the patient's records in English, thereby compromising their current and future treatment.'**

> **'That being registered as a dentist [name] fitness to practise is impaired by reason of misconduct. In that:**

> **'You are insufficiently fluent in written and/or spoken English to communicate effectively as a dentist in the United Kingdom.'**

Handling Complaints

Handling complaints was established as a further subtheme as data evidenced frequent issues with both individual registrants and practice settings in handling patient complaints at the first instance. Repeated references to lack of satisfactory communication or responses to complaints were coded to this further subtheme.

> **'I had raised complaints a few times, asked for a refund and tried to call. They did not answer the phones when open or reply to emails.'**

Payment for Treatment

Issues regarding payment for treatment varied, and data evidenced issues with registrants taking payment for treatment that was subsequently not provided, quotations for treatment not remaining the same upon payment, and refund issues for incomplete treatment, amongst others.

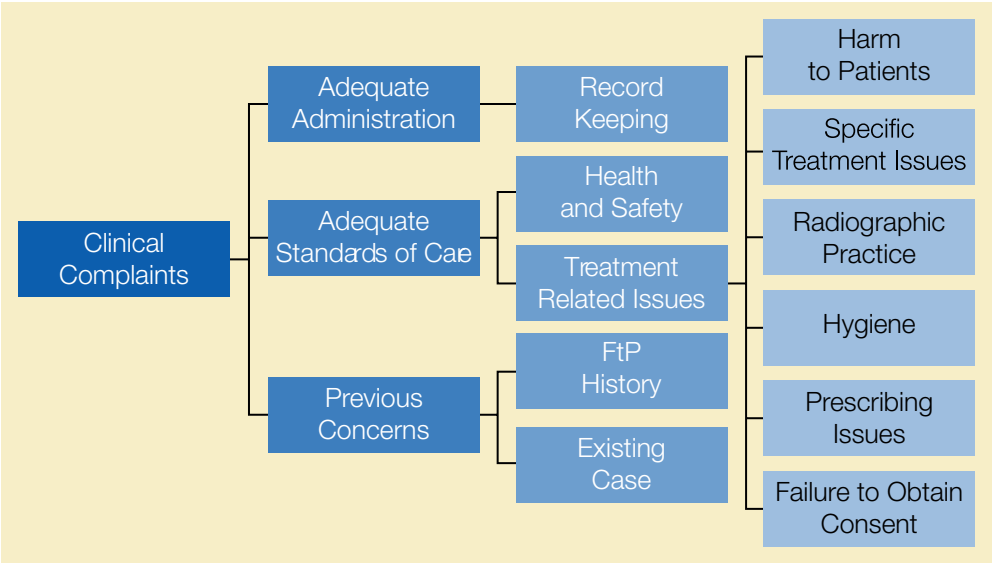
> **'** paid £3,000 for [incompleted] ortho work. ** has now closed down and the dental professional has returned to Poland.'**

Clinical Complaints

Clinical Complaints had three subthemes (see Figure 25).

- **Adequate Administration** consisted of one subtheme: Record Keeping.
- **Adequate Standards of Care** with sub themes: Health and Safety, and Treatment Related Issues. Treatment Related Issues had six further subthemes: Harm to Patients, Specific treatment issue, Radiographic Practice, Hygiene, Prescribing Issues and Failure to Obtain Consent.
- **Previous Concerns** this contained two further subthemes: FtP History and Existing Case.

Figure 25: Clinical Complaints thematic map.



Adequate Administration: Record Keeping

Record Keeping included information pertaining to allegations of inadequate administration. The nature of the precise record keeping issues noted in the data were also coded. All record keeping issues pertained to poor standards, with issues ranging from failure to maintain complete records to failure to keep any medical records.

> **'That being registered as a dentist **'s ... fitness to practise is impaired by reason of misconduct. In that:**
>
> **'You amended patients records retrospectively including by backdating appointments in [date] to [date].'**
>
> **'An unsigned and undated estimate suggests treatment involving assessment, radiograph and antibiotics. Clinical records dated […] indicate pain at tooth LL5. No history is taken, no diagnosis made. A radiograph was taken. No QA grade is recorded; no report is made of radiographic findings. Antibiotics were prescribed. No record is made of the indications for doing so, no record made of the drugs, dosage or duration are recorded.'**
>
> **'No consent recorded. No treatment plan recorded. No Medical history recorded. No record of alginate lot number or expiry date.'**
>
> **'Registrant failed to record; adequate examination details for [4 patients] This falls below the standards of record keeping.'**

Adequate Standards of Care: Health and Safety

Health and Safety referred to all elements of health and safety within the setting with direct and indirect effects on both patients and staff. Data references pertained to concerns at an individual as well as at a practice (operational) level.

> **'The practice did not have adequate arrangements to ensure the smooth running of the service. The practice did not have effective clinical governance and risk management structures in place...**

'The practice had not identified various risks such as those related to the trainee dental nurse carrying out decontamination without adequate training and control and those arising from employing staff without the necessary pre-employment checks such as undertaking DBS checks and immunisation.

'The practice had not reviewed and acted upon safety alerts and had not completed action plans from risk assessments such as fire and legionella. Audits such as infection prevention and control were not completed in the recommended time scale. The X-ray and infection prevention and control audits did not have documented learning points, were not analysed and the resulting improvements could not be demonstrated.'

Adequate Standards of Care: Treatment Related Issues

Harm to Patients

Harm to Patients related to both actual harm identified, and possible harm as a result of registrant actions.

'The use of paraformaldehyde has been deemed unsuitable due to its toxic contents, which have the potential to cause serious harm (Ref 3). It would have been prudent for the registrant to have used other available effective alternatives like odontopaste.'

Specific Treatment Issues

This subtheme was established to group together concerns that were specific to one particular treatment (e.g., tooth extraction). There were large amounts of data in complaints received by the GDC related to treatments that were very specific to one procedure.

'I underwent a tooth extraction... on [date] as part of my treatment plan for Invisalign aligners... Subsequently after the extraction was completed, I noticed that the tooth to be extracted in my plan was still in place, and the tooth next to it which had attachments affixed as part of the ongoing treatment had been mistakenly removed instead.'

Radiographic Practice

Although a part of treatment, radiographic practice was consistently noted throughout the analysis as an issue both as an element within a larger group of issues, and as an independent concern. For this reason, it was established as a further subtheme. The inclusion of this as an explicit consideration was determined by the numerous references in the data. Data included in this subtheme referred to poor radiographic practice and/or technique, inaccurate reporting of radiographs, and lack of radiographs when necessary.

'From the peri-apical radiograph taken at the previous visit, findings of "Failed RCT, possible crack in tooth UL6" are noted. It should be noted that these comments were not made regarding the apparently same radiograph when it was reported on from the day it was taken.'

Hygiene

Hygiene refers to individual registrant behaviour and practice level issues raised by patients. This was an independent consideration because of its specific nature, importance to patient safety and any associated remedial action being more straightforward to identify.

'I'm concerned about hygiene: there was blood on two cabinets in the treatment room. The dentist also used the computer mouse without gloves, then put on the gloves and then used the mouse again, then with the same gloves did my check-up. The assistant wasn't wearing gloves and passed consumables (e.g. disposable tip for air pistol and black sheet to check bite) to the dentist without gloves.

'What I have noticed happening both with the dentist and the hygienist at this practice repeatedly is that they have gloves on when I enter, they take my coat and bag with the gloves, then proceed with the treatment with the same gloves.'

Prescribing Issues

Prescribing Issues was established as a further subtheme and proposed as its own category of consideration to aid with differentiation and organisation for future FtP analysis. The data evidenced recurring references to prescribing issues with registrants.

> **'A prescription of antibiotic is recorded as issued, amoxycillin 500mg three times a day for 5 days. No clinical findings are recorded at this appointment and therefore, the author is unable to be satisfied that the prescription was issued in line with professional prescribing guidelines.'**

Failure to Obtain Consent

This subtheme was noted as a standalone issue, as well as falling within part of larger groups of concerns. This was often as a result of investigations secondary to an initial incident being reported that was not specifically to do with consent. This is in a similar vein to issues with record keeping, where these were also often noted following specific scrutiny of clinical records once an initial complaint or issue was being investigated.

Previous Concerns: FtP History

FtP history was often a secondary concern raised within new cases. Where FtP history was indicated, this was expressed with reference to the latest concerns raised (i.e., to highlight repeated concerns with registrant behaviour). Using this as an explicit consideration could enable FtP processes in future to benefit from quicker and more straightforward investigation and resolution.

> **'I'm writing to let you know that a Professional Conduct Committee Hearing took place on [date] in respect of another matter and the outcome was to erase ** ** from the General Dental Council register.**
>
> **'This means that ** ** is no longer registered to practise as a dental professional in the United Kingdom and is no longer allowed to do any dental work.**
>
> **'Given that ** ** is no longer registered, we are not able to continue with this investigation and have therefore closed the case.**
>
> **'If at any point ** ** applies to be registered again in the future, we may re-start our investigation regarding this case.'**

Previous Concerns: Existing Case

Whilst a registrant may not have any previously closed FtP cases, there is the possibility that there may be an ongoing case against a registrant when further concerns are raised by another party. This further subtheme was established from the data to identify the difference between opening or bringing a new specific case and the ongoing consequences/actions of an existing one.

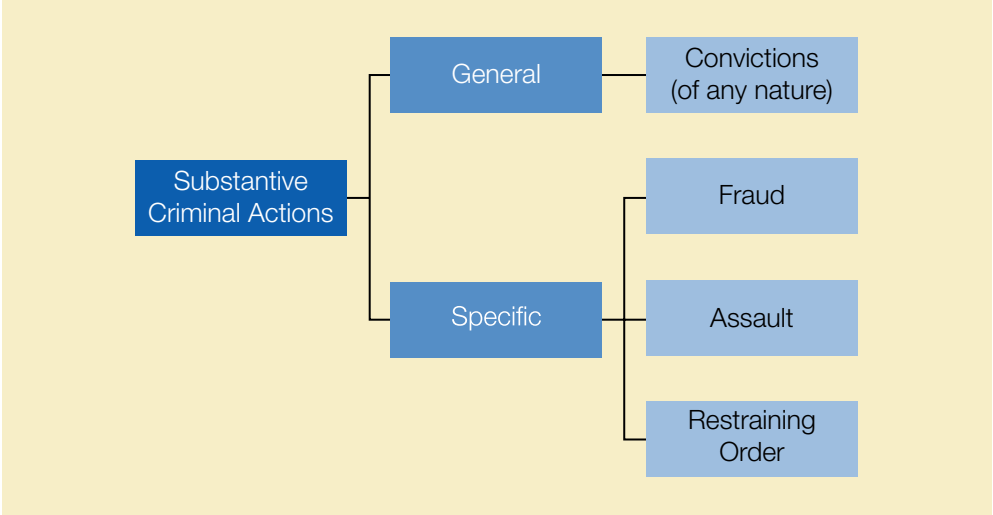
> **'The case examiners note that the registrant is currently subject to an interim order of conditions, imposed by the IOC …for 18 months, in relation to another case. The case examiners note that there are no additional concerns before them which appear to have not been considered by an IOC and are satisfied that the risks presented by this case are adequately mitigated by this order. They are satisfied that it is not appropriate to make a further referral however note that this does not preclude the Registrar referring the registrant to the IOC on other matters, should any further concerns arise about this registrant.'**

Substantive Criminal Actions/Convictions

Substantive Criminal Actions/Convictions had two subthemes (see Figure 26).

- **General** consisted of one subtheme: Convictions (of any nature).
- **Specific** had three further subthemes: Fraud, Assault, and Restraining Order.

Figure 26: Substantive criminal actions/convictions thematic map.



General: Convictions (of any nature)

Data evidenced multiple types of convictions, both past and present. Where past convictions were referenced, this was usually because the registrant had failed to disclose the conviction at the time of appointment to their position. Present convictions were when the GDC had been notified either by the registrant, another member of the public, or the police, that the registrant had been arrested and/or convicted of a crime.

> **'[Name] was providing dental nurse services as part of a simulation training course run through the college on our premises. Delegates … had around £5,000 in cash stolen from their bags. This was captured on our cameras and was reported to the police. [Name] was subsequently arrested and found guilty, sentenced to 120 hours community service.'**

> **On [date], you were convicted at [Magistrates' Court] of 'On [date] at **** drove a motor vehicle, …on a road, after consuming so much alcohol that the proportion of it in your breath, namely 40 microgrammes of alcohol in 100 millilitres of breath, exceeded the prescribed limit. Contrary to section 5(1)(a) of the Road Traffic Act 1988 and Schedule 2 to the Road Traffic Offenders Act 1988.'**

Specific: Fraud

Linked with general convictions, fraud was noted as a secondary specific conviction following for example, theft.

> **'... fitness to practise is impaired by reason of misconduct. In that:**
> **'1. ...you took bank cards which did not belong to you.**
>
> **'2. ...you attempted to use bank cards that did not belong to you, to make payments.'**

Specific: Assault

There were references to convictions for assault in more than one case file. Some were historical convictions that were previously undisclosed, and some were new convictions that had been reported to the GDC by the police. Some were related to other issues, including excessive use of alcohol.

Specific: Restraining Order

A singular reference to a restraining order as part of a larger concern that also detailed a drunk and disorderly charge, along with a further assault. The criminal conviction resulted in a restraining order against the registrant.

> **'SEND BY COMMUNICATION NETWORK OFFENSIVE/INDECENT/ OBSCENE/MENACING MESSAGE OR MATTER...**
>
> **'... RESTRAINING ORDER - ...ON CONVICTION...'**

Content Analysis

The entire data corpus of formal GDC documents included in the case files underwent a secondary content analysis using the revised list of considerations to ensure all cases had been reflected and to review the frequency with which each occurred within and across cases. Table 7 details the outcomes of the frequency count for each theme and subtheme. Due to the revised list of considerations using language that may or may not have been used verbatim within the case file documents, each document within the pdf case file was searched individually (non electronically) by a member of the research team (LC) to ensure no occurrences were missed.

Where an initial concern or incident related to any issue, record keeping was the most identified secondary outcome within the resultant considerations. As noted above, failure to obtain valid consent was only found as a secondary outcome consideration and rarely formed part of the original complaint from the informant, along with a history of FtP. Staff safety and safeguarding received only one specific reference each, within the dataset.

General areas of clinical practice and specific treatment related issues (clinical complaints theme) are the most prominent concerns reported to the GDC, whilst malpractice resulting in actual harm to patients or staff was reported least in initial concerns or complaints. There were more frequent occurrences of dental staff reporting criminal activity than reporting actual harm, although a level of possible danger to other dental staff and patients was implied in a selection of case data.

When exploring these new themes of considerations relating to the generated list of considerations as opposed to the content of the actual reported incidents, the most common nature of issues moves from clinical complaints to professional practice. This highlights that while informants will usually report a specific incident relating to care and treatment, FtP process generated considerations take into account the wider context of the registrant and often find additional areas for concern (including record keeping and failure to obtain consent as above). The relevance of this is a challenge for FtP regulators, where they need to balance the perception of an investigation being a ‘witch hunt’ and the understanding that complaints often have a wider context of underpinning issues that if managed appropriately may lead to better remediation, wider improvements and better long-term outcomes for the registrant as well as patients and the profession. Additionally, it is important for upstream regulation processes to acknowledge and identify the less specific underpinning issues at an early stage, as this may support the prevention of more serious FtP issues later on.

Table 7: **Representing frequency analysis of themes and subthemes from the content analysis of the case file data in relation to the revised considerations.**

Thematic Analysis Outcome		Proposed Consideration	
Themes	**Subthemes**	**Further Subthemes (i)**	**Further Subthemes (ii)**
Professional Practice (205)	Patient Centred Care (11)	Patient Safety (10)	
		Practising whilst Suspended (1)	
	Personal Conduct (152)	Personal Behaviour (47)	
		Professionalism (29)	
		Dishonesty (36)	
		Communication (12)	
		Misconduct (any nature) (11)	
		Not Cooperating with an Inquiry (12)	
		Rudeness (5)	
	Practice Related Issues (42)	Staff (4)	Bullying (3)
			Safeguarding (1)
		Setting (38)	English Language (6)
			Handling Complaints (19)
			Payment for Treatment (13)

Thematic Analysis Outcome		Proposed Consideration	
Themes	**Subthemes**	**Further Subthemes (i)**	**Further Subthemes (ii)**
Clinical Complaints (193)	Adequate Administration (57)	Record keeping (57)	
	Adequate Standards of Care (117)	Health and Safety (4)	
		Treatment Related Issues (113)	Harm to Patients (7)
			Specific treatment issue (60)
			Radiographic Practice (16)
			Hygiene (2)
			Prescribing Issues (8)
			Failure to Obtain Consent (20)
	Previous Concerns (19)	FtP History (15)	
		Existing Case (4)	
Substantive Criminal Actions/ Convictions (11)	General (4)	Conviction (of any nature) (4)	
	Specific (7)	Assault (1)	
		Restraining Order (1)	
		Fraud (5)	

3.3.5 Comparing existing considerations to new considerations using quantitative data associated with the case files

Having used the case files from 125 incidents in the thematic and content analysis to identify a revised list of considerations, these were mapped to the existing considerations from the quantitative data associated with each incident. Figure 27 shows this mapping, and highlights areas where there is more information in the case files that is not reflected, or might be better reflected than in the original considerations recorded against each incident. The revised considerations have also been mapped in relation to the decisions (Figure 28) and informant (Figure 29), associated with incidents. This compares how the quantitative data collected would map to the new and existing considerations, demonstrating the potential for examining quantitative data against these new considerations in the future. The figures referred to are heat-map representations of the numbers in each category, with the colour scale going from dark blues for categories containing the fewest instances, to bright yellows for those containing the most instances.

Figure 27: Relationship between existing considerations and themes (revised considerations) reflected in the case files.

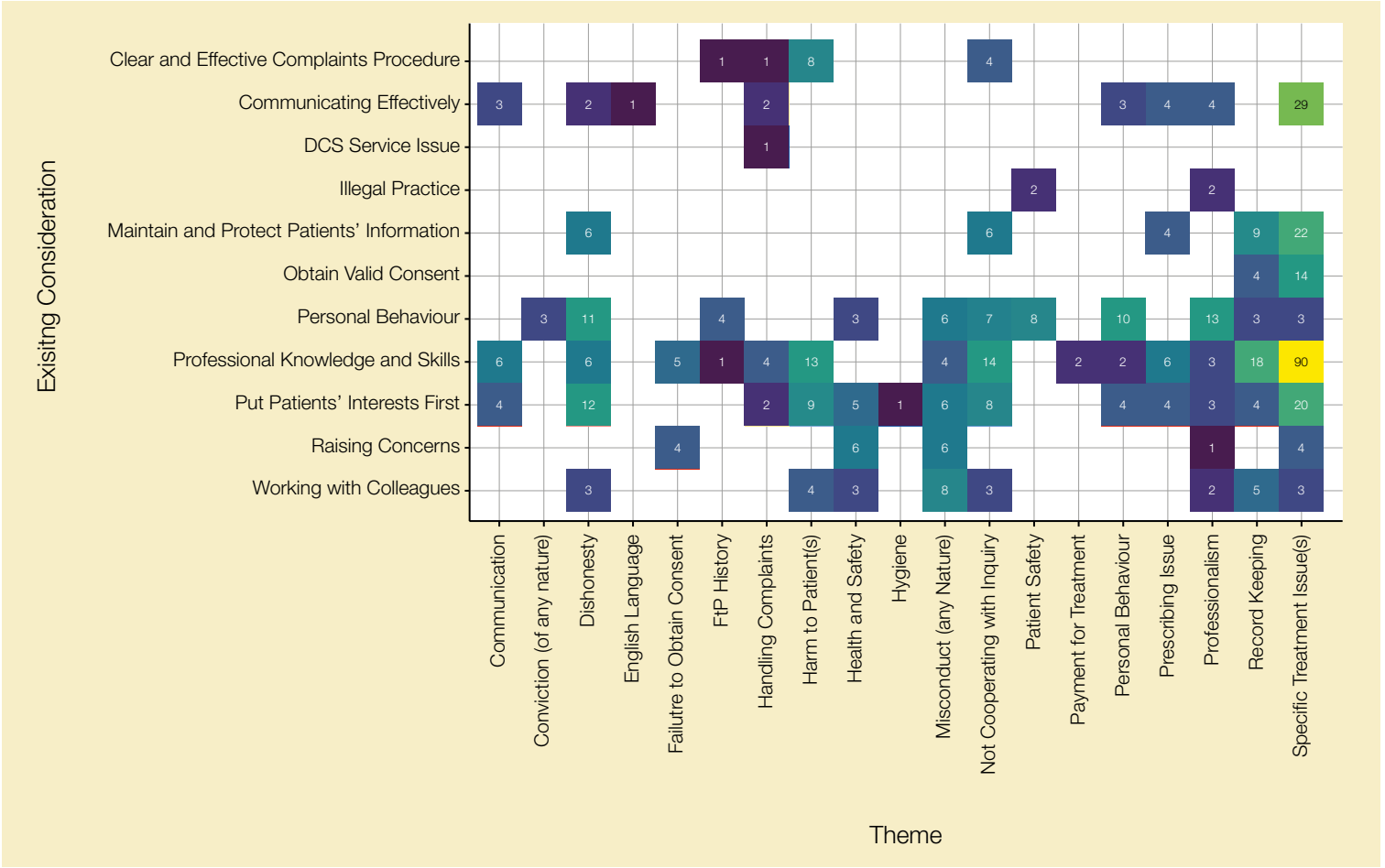


Figure 28: Relationship between decisions and themes (revised considerations) reflected in the case files.

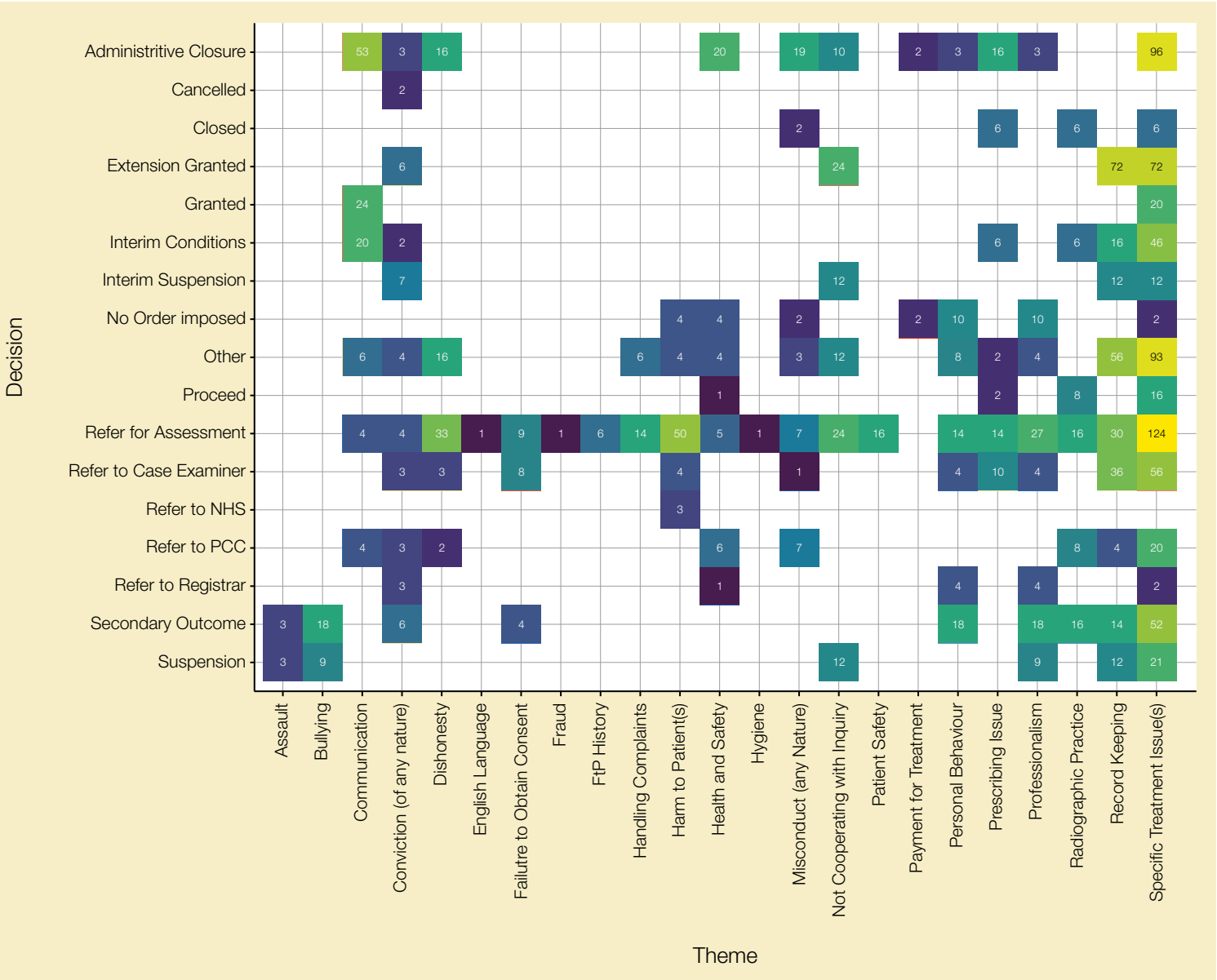
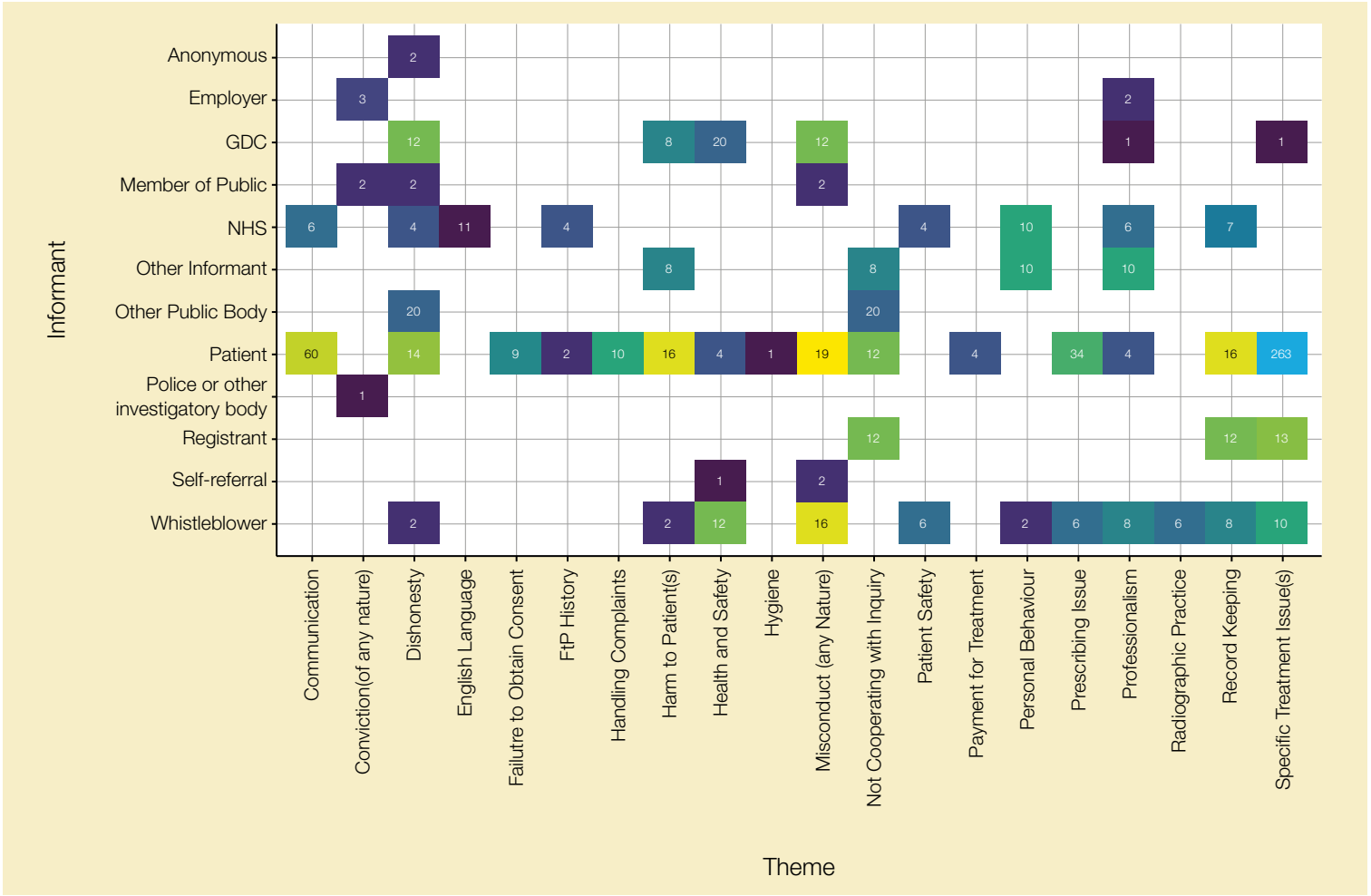


Figure 29: Relationship between informant types and themes (revised considerations) identified reflected in the case file.



This reanalysis using the revised considerations demonstrates that they provide a greater degree of granularity for learning than the currently used list of considerations. For example, it suggests that cases ending in suspension are related to the specific conviction of assault, bullying behaviour, specific treatment issues, not cooperating with an inquiry, record keeping and professionalism. Similarly, it suggests that incidents currently recorded as involving professional knowledge and skills largely relate to specific treatment issues, though some are also related to harm and record keeping, which may require quite different responses.

Patients' most common areas of complaint to the GDC are about specific treatment issues and problems with communication. Further analysis using the revised considerations could support caseworkers in multiple ways, including by identifying where a subtheme is more likely to progress to a Practice Committee, close at Triage or need assessment by a Case Examiner. This will help to support PSA requirements towards a proportionate, consistent, targeted, accountable and agile system for FtP.

4. Synthesis of findings and discussion

This section will synthesise of the findings from the different phases of this study, grouped to address each research question in turn. As shown below, there are crossovers of sections that answer each question and within this section links between sections and questions will be noted.

Table 8: Research Questions (Duplicated from Table 2).

	Research Question	Section of Report
1	How does the GDC currently capture, store, retrieve and analyse data throughout the Fitness to Practise process, including other GDC data relating to Fitness to Practise?	1.1.1 / 2.1 / 3.2 / 4.1
2	What method of analysis will produce robust results and offer potential benefits to GDC in the long term?	2 / 3 / 4.6 / 4.7
3	How do UK health professions regulators use FtP data?	1.1 / 3.1 / 3.2 / 3.3
4	What are key stakeholders' priorities for or expectations of learning from FtP data?	1.1 / 3.2
5a	How should case data be categorised?	3.2.5 / 3.3.2 / 3.3.3 / 3.3.4
5b	How can existing case categorisations be improved?	3.3.3 / 3.3.4 / 4
6	What works best to create aggregatable learning, enabling GDC to better code, weight, capture, store and retrieve FtP and registration case file content?	3.3.5 / 4
7a	How are personal, professional, environmental and technical factors associated with FtP cases?	3.2 / 3.3 / 4
7b	What changes might impact on these associations?	3.3.2 / 3.3.3
8a	What factors determine the risk of entry into, progression through and outcome of, FtP procedures?	3.3.1 / 3.3.2 / 3.3.4 / 4
8b	What gaps exist in the data or analysis that affect risk modelling and how can these be addressed?	3.3.2 / 3.3.3 / 4
9	How can FtP data be used to monitor, support and evaluate FtP and corporate strategy work in other domains of regulatory activity?	3.1.4 / 4

4.1 FtP data in the GDC – current situation (RQ1)

The GDC collects a substantial amount of quantitative registrant and FtP data. The data provided for this study required some reformatting to make it amenable to the planned analyses, and in the case of the quantitative data provided (both registrant and case) data, there were large amounts of missing data, and structurally it did not reflect the FtP process as clearly or intuitively as it might.

Qualitative case file data appear to be collated and collected from multiple sources and managed across various teams/individuals, with no shared format or central point for ordering or 'pulling it together' at the point of storage or in an optimal way for analysis. While there is a vast amount of data, much of this is not accessible in its current format, as already described, but there is opportunity to exploit and interrogate it in a variety of meaningful and useful ways, which will be discussed further under section 4.9. Additionally, across both case file and quantitative data, the names for the stages of the FtP process within the GDC are referred to in different ways to those published on the GDC website. Initial Assessment is also referred to as 'Triage' in many documents and Casework is labelled 'Assessment'. Not only does this add a layer of complexity to analyses, but it may also be misunderstood and cause confusion within and outside the organisation. This may impact transparency with regard to decision making and outcomes, as well as a shared, wider understanding.

The phase 1 REA and interviews suggested that the limitations in FtP data and its uses were shared by other healthcare regulators. The interviews with GDC staff revealed that, when data requests were submitted, these could be troublesome to perform, and additional support from the Business Intelligence Team was needed before they could be submitted. There was also a concern that the differences in reports received or created across different teams and areas of GDC staff could lead to incorrect or contradictory conclusions being drawn. Therefore, it would seem sensible to consider how reporting can be made both easier and more consistent in the future through revised and possibly automated methods of doing so.

There were challenges noted in all aspects of data management and storage, including collection of sufficient detail and in an appropriate format, to enable inferential statistics to be used effectively to support useful learning and sharing. Where data was missing, inconsistent, or management platforms were perceived to have limited utility, confidence with which conclusions can be drawn when analyses were performed using these characteristics was reduced. Of specific note were the shared limitations related to inconsistent EDI data and the need to improve this.

The perceived lack of a clear organisational strategy for data recording led to staff questioning the utility of data that were being recorded, for example resulting in inconsistent judgments being made about categorisation, and possibly missing data. Problems inputting certain data due to a lack of fields in the CRM, and difficulties in building reports were recounted. Some data were recorded on spreadsheets outside the CRM, risking it being 'lost' or excluded from analyses performed on the CRM dataset. There is a need for those inputting data to understand the contribution that these data can make to other upstream and prevention activities, which will ultimately support better care for patients. This could serve to improve the quality of the data input right at the start of the process.

Problems with the ease of uploading data were also reported as was a perception that the coding system for data was complicated and lacked clarity, with different approaches to categorising the same data being used. When combined with workload pressures, these led to recording errors. No formal training for the CRM was used and there was a suggestion that a CRM project manager, to oversee changes in data recording, and promote quality, could be helpful.

There was concern voiced during interviews with staff that differences of opinion relating to importance of a certain issue, perceptions in the value of different data types, or related to the character of an individual involved in the process from data input to case examiner (or panel member), might influence outcomes. Additionally, a perceived lack of insight into the workloads and case load FtP processes entailed led to a lack of trust and transparency in individual decision making. Overall, the individuals managing cases and/or data entry not understanding or being able to enter, respond to, and report data for insights to be gained, was noted as an area that could be addressed.

Across data that were related to and may inform, but not gathered specifically for, FtP processes, there was a perceived need for extra information in relation to the register, such as: full recording of qualifications and countries from which these were obtained; registrant numbers in each route to registration as specialist dentists; the precise specialist list(s) or registrant category(ies) under which each registrant belonged; and the age profile and employment models (e.g. practice setting, full-time versus part-time) within each list. If these data could be linked to systems utilising FtP processes, then data would not have to be collected, stored and managed again and therefore time, effort and resource would not have to be duplicated.

Data challenges do not appear to be unique to the GDC, and insight into how to ensure consistent and shared understandings of what informs decision making, ensuring a sufficient granularity of data to enable enhanced insight and sharing, allocating sufficient resource to FtP, and developing clear strategies around FtP processes and outputs would have a positive impact.

The impact of policies and legislation was noted on how data was managed, from a process that deletes all emails after 12 months, so removing the ability to refer back to information; to the perception by external stakeholders (for example indemnifiers) that they are limited in what information they can share with the GDC as they cannot allow their data to be shared via subject access requests and/or Freedom of Information (FOI) requests.

4.2 Methods of analysis for future use (RQ2)

The quantitative analysis of the FtP and registrant data was designed to describe the profile of those involved in FtP cases, and explore factors affecting the relative risk of registrants being involved in FtP cases. Although the structure of the data may change in future to make better use of what is collected, these types of analyses will remain applicable to answering questions about risk and identifying areas for potential intervention or improvement. Where the current data isn't amenable to more sophisticated consideration of intersectionality, these limitations have been discussed, alongside consideration of how these linkages might be captured and analysed in future. For example, adjustments to how data generated during the FtP process could be structured have been outlined (exclusive and exhaustive categories, separation of 'closure' indicators and decisions, single records for each case filed under the registrant rather than new records with every update etc.), along with how this new data structure could be analysed using structural equation modelling and more complex regression modelling to determine the strength of interactions between measured factors (length of time on register, profession, demography etc.), as well as explore hypotheses relating to underlying constructs. The analyses, alongside those presented here could be used in future to direct and evaluate changes to training, processes, and procedures.

Within the limitations of the current format and presentation of case file qualitative data, the thematic and content analysis techniques utilised in this study offer a useful method of gaining insight into patterns across cases. As described earlier in their current format an in-depth ethnographic or case study methodology could provide deeper insights around the impact of individual context on FtP. However, a revised data collection and management system, where specific categorical information was extracted at source (helped for example by use of a cover sheet for each case file) could enable more use to be made of inferential and descriptive statistical analyses.

The findings from this study highlight the use of inferential statistics to aid understanding of the relationship between factors identified in data relating to underperformance and FtP. Findings highlighted the use of additional qualitative data to add context to the quantitative data, and also supported the need for more categorical data collection to enable meaningful inferential analyses. Extracting certain pre-determined contextual factors on receipt of qualitative case file information, enabling it to be used as categorical data for quantitative analysis (as described above) could support the use of such inferential statistical analysis. Specific areas suggested for this data extraction are described in sections 4.5 and 4.6.

Some interesting findings were discovered which, in relation to age and gender for example, were largely in line with published research on risk in other professions/countries [136, 137]. The lack of additional contextual information surrounding these data means that a clear understanding of the likely causative factors cannot be produced from the current dataset. For example, females are more likely to work less than full time and also, within dentistry, most dental nurses are female, which complicates the drawing of conclusions and planning and targeting of preventative strategies. Analysis of the data in relation to age showed that the group of individuals involved in incidents tends to be older. This is in keeping with the broader literature on underperformance [138, 139] but, on its own, limited conclusions can be drawn without additional contextual data, such as their working environment and job role. This again underpins the need to collect additional categorical data on which to undertake inferential statistical analysis. As with all findings from the quantitative data, the lack of additional data mined from the related qualitative case files means that many factors such as working patterns and context, changing job or role, impact of specific characteristics, reflection of the relative responsibilities of registrant category, awareness by the public of the role of the regulator, EDI of registrant and informant, country of initial qualification and route to UK registration cannot be fully taken into account and so causation or further association or conclusions cannot be made without making assumptions of the data.

In addition to increasing the amount of categorical data that is collected, it would be useful to review the format for documents holding qualitative case file data. Noting words and phrases within pdfs generally works adequately, but is limited where some words may not be picked up (e.g. in scanned handwritten documents). Additionally, being able to sort by data or file type and date for example, would simplify interrogation of qualitative data to provide more in- depth and contextually rich findings. The quality of data files (content, storage and management) affects the quality of data analyses for both qualitative and quantitative work, and so it is fundamental to manage this aspect effectively. This is consistent with the interview findings, in which changes to what data are gathered, how they are categorised and analysed were requested.

A clearly communicated institution wide strategy, and operational guidance for FtP thresholds, insights from and use of data, what data is collected, stored, managed, analysed and disseminated was reported as being needed for all staff – whether involved with FtP or not. This is required alongside and feeding into a data management platform that is fit for purpose. This clear plan for how data is to be used, with standardised forms and formats may necessitate a review of the use of and type of files currently being utilised, as well as increasing categorical data and reducing free text. Enabling such analysis is likely to require fundamental reforms to the existing data management systems.

There are significant dangers posed by ill-informed approaches to mitigating risk, and drawing conclusions without sufficiently robust evidence can potentially compromise the provision of care to patients [140]. The GDC [11] quite rightly advocates a proportionate and ‘targeted’ approach to regulation and there are opportunities for it to enhance its data management and analyses, including further research, to underpin this strategy with the necessary evidence.

4.3 FtP data across healthcare regulators (RQ3)

Across the sector FtP data was used to support learning and upstream regulation in various ways:

- Maintaining, supporting and understanding EDI in the workforce through profiling of registrants.
- Enhancing inferential statistics to understand intersectionality and association to learn where to best target interventions.
- Noting themes including common patient concerns, geographical or contextual areas of interest, trends in outcomes for indemnity/education.
- To update UG, PG education, CPD and Standards guidance (QA) relative to risk management and avoidance of FtP.
- To compare commentaries by expert advisors to QA protocols or guidelines.
- To review and revise the features of guidance documents.
- Identifying regulatory organisational and process development opportunities to enhance links with external organisations such as indemnifiers and education providers.
- Using a risk approach to outcomes – pursue only if previous similar case found to negatively impact safe practice.
- Releasing guidance on how to make day to day adaptations in light of case outcomes e.g. communication skills, record keeping.
- To commission research to explore patterns in data e.g. related to EDI of registrants or informants.
- To target priorities with regulators and NHS bodies relating to safety and quality.
- To work with employers to reduce employer referrals.

Additionally, other healthcare regulators have developed their data collection, recording and auditing processes to support improved analysis, including data on informants and 'geographical' data. They have also increased the range of data that was collected in categorical forms, rather than free text, which facilitates subsequent statistical analysis. This can be a complicated undertaking, if complete coverage of the data and avoidance of overlapping fields are to be achieved and it may be that further research is needed to develop such a framework (see also sections 4.5 and 4.6). Phase one findings suggested that FtP processes needed to be removed from organisational structures to reduce the impact of specific members of staff leaving/being off work, to facilitate data retrieval, and reduce the volume of data requests. Understanding of the processes, access to a user-friendly system, guidance and training should be available for all staff across an organisation, extending also to external stakeholders. While this is an area common to all sectors, it was notable that there was also mention of this across all GDC stakeholders. Training was thought to be required relating to strategy, process and system use, in addition to specific training in FtP. Other regulators also advise bringing in expert staff and case examiners at the earliest stages (Initial Assessment (Triage) and Casework (Assessment)) of the process to enable cases to be considered fully and closed at the most appropriate time; and employing internal case examiners/experts, legal and clinical teams was deemed a sensible approach. The GDC website [141] (accessed May 2023) published 2022 FtP outcomes that showed half of cases were closed with no further action when reviewed by a case examiner, and therefore in line with findings from the wider sector, expert case examiners could be considered at Initial Assessment (Triage) and Casework stages. It may therefore be beneficial to have additional staff within the GDC who are clinically trained and cognisant of the FtP processes, who can act with Casework and Initial Assessment personnel 'in house' at earlier stages of the process in addition to bringing them in specifically at the later Case Examiner and Practice Committee stages.

A number of data parameters were considered by other regulators, with many including 'contextual' issues, relevant to a Human Factors approach to risk management. The lack of these from GDC data is likely to have limited the utility of the data. The potential causative effects of often-cited pressures on practitioners, such as the existing NHS contract, are not recorded, which misses an opportunity to fully contextualise performance data.

All sectors reported wanting an upstream regulation approach and to use FtP data for prevention and learning, but none felt they had operationalised it effectively or optimally. Developing methods and processes of data collection, extraction and analysis so they are optimised and findings more easily shared from the overall small number of FtP cases, will support learning mechanisms.

The data challenges noted across healthcare professional regulation have much in common with challenges in 'Big Data' in healthcare and business sectors. While the challenges to Big Data techniques are well documented, there are opportunities to explore newer techniques for handling Big Data sets with AI, such as data fusion, data mining and machine learning [111]. Big Data is a growing field and its use in healthcare is noted [129-131]. There are challenges to be managed as the following extract demonstrates clearly.

Until now Big Data analytics have not fulfilled the oversized expectations in the health sector, possibly because of several significant challenges that are summarised below:

- Big Data are often unstructured, fragmented, heterogeneous, and in incompatible formats, and are thus difficult to aggregate and analyse.
- There are important issues regarding data security (privacy and confidentiality).
- A lack of data standardisation, language barriers, and different terminologies.
- There are often problems with the accuracy and precision of data.
- Storage and transfers of data are associated with significant costs.
- Budget constraints—there is a shortage of focused and sustained funding.
- The awareness of Big Data analytics' capabilities among healthcare professionals is rather limited.
- A shortage of researchers with skills in Big Data—due to the constant evolution of science and technology, professionals who collect, process, extract, or analyse data (i.e., data scientists, biostatisticians, epidemiologists, and experts in advanced analytics and AI) need to be regularly trained and kept up-to-date.
- There are often issues regarding data governance and data ownership.
- Healthcare organisations implementing Big Data analytics as a part of their information systems need to comply with high standards and regulatory legislation [129].

There were challenges noted across various aspects of the wider healthcare as well as current GDC data management and storage, including the collection of sufficient detail and in an appropriate format to enable inferential statistics to be used effectively to support useful learning and sharing. Big Data may provide a useful lens with which to explore a response to the current data challenges (faced in all sectors) from high volume, heterogeneous data sets that need multiple associations explored to be useful.

4.4 Key stakeholder expectations of and priorities for FtP data (RQ4)

There was a call for wider, open-access publication of FtP datasets and results from research based on FtP data in a systematic manner (e.g. through regular website posts and/or emails) and regardless of organisational structures. Education providers for example, want to be able to utilise FtP data to inform curricula and teaching and indemnifiers to support registrants and their own case management.

Most participants within the GDC asked for interactive CRM (or alternative) platforms to enable extractions customised to individual needs at given times. An approach advocated by the Health Foundation is the use of 'dashboards' which provide contemporaneous and accessible information, avoiding the need for repeated complex queries, and this approach could be a beneficial part of any reform of the GDC data management processes.

To enable the use of data across the sector and stakeholders, a shared understanding and categorising of FtP concerns and considerations is required, including for example the potential use of validated shared tools such as the Health Complaints Analysis Tool for the local resolution of patient complaints in hospital. Any shared tool would need to be meaningful

across the spectrum of FtP, from low level complaints to the most serious considerations within FtP cases. Additionally, issues related to data protection legislation, for example the impact of Freedom of Information requests need to be explored and understood to enable data sharing processes in a reciprocal manner. The idea of linking FtP data to that held by indemnifiers (primarily related to complaints and civil action) is an immensely attractive one (as each repository contains data from different 'stages' of accidents/incidents) and consideration of how these data are shared in other countries, as well as the relevant UK legislation, may identify a way in which these can be shared in an open manner without risks to those disclosing them. The strategic aims and approaches to data sharing and analyses, outlined in the WHO publication Global patient safety action plan 2021-2030 and its technical report and guidance on patient safety incident reporting and learning systems confirm the benefits of using such an approach.

It is possible that external bodies, such as the NHS, the postgraduate deaneries, Royal Colleges and undergraduate academic institutions could use FtP data to guide their own activities designed to reduce the risk of complaints and management of student FtP. Making the data available could therefore assist the GDC by developing the activities of other parties as well as enhance QA and review of guidance processes internally at the GDC and in multiple external organisations. At present, these data are not routinely gathered and recorded by the GDC as they are not responsible for student FtP. The broader literature provides support for the concept that performance in certain medical postgraduate examinations/assessments holds the potential to predict subsequent under-performance [97, 99, 101, 102] and this is an area that might also be useful to explore further with the Royal Colleges and postgraduate education providers. Published literature on clinical underperformance may also provide ideas to underpin future data sharing and data collection strategies.

To define what information is desired and how to share it within the organisation and with external stakeholders needs to be considered against the current legislative frameworks. Where differing opinions exist (for example, relating to the utility and safety of publishing details of FtP cases, FOI requests) agreed definitions and strategies are required to mitigate the risk of any individual or stakeholder opinion being able to influence what data is gathered and shared. Clear policy can mitigate the impact of conflicting views and if the GDC are able to share their strategies and intent clearly, there will be less missing, confused or unusable data and key external stakeholders will be more likely to have expectations and priorities met.

4.5 Categorising data (RQ5a and 5b)

Given the intrinsic link between data type and structure, from a quantitative perspective, how case data be categorised and how existing case categorisations can be improved is tied to the related question about the types of analysis that can be conducted. A number of issues surrounding categorisation and broader data structure have been detailed in this report, along with their impact on the methodology and results. However, central to answering these research questions is the need for it to reflect the stages of the process more clearly, and where categorical data is recorded, for these categories to be exclusive (no case should be in more than one category for any variable, and the categories for each variable should not overlap) and should be exhaustive (the available categories for each variable should cover all possibilities and eventualities). Similarly, each change to the data recorded, each successive stage, and every decision made, should be recorded with a date of when it took place as part of a single record, rather than generating new records and data information being retrospectively updated for all of them at each future change. This will go a long way towards reflecting the structure and progression of the FtP data, and enable new variables to be more easily constructed from existing ones for analysis purposes (e.g. stage of closure). Finally, the clear disaggregation of closure, consideration, decision and other information into different variables (or clear, consistently used, exclusive and exhaustive categories) will help clarify the relationship between data structure and FtP processes, facilitating future analyses.

The subthemes in the revised considerations list developed from the qualitative analysis could be used as variables for these analyses and are reiterated below.

Professional Practice theme:

- Clinical patient safety.
- Practising whilst suspended.
- Personal behaviour.
- Professionalism.
- Dishonesty.
- Communication.
- Not co-operating with an inquiry.
- Misconduct (any nature).
- Rudeness.
- Bullying.
- Safeguarding.
- English language.
- Handling complaints.
- Payment for treatment.

Clinical Complaints theme:

- Record keeping.
- Health and safety.
- Harm to patients.
- Specific treatment issues.
- Radiographic practice.
- Hygiene.
- Prescribing issues.
- Failure to obtain consent.
- FtP history.
- Existing case.

Substantive Criminal Actions/Convictions theme:

- Conviction/arrest (of any nature).
- Fraud.
- Assault.
- Restraining order.

The following figure (30) shows a collated list that suggests areas of data that it would be beneficial to include in data collection in categorical form for all FtP cases.

Figure 30: Showing example categorical data to collect from FtP cases related to the informant, registrant and case.

Informant	• EDI characteristics (e.g. ethnicity, gender) • Category (e.g. colleague, patient)	• Domicile and location at time of incident and at time of referral to the GDC • Desired outcome
Registrant	• EDI characteristics (e.g. ethnicity, gender) • Name, registration number, and professional registrant group • Year of birth/age at time of incident • Date of first registration with the GDC (and into which category) • Country of primary qualification • Route to registration with the GDC	• Context of practice at time of incident (corporate, NHS, private, part time, full time etc.) • Region of practice and/or domicile - location at time of incident and at time of referral to the GDC • Any previous or current concerns/FtP • All misconduct findings • Engagement with FtP process (response to emails, attendance at meetings +/- legal representation)
Case/ incident	• Date and type of incident • Date complaint/referral received • Category of registration concern relates to • Stage incident closed at - include does not meet threshold for action • Date of closure • All related considerations for individual incident • All misconduct findings	• Number of meetings/hearing related to case and stage • Duration of meetings/hearings • Duration of each stage and progress through stages • Number of contacts (email/letters) with registrant, informant, other • Outcomes, final decision on cases at each stage and sanctions applied • Appeals information • Overturning of decisions/restoration onto register

Thematic analysis of FtP case file documents resulted in a revised list of considerations to understand, code and collate the FtP data held by the GDC. From the data, three overarching themes were established: Professional Practice, Clinical Complaints and Substantive Criminal Actions/Convictions. This resulted in the revised considerations in Table 6 above.

4.6 Managing case file data to enable learning (RQ6)

Figure 30 above lists suggested areas for data collection related to informant, registrant and case characteristics. Figure 31 below identifies areas highlighted as being useful to include in descriptive statistics and data linkage exercises via inferential statistics to enable aggregatable learning.

These are aligned across three areas of impact related to the individuals involved in a case, the case/incident itself and the FtP process, and support the overall data management of case file content (qualitative and quantitative).

Figure 31: Data useful for descriptive and inferential statistical analysis to enable aggregatable learning.

Process

- Caseload and workload across process.
- Association of profession /interprofessional/speciality categories.
- Trends in case types that close early or do not reach threshold for action.
- Characteristics of aggressive referrals that close early or do not reach threshold.
- Associations in aggravating (harm/dishonesty) vs mitigating (insight/behaviour) factors and outcome severity or decision making guidance.
- Mitigating/aggravating factors influencing sanctions/outcomes.
- Understand decision making of staff and 'fairness' of outcome.
- Identify institutional and professional discourses and assumptions around FtP.

Individuals

- Informant characteristics involved in FtP.
- Informant desired outcome (motivation for concern).
- Registrant characteristics involved in FtP.
- FtP in relation to professional category.
- Trends in FtP with career stage, EDI data, wider context.
- Associations with route to registration and country of primary qualification.
- Registrant engagement with process related to outcome.
- Registrant characteristic and consideration type with case progression, outcome seriousness, concern source, engagement with process.

Case/ incident

- Total number of considerations for each incident category.
- Concern number by source, (informant type) and nature (incident type).
- Trends in nature of initial concern and actual final misconduct.
- Identify root causes behind specific misconduct outcomes.
- Frequently occurring or recurrent case type and outcome.
- Trends in FtP with practice setting, area of practice, full time/part time.

The quality of data files (content, storage and management) affects the quality of data analyses for both qualitative and quantitative work, and so it is fundamental to manage this aspect in a considered manner.

Previously a 'cover sheet' was suggested for the qualitative case files to enable data mining and collection at source, and all data should be filed by registrant then case. This could form the basis for a revised data collection check list, including tick boxes for considerations, stage, decisions etc. (see figures 30 and 31 for example inclusions) as well as becoming the basis of the quantitative data structure with relevant boxes ticked and dated at each completed stage of the process. Additional fields for contextual information such as health data and other relevant aspects (see Figure 30) could also be included in the quantitative dataset - either relating to the registrant or other elements of the case data.

It may be helpful for the GDC to consider how to transform what is essentially a case/customer data management system into one which can fully support its 'Moving Upstream' agenda, by recording more relevant data and producing an easily accessed data 'dashboard' which can give real-time information on FtP cases. This is likely to be a significant undertaking, with resource implications, but holds the possibility of providing more useful and accurate data to guide the GDC in its functions of protecting patients and monitoring education. This would be enhanced further if data-linkage to other sources could be achieved and expert input into how this might be realised with other repositories for underperformance data may help the GDC with its 'Moving Upstream' agenda. As mentioned in section 4.3, the work on Big Data may be a useful avenue for further research and development. Additionally, developing methods and processes of data collection, extraction and analysis so they are optimised and findings more easily shared from the overall small number of FtP cases, will support learning mechanisms.

Assessing the data, there are possible recommendations for future investigations, namely the categorisation of considerations (highlighted in the content and thematic analyses), and the management of data, in particular the data structure (see Appendix C). With regards to processes, there is a possibility to improve time efficiency by directing certain cases to a specific level of investigation (e.g., criminal matters could be entered directly at the PCC stage given the gravity of the consideration).

In addition to increasing the amount of categorical data that is collected, it would be useful to review the format for documents holding qualitative case file data. Searching for words and phrases within pdfs results in some limitations, as some instances may not be picked up (e.g. in scanned handwritten documents). Additionally, being able to sort by data or file type and date for example, would simplify interrogation of qualitative data to provide more in depth and contextually rich findings. Enhanced training for staff as discussed, along with appropriate senior management support for the entire FtP process, integrated data management strategies across the process, as well as training on the CRM or other data system that might be used in future, may be beneficial to support use of data and files for learning. Staff training across the whole of the GDC in current systems is recommended with consideration of a project manager identified for the FtP process, and Big Data platforms and techniques to be sought for solutions. One collated record system might be effective, with access for relevant parties, internal and external. Similarly, the need for calibration, benchmarking and standardised quality assured investigative and reporting processes (including interpretation and definitions within any new considerations list) has been previously mentioned and highlighted again here as a staff training opportunity to support the ability to create meaningful learning from these processes and data.

4.7 Associations of factors in FtP, risk factors and impacts on them (RQ7a, 7b and 8a)

Male registrants, registrants with an ethnicity category other than White and Dentists are all overrepresented in the FtP data. Non-UK qualified registrants are also overrepresented in the FtP data. This is also reflected in analysis of the likelihood of members of these groups being involved in FtP cases after accounting for the impact of each of the other characteristics; however, when considering the likelihood of involvement in an FtP case closed at any point after Triage, the main risk factors appear to be being a Dentists (rather than a DCP) and having qualified in a country outside of the UK or EU.

Why these factors are associated with involvement in FtP cases is not something the quantitative data provided for this report can directly answer, though analysis of consideration types provides insight into which areas of practice those raising the FtP concerns feel are problematic. The majority of informants are patients, and the majority of considerations attached to FtP incidents are related to professional knowledge and skills, putting patient interests first, and personal behaviour. The majority of cases progressing beyond Triage are also associated with these considerations, with those related to professional knowledge and skills accounting for more of the FtP cases that progress furthest through the process.

Application of the updated considerations suggested by the thematic analysis of case file documents provides further insight, for example most of those professional knowledge and skills considerations are captured by the new 'specific treatment issues' theme. This also highlights how developing considerations or other categories for recording new case information from previous cases in a bottom-up, rather than top-down way from existing policies and guidelines may better elucidate areas for future intervention, training opportunities, and future learning.

There is a danger that introducing the revised list of considerations, while beneficial to future data collection and analysis, may lead to a similar data issue as an existing one. When data codes are changed, they need to be incorporated into systems in a meaningful way to reduce the risk of redundant fields and potentially conflicting information within a case file. Similarly with any new coding system, categories need to be clear and well defined to minimise ambiguity and/or errors occurring through variations in interpretations. Ambiguity or confusion may impact negatively on analyses that look at associations of factors relating to FtP.

FtP also has an impact on the registrant involved, and especially if they are not working pending investigation, this can reduce access to care for patients, and cause unnecessary stress on the registrant. This can lead to lack of trust in the regulator as well as reduced wellbeing for the registrant, [111, 132, 133] as subsequent hearings and determination(s) 'may have a significant impact on their health and career' [111]. These factors may be associated in some way with progress or outcomes of FtP cases, and enhancing data collection could make this apparent in a way the current data structures are not able to.

Section 4.3 noted the use of more contextual data including, for example the impact of the NHS contract on the performance of registrants. This is data that is not collected by the GDC at the current time, but likely has a direct impact on them.

4.8 Addressing data gaps for risk modelling (RQ8b)

From a quantitative perspective, missing data on informant demographics, as well as registrant characteristics, including health data, make some analyses more difficult, particularly with respect to interactions between informant and registrant types, and intersectionality in risk analyses. Some of this has arisen due to procedural changes and recategorisation, as discussed, and can be addressed in future, both by retrospectively acquiring missing data (perhaps through regular or targeted registrant surveys or similar), and restructuring the data as described in this report to capture links between process progression, registrant information, and to facilitate analysis of risk factors in isolation and combination.

From a qualitative perspective, existing data may be explored using different qualitative research methodologies, such as case study. However, this methodology would not be appropriate to review associations with quantitative data and would answer different research questions. It has been noted how the current format of the qualitative case file data is difficult to penetrate, and therefore enhancing the information retrieved and noted explicitly by making improvements in the available categorical data would be a more sustainable solution.

There is wide agreement across professions that FtP takes a large amount of resources for a small percentage of the registrant population (1-4% across the sector) and the more these processes could be expedited, the better for all. There is a trend across regulators for the use of new coding systems which capture more detail about the concerns, including contextual data and there are likely to be real opportunities for the GDC to underpin its 'Moving Upstream' agenda using such an approach. In doing so, it may wish to consider if or how to develop a shared validated approach to categorising concerns inter- and intra -professionally, such as the Health Complaints Analysis Tool (HCAT) [134, 135] which is used in local resolution of low level and patient complaints in the hospital setting.

Understanding the workload and length of time cases take to proceed through the various stages would be beneficial to workload planning and resource management, in addition to addressing some of the concerns around gaps in the data and their impact.

4.9 Using FtP data to support other regulatory functions of the GDC (RQ9)

As described in sections 4.2, 4.5, and 4.7, the data collected currently by the GDC allows some comparison of the profiles of registrants involved in FtP cases, which allows subsequent analysis of which groups are over- or under-represented in the case data. It also allows partial analysis of risk factors, which could be repeated annually to monitor any changes in those factors. It has the potential to allow additional policy and theory-based hypothesis testing regarding underlying factors, groups of factors, and their relationship between involvement in an FtP case, the particulars of that case, and also improved understanding of those particulars through data-driven category construction.

As in section 4.4, non-FtP regulatory work in education standards and training can benefit from the analysis of FtP data, through informing policy and highlighting important areas of need in training and CPD. For example, it would be beneficial to explore the significance of record keeping being the largest consideration in FtP cases, but only ever being a secondary consideration (not cited in initial incident reporting) to ascertain if this is an incidental finding for FtP, or if or how it is related to patient safety or misconduct in itself. There may need to be a way of monitoring it independently of the FtP process so that it can be picked up earlier, through education activities for example. It may be that it is a predisposing factor to FtP and would form a large part of prevention and upstream regulation targeting initiatives.

Additionally, with patients being the largest informant group in the wider healthcare sector, the relevance and impact of that for dentistry could be further explored (for example, it may also influence the reason most cases are closed in early stages with many not reaching the threshold for regulatory action in the first place). Wider liaison and engagement with the general public in managing FtP issues may therefore be desirable. Related to this are the previously discussed implications of needing methods to clearly identify and share the strategy for external dissemination of FtP findings to better support prevention, learning and upstream activities across stakeholders in dentistry, both internal and external to the GDC.

There is also an opportunity to explore any relationships with postgraduate and undergraduate assessments and training that may act as predictors of being involved in later FtP cases, as well as review the use of validated shared tools for categorising concerns and considerations across boundaries intra- and inter- organisation.

5. Conclusions and implications

The research suggests a number of ways in which GDC FtP can be improved:

- Train and upskill all GDC staff regarding FtP (process, strategy, and systems) regardless of organisational structure.
- Improve current data collection, storage, management and reporting processes for both quantitative and qualitative data. Ideas include for example: centralise FtP admin processes; appoint an overall FtP project manager; data mine at source to identify more detailed and categorical data in the same format for use in descriptive and inferential statistical analysis; use of cover sheet for case files; store by registrant then case; consistent use of terminology across data and processes, expert staff input at Initial Assessment and Casework stages.
- Align terminology related to FtP across all regulatory activities.
- Develop a shared and agreed considerations list with associated categorical data collection.
- Explore development of an updated and enhanced data management system.
- Define and share a communication strategy with external stakeholders for use of FtP data across other areas of activity. Consider development of a contemporaneous dashboard for internal use and a shared, validated tool for external use.
- Explore potential for additional research to investigate: contextual factors in FtP including non-UK qualified registrants, the role of secondarily identified considerations, including record keeping, undergraduate and postgraduate exam performance related to later FtP processes and the use of Big Data to support FtP data management.

It is important to remember that FtP applies to just 1-4% of the registrant population in the wider healthcare sector, and in this study, 2.13% of the dental registrant population. From the GDC data analysed in the time period of this report, the majority of issues were found with professional practice and behaviour, with most of these complaints referring to registered dentists, and a smaller proportion referring to the wider dental team. These findings and the relatively low proportions of registrants involved, highlight the need to better understand the factors associated with an increased risk, and how to target interventions. As was shown by analysis of the proportions of registrants and FtP incidents by time on the register, no particular length of registration was over-represented in the FtP data. This highlights the need for any measures to mitigate risk throughout the working life of a registrant, rather than any particular focus on merely undergraduate or early years, or conversely, late-stage career training.

A targeted intervention may be offered to those who achieved their initial qualification outside of the UK. However, the categorisation of registrants who are registered following success in the ORE or LDS examinations needs to be better delineated to be able to help inform the GDC's agenda for regulatory reform and to support its educational activities. Additionally, it is difficult to determine the types of decisions made by registrant characteristics. As noted in the earlier section on findings, the majority of decisions outside of referral and closure fall under an 'other' classification, which provides little useful information about the nature of the considerations. Additional opportunity to interrogate such data would enhance outputs and opportunities for learning and prevention.

Data storage and management are key to being able to use FtP data for analysis, learning and prevention. Currently the data systems in place have room for improvement at all stages, from collation to analysis. Clear direction and fit for purpose systems are prerequisites to enabling data to be managed in a reliable and meaningful way. This research has identified FtP data collection and analysis as a sector-wide issue – no one yet has answers about how to optimise FtP data to both inform and improve FtP processes and for prevention and upstream regulation, but action needs to be taken to enable and support requirements. The sector all agrees that better data collection and management strategies are required before being able to agree on how to optimise learning and prevention.

Missing, ambiguous, and poorly organised data are currently preventing the GDC from optimising the data they do have, and developing ways to reduce these issues immediately is an important first step in improving processes. This can be as straightforward as ensuring consistent use of terminology, that systems are fit for purpose, that staff are fully trained to use them effectively, and that a minimum sufficient amount of data is collected. By managing case data by registrant, useful registrant demographic information will already be available, and additional contextual data such as area of practice (e.g. NHS and whether full or part time) can be collated once. In the short term, revising coding of considerations, increasing the amount of categorical data over free text and, managing data by registrant (not individual incident) will support analysis and learning. Longer term, the Big Data sector may have answers for future solutions in data collection, management, storage and analysis. As mentioned below, it is imperative to ensure any new or revised categorisations are embedded into existing processes to enable ongoing analysis and mapping to previous information in a meaningful way.

Recommendations have been made to make the FtP quantitative dataset more comprehensive so that more efficient links can be made to systems utilising FtP processes, without the need to duplicate data sources and to provide opportunities for meaningful analysis. This information includes: a full recording of qualifications and countries from which these were obtained; registrant numbers in each route to registration as specialist dentists; the precise specialist list(s) or registrant category(ies) under which each registrant belonged; and the age profile and employment models (e.g. practice setting, full time versus part time) within each list. As mentioned above, recording information by registrant will ensure that some of this data is already available.

There is a danger that introducing the revised list of considerations, while beneficial to future data collection and analysis, may lead to a similar data issue as an existing one, and requires further testing. When data codes are changed, they need to be incorporated into systems in a meaningful way to reduce the risk of redundant fields and potentially conflicting information within a case file. Similarly with any new coding system, categories need to be clear and well defined to minimise ambiguity and/or errors occurring through various interpretations. Ambiguity or confusion may impact negatively on analyses that look at associations of factors relating to FtP.

Our analysis of considerations relating to a case as opposed to the actual reported incidents, found the most common nature of issues moves from clinical complaints to professional practice. Regulators need to understand how complaints often have a wider context of underpinning issues that, if managed appropriately, may lead to better remediation, wider improvements and better long term outcomes for the registrant, patients and the profession. It is important for upstream regulation processes to identify issues related to professional practice at an early stage, as this may support the prevention of more serious FtP issues later.

Record keeping was the largest consideration in FtP cases (related to professional practice) but is not cited in initial incident reporting. Further investigation would be useful to ascertain if this is an incidental finding for FtP, or if it is related to patient safety or misconduct in itself. There may need to be a way of monitoring record keeping independently of the FtP process so that it can be picked up earlier, through education activities for example. It may be that it is a predisposing factor to FtP and would form a large part of prevention and upstream regulation targeting initiatives. This highlights opportunities for the FtP data to inform non-FtP regulatory work in education standards and training.

To enable better upstream regulation across multiple areas from FtP data, adequate resources need to be directed into the entire FtP arena. By improving processes, strategies and systems, the GDC can realise the requirements of the PSA for a proportionate (i.e. with limited interventions tailored to risk), consistent (i.e. with sensible rules imposed fairly), targeted (i.e. with emphasis on problems and reduction of subsequent negative effects), transparent (i.e. open and friendly to users), accountable (i.e. with ability to justify decisions), and agile (i.e. with anticipation of changes) system of regulation across health and social care.

Data challenges are not unique to the GDC, and insight into how to ensure consistent and shared understandings of what informs decision making would be useful across all regulators. Measures to ensure sufficient granularity of data to enable enhanced insight and sharing, allocating sufficient resources to FtP, and clear strategies around FtP processes and outputs, would have a positive impact across the field.

Clear policies are needed around data sharing within the GDC and with external stakeholders, which should be considered alongside current legislative frameworks, especially when publishing details of FtP cases and dealing with FOI requests. Agreed definitions and strategies are required to mitigate the risk of any individual or stakeholder opinion being able to influence what data is gathered and shared. This will help to reduce the amount of missing or unusable data and ensure that key external stakeholders have expectations and priorities met.

FtP is a complex process that can have a significant impact on the profession and those registrants involved, even though this is a small percentage. Ensuring optimum data systems is a fundamental tenet of any learning that can be gained from the processes of education, prevention, decisions or outcomes and policy revision.

6. Appendices

Appendix A: Detail of the Rapid Evidence Assessment

The framework for REAs developed by Varker et al. [23] was followed in this REA. The framework consists of three phases as outlined below.

Describing the three phases of Varker et. al. REA framework

Phase	Description
Development	formation of a research team, needs assessments, determination of questions, objectives, search strategies and criteria, and evidence retrieval and management
Processing	screening evidence, pursuing a selection strategy in line with pre-determined criteria and quality assessments
Reporting	synthesis and presentation of findings

The search strategy pursued in the REA involved searches of the websites of all UK-based health and social care regulators and the PSA; Google Scholar searches with 'Fitness to Practise' as the search term; and use of CAMERA's existing library of relevant literature. A number of inclusion and exclusion criteria were developed to facilitate the selection process.

Specifically, included material was:

- Regulatory reports or other documents taking account of FtP processes, as well as research reports and/or peer-reviewed articles with some analysis of quantitative and/or qualitative FtP data.
- Published or released between 1 January 2015 and 31 December 2015.
- Written in the English language.
- Referred to UK-based regulators only.
- Referred to single professions, or multiple professions under same regulator, or professions from different regulators.

Evidence excluded from this REA was:

- Articles or research reports with reference to FtP processes but without any formal analysis of FtP data (e.g. research solely based on participant opinions or previous literature).
- Documents concerning FtP declarations of registrants (i.e. statements, in relation to ability to practise, made by healthcare professionals when entering regulatory registers or renewing their registration), rather than data generated during regulatory FtP processes.
- International literature on the topic of FtP.

All evidence retrieved was stored in citation management software to simplify subsequent organisation and screening. For documents and articles published from 1 January 2018 onwards that met the inclusion criteria, their reference lists were screened and forward citation searching through Google Scholar was conducted to capture any recent citations that might not have been picked up during the main searches.

The title and abstract of all documents retrieved through the searches were independently screened by two members of the research group (MB and GDK). For potentially relevant evidence, the full-text report was read by GDK to determine whether or not the respective document must be included or disregarded according to the inclusion and exclusion criteria. Quality assessments were omitted, as our purpose was to capture the broader picture in terms of the use of FtP data rather than simply synthesising a narrow body of high-quality evidence. A data extraction spreadsheet was created to collect all useful information from the included documents in a standardised manner.

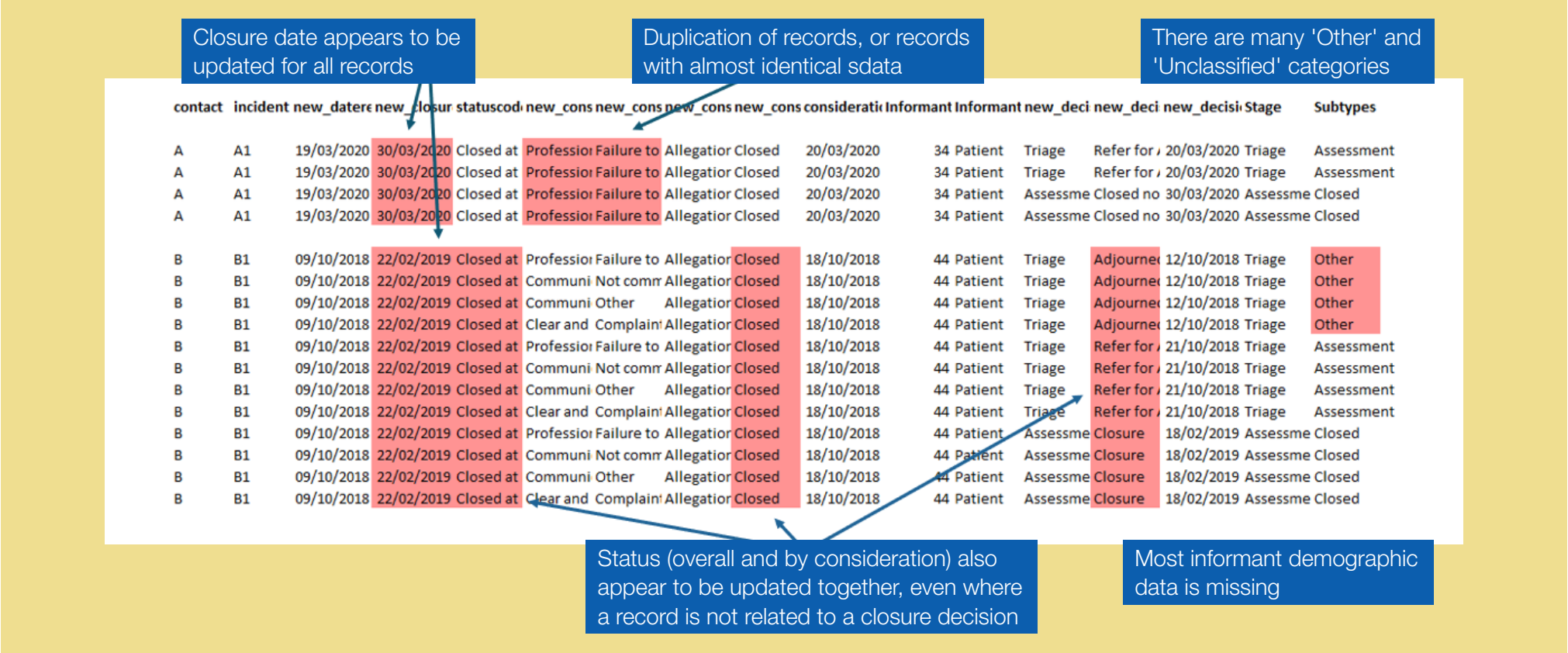
Appendix B: Types of documents included in case file data for qualitative analysis

- Webform.
- Letter notifying of concern.
- Clinical advice – referral, bundle, and response.
- Assessment report.
- Case examiner bundle.
- Case examiner decision sheet.
- Witness statement.
- Expert witness instructions.
- Draft charge.
- Disclosure letter.
- Notice of Hearing.
- Hearing bundle.
- Determination.

Appendix C: Current and Suggested Data Structures

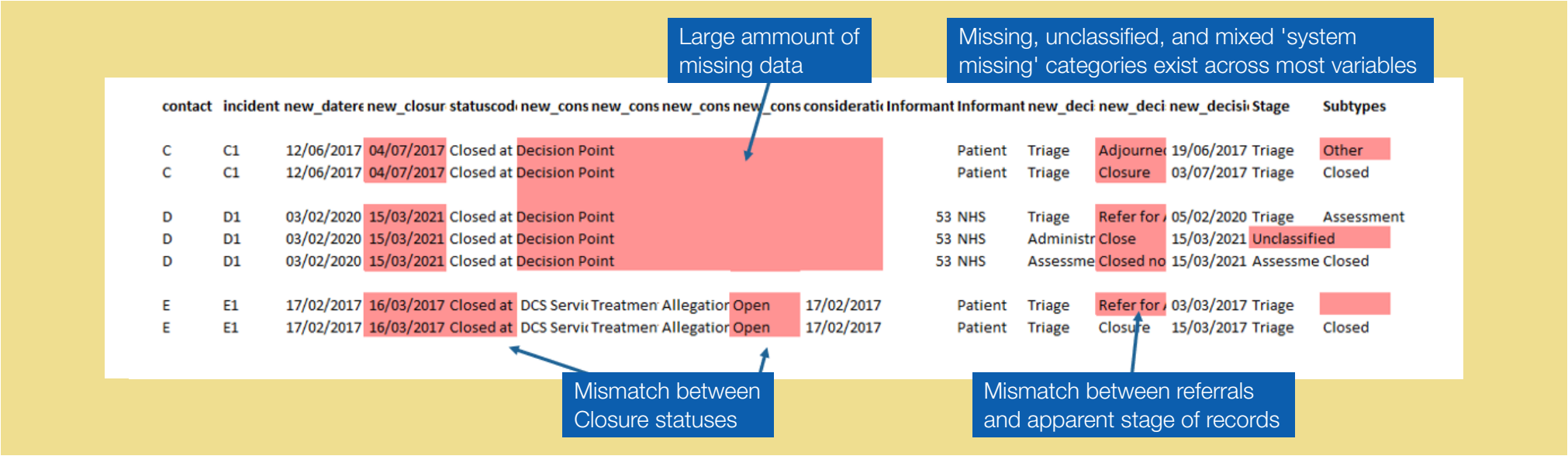
Examples of the current data structure and challenges, alongside proposals for possible new data structures. Contact and Incident information has been anonymised.

Appendix C Figure 1: Current Data Structure Part 1.



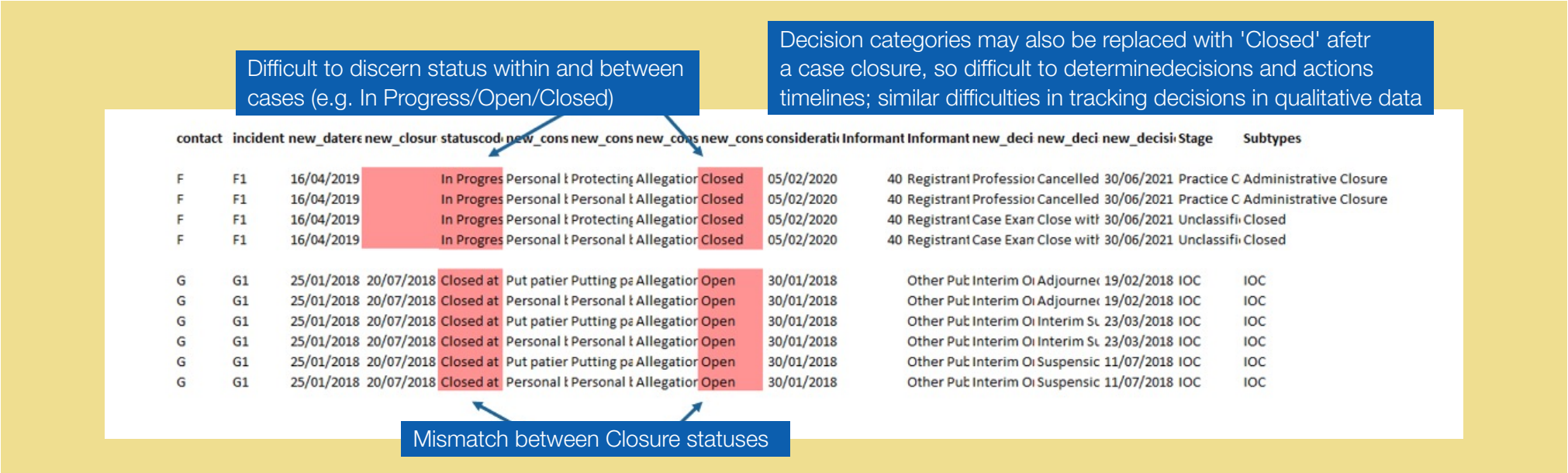
contact	incident	new_datere	new_closur	statuscod	new_cons	new_cons	new_cons	new_cons	considerati	Informant	Informant	new_deci	new_deci	new_decisi	Stage	Subtypes
A	A1	19/03/2020	30/03/2020	Closed at	Professio	Failure to	Allegatior	Closed	20/03/2020	34	Patient	Triage	Refer for	20/03/2020	Triage	Assessment
A	A1	19/03/2020	30/03/2020	Closed at	Professio	Failure to	Allegatior	Closed	20/03/2020	34	Patient	Triage	Refer for	20/03/2020	Triage	Assessment
A	A1	19/03/2020	30/03/2020	Closed at	Professio	Failure to	Allegatior	Closed	20/03/2020	34	Patient	Assessme	Closed no	30/03/2020	Assessme	Closed
A	A1	19/03/2020	30/03/2020	Closed at	Professio	Failure to	Allegatior	Closed	20/03/2020	34	Patient	Assessme	Closed no	30/03/2020	Assessme	Closed
B	B1	09/10/2018	22/02/2019	Closed at	Professio	Failure to	Allegatior	Closed	18/10/2018	44	Patient	Triage	Adjourne	12/10/2018	Triage	Other
B	B1	09/10/2018	22/02/2019	Closed at	Communi	Not comm	Allegatior	Closed	18/10/2018	44	Patient	Triage	Adjourne	12/10/2018	Triage	Other
B	B1	09/10/2018	22/02/2019	Closed at	Communi	Other	Allegatior	Closed	18/10/2018	44	Patient	Triage	Adjourne	12/10/2018	Triage	Other
B	B1	09/10/2018	22/02/2019	Closed at	Clear and	Complaint	Allegatior	Closed	18/10/2018	44	Patient	Triage	Adjourne	12/10/2018	Triage	Other
B	B1	09/10/2018	22/02/2019	Closed at	Professio	Failure to	Allegatior	Closed	18/10/2018	44	Patient	Triage	Refer for	21/10/2018	Triage	Assessment
B	B1	09/10/2018	22/02/2019	Closed at	Communi	Not comm	Allegatior	Closed	18/10/2018	44	Patient	Triage	Refer for	21/10/2018	Triage	Assessment
B	B1	09/10/2018	22/02/2019	Closed at	Communi	Other	Allegatior	Closed	18/10/2018	44	Patient	Triage	Refer for	21/10/2018	Triage	Assessment
B	B1	09/10/2018	22/02/2019	Closed at	Clear and	Complaint	Allegatior	Closed	18/10/2018	44	Patient	Triage	Refer for	21/10/2018	Triage	Assessment
B	B1	09/10/2018	22/02/2019	Closed at	Professio	Failure to	Allegatior	Closed	18/10/2018	44	Patient	Assessme	Closure	18/02/2019	Assessme	Closed
B	B1	09/10/2018	22/02/2019	Closed at	Communi	Not comm	Allegatior	Closed	18/10/2018	44	Patient	Assessme	Closure	18/02/2019	Assessme	Closed
B	B1	09/10/2018	22/02/2019	Closed at	Communi	Other	Allegatior	Closed	18/10/2018	44	Patient	Assessme	Closure	18/02/2019	Assessme	Closed
B	B1	09/10/2018	22/02/2019	Closed at	Clear and	Complaint	Allegatior	Closed	18/10/2018	44	Patient	Assessme	Closure	18/02/2019	Assessme	Closed

Appendix C Figure 2: **Current Data Structure Part 2.**



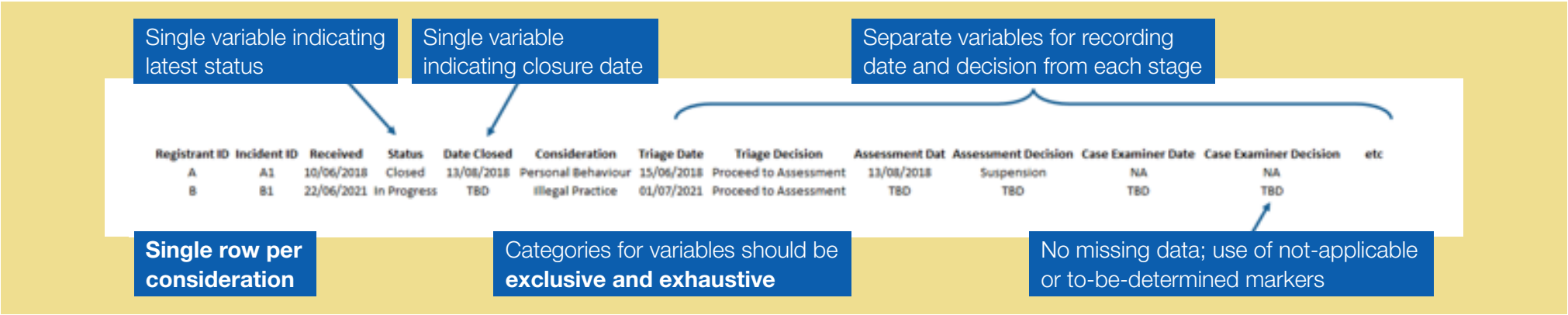
contact	incident	new_datere	new_closur	statuscod	new_cons	new_cons	new_cons	new_cons	considerati	Informant	Informant	new_deci	new_deci	new_decisi	Stage	Subtypes
C	C1	12/06/2017	04/07/2017	Closed at	Decision Point						Patient	Triage	Adjourne	19/06/2017	Triage	Other
C	C1	12/06/2017	04/07/2017	Closed at	Decision Point						Patient	Triage	Closure	03/07/2017	Triage	Closed
D	D1	03/02/2020	15/03/2021	Closed at	Decision Point					53	NHS	Triage	Refer for	05/02/2020	Triage	Assessment
D	D1	03/02/2020	15/03/2021	Closed at	Decision Point					53	NHS	Administr	Close	15/03/2021	Unclassified	
D	D1	03/02/2020	15/03/2021	Closed at	Decision Point					53	NHS	Assessme	Closed no	15/03/2021	Assessme	Closed
E	E1	17/02/2017	16/03/2017	Closed at	DCS Servi	Treatmen	Allegatior	Open	17/02/2017		Patient	Triage	Refer for	03/03/2017	Triage	
E	E1	17/02/2017	16/03/2017	Closed at	DCS Servi	Treatmen	Allegatior	Open	17/02/2017		Patient	Triage	Closure	15/03/2017	Triage	Closed

Appendix C Figure 3: **Current Data Structure Part 3.**

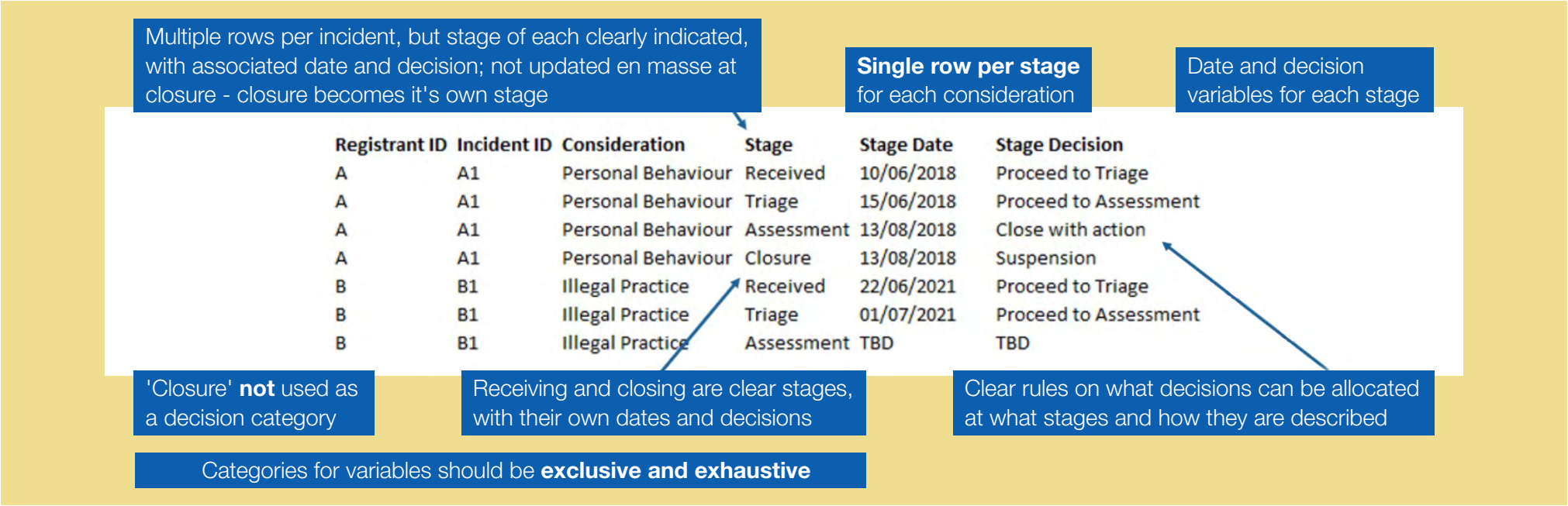


contact	incident	new_datere	new_closur	statuscod	new_cons	new_cons	new_cons	new_cons	considerati	Informant	Informant	new_deci	new_deci	new_decisi	Stage	Subtypes
F	F1	16/04/2019		In Progres	Personal t	Protectin	Allegatior	Closed	05/02/2020	40	Registrant	Professio	Cancelled	30/06/2021	Practice C	Administrative Closure
F	F1	16/04/2019		In Progres	Personal t	Personal t	Allegatior	Closed	05/02/2020	40	Registrant	Professio	Cancelled	30/06/2021	Practice C	Administrative Closure
F	F1	16/04/2019		In Progres	Personal t	Protectin	Allegatior	Closed	05/02/2020	40	Registrant	Case Exan	Close with	30/06/2021	Unclassifi	Closed
F	F1	16/04/2019		In Progres	Personal t	Personal t	Allegatior	Closed	05/02/2020	40	Registrant	Case Exan	Close with	30/06/2021	Unclassifi	Closed
G	G1	25/01/2018	20/07/2018	Closed at	Put patier	Putting pa	Allegatior	Open	30/01/2018		Other Put	Interim Or	Adjourne	19/02/2018	IOC	IOC
G	G1	25/01/2018	20/07/2018	Closed at	Personal t	Personal t	Allegatior	Open	30/01/2018		Other Put	Interim Or	Adjourne	19/02/2018	IOC	IOC
G	G1	25/01/2018	20/07/2018	Closed at	Put patier	Putting pa	Allegatior	Open	30/01/2018		Other Put	Interim Or	Interim St	23/03/2018	IOC	IOC
G	G1	25/01/2018	20/07/2018	Closed at	Personal t	Personal t	Allegatior	Open	30/01/2018		Other Put	Interim Or	Interim St	23/03/2018	IOC	IOC
G	G1	25/01/2018	20/07/2018	Closed at	Put patier	Putting pa	Allegatior	Open	30/01/2018		Other Put	Interim Or	Suspensic	11/07/2018	IOC	IOC
G	G1	25/01/2018	20/07/2018	Closed at	Personal t	Personal t	Allegatior	Open	30/01/2018		Other Put	Interim Or	Suspensic	11/07/2018	IOC	IOC

Appendix C Figure 4: **Proposal for a 'Wide' Data Structure.**



Appendix C Figure 5: **Proposal for a 'Long' Data Structure.**



Appendix D:
Characteristics of Registrants, Overall and Involved in Incidents

Characteristic		Frequency in Data		Percentage within Group	
		Registrants	With Incidents	Registrants	With Incidents
Age Group	<=30	27,752	195	20	7
	31-40	42,749	780	32	27
	41-50	29,922	856	22	30
	51-60	22,202	666	16	23
	61-70	11,207	326	8	11
	>=71	1,851	72	1	2
	Missing	2	1	0	0
Gender	Female	104,804	1,177	77	41
	Male	30,880	1,719	23	59
	Missing	1	0	0	0
Ethnicity	White	91,838	1,584	68	55
	Any Other Category	22,912	848	17	29
	Unknown	20,935	464	15	16
CoQ Group	UK	121,625	2,147	90	74
	EU/EEA	9,100	527	7	18
	Other	4,225	172	3	6
	Missing	735	50	1	2
Profession	Dentist	48,616	2,379	36	82
	DCP	87,060	517	64	18
	Other	9	0	0	0

Note: 'With Incidents' reflect those registrants whose contact ID appears at least once against an incident in the case data

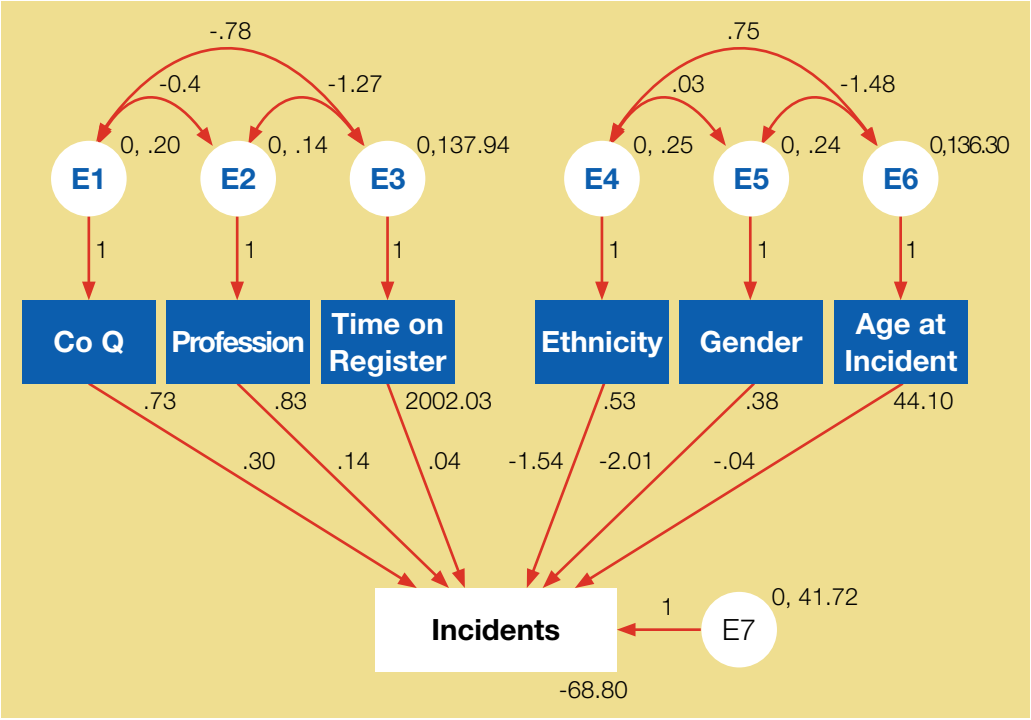
Appendix E:
Incidents by Informant and Consideration Types (count and percentage)

Consideration Type	Informant Type												
	Anonymous	Employer	GDC	Member of Public	NHS	Other Informant	Other Public Body	Patient	Police or other investigatory body	Private Provider	Registrant	Self-referral	Whistleblower
Count													
Prof. knowledge and skills	28	11	88	38	37	46	3	1,422	0	2	67	5	51
None allocated	109	26	87	135	35	96	12	600	4	1	225	45	76
Put patients' interests first	41	16	80	47	26	49	14	655	0	1	101	15	107
Personal behaviour	42	31	99	69	56	66	12	144	16	2	127	125	81
Communicating effectively	4	3	10	10	11	13	1	438	0	0	20	3	7
Maintain and protect pt info	9	12	38	7	15	14	3	281	0	1	31	1	14
Obtain valid consent	2	2	10	5	5	7	0	236	0	1	12	1	8
Working with colleagues	9	6	22	7	6	17	0	56	0	0	46	0	55
Clear complaints procedure	0	1	1	1	0	1	0	143	0	0	6	0	3
Raising concerns	1	0	2	0	0	2	1	12	0	0	4	0	14
DCS Service Issue	0	0	0	0	0	0	0	24	0	0	0	0	0
Illegal practice	1	0	3	1	0	0	1	0	0	0	1	0	2

Consideration Type	Informant Type												
	Anonymous	Employer	GDC	Member of Public	NHS	Other Informant	Other Public Body	Patient	Police or other investigatory body	Private Provider	Registrant	Self-referral	Whistleblower
Percentage													
Prof. knowledge and skills	1.56	0.61	4.89	2.11	2.06	2.56	0.17	79.09	0.00	0.11	3.73	0.28	2.84
None allocated	7.51	1.79	6.00	9.30	2.41	6.62	0.83	41.35	0.28	0.07	15.51	3.10	5.24
Put patients' interests first	3.56	1.39	6.94	4.08	2.26	4.25	1.22	56.86	0.00	0.09	8.77	1.30	9.29
Personal behaviour	4.83	3.56	11.38	7.93	6.44	7.59	1.38	16.55	1.84	0.23	14.60	14.37	9.31
Communicating effectively	0.77	0.58	1.92	1.92	2.12	2.50	0.19	84.23	0.00	0.00	3.85	0.58	1.35
Maintain and protect pt info	2.11	2.82	8.92	1.64	3.52	3.29	0.70	65.96	0.00	0.23	7.28	0.23	3.29
Obtain valid consent	0.69	0.69	3.46	1.73	1.73	2.42	0.00	81.66	0.00	0.35	4.15	0.35	2.77
Working with colleagues	4.02	2.68	9.82	3.13	2.68	7.59	0.00	25.00	0.00	0.00	20.54	0.00	24.55
Clear complaints procedure	0.00	0.64	0.64	0.64	0.00	0.64	0.00	91.67	0.00	0.00	3.85	0.00	1.92
Raising concerns	2.78	0.00	5.56	0.00	0.00	5.56	2.78	33.33	0.00	0.00	11.11	0.00	38.89
DCS Service Issue	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100	0.00	0.00	0.00	0.00	0.00
Illegal practice	11.11	0.00	33.33	11.11	0.00	0.00	11.11	0.00	0.00	0.00	11.11	0.00	22.22

Appendix F:
Example Structural Equation Model

The below diagram is an example of how structural equation modelling might be used to further explore the relationships and interrelationships between recorded variables and outcomes. In this example, based on incident data, the relative weights (influence) of personal and professional characteristics on the number of incidents a registrant has been involved in have been estimated, assuming some relationship between each aspect of the personal (Ethnicity, Gender, Age at Incident) and professional (Country of Qualification, Profession, and Time on Register) dimensions (e.g. likelihood of disclosing demographic information or professions being disproportionately likely to travel from a given area), but no relationship between those two groups of properties. Such models might be fitted with and without any of the links (arrows) between characteristics and outcomes, and the effectiveness of each in explaining the data compared, such that the 'best fit' model might be derived through an iterative process.



For the purposes of this example, categorical characteristics have been dichotomised (e.g. Ethnicity is treated as White/Any Other Category), but these might be treated in other ways. Latent variables can also be included in the model – hypothetical constructs theorised to explain the data but that are not directly measured. Examples of these might be the themes derived through qualitative work, which capture broader groups of incidents than the individual considerations do at present, or more clearly defined groups of characteristics than 'personal' and 'professional'.

The 'E' variables are statistical error terms, and account for variability beyond the observed variables (those in boxes).

Further use of such models would benefit from a more highly structured dataset, which addresses some of the limitations discussed elsewhere in this report, i.e. the data needs to clearly and specifically capture interrelationships between variables for estimates in such models to be calculated meaningfully and accurately.

7. Reference List

1. GDC. Previous corporate strategies and costed corporate plans. 2023 [cited 2023; Available from: https://www.gdc-uk.org/about-us/our-organisation/our-corporate-strategy-and-business-plans/previous-corporate-strategies.
2. PSA. Who are the health and social care regulators and what do they do? 2021; Available from: https://www.professionalstandards.org.uk/what-we-do/our-work-with-regulators/about-regulators.
3. Health, D.o. Regulation of Health Care Professionals & Regulation of Social Care Professionals in England. 2015; Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/420119/46547_Cm_8995_print_ready.pdf.
4. GDC. What we do. 2021; Available from: https://www.gdc-uk.org/about-us/what-we-do.
5. Archives, T.N. Dentists Act 1984. 1984; Available from: https://www.legislation.gov.uk/ukpga/1984/24.
6. GDC. Fitness to practise. 2021; Available from: https://www.gdc-uk.org/about-us/what-we-do/fitness-to-practise.
7. GDC. How we look into concerns 2021; Available from: https://www.gdc-uk.org/raising-concerns/raising-concerns-about-dental-treatment/should-i-raise-a-concern/how-we-look-into-concerns.
8. GDC. What we investigate. 2021; Available from: https://www.gdc-uk.org/raising-concerns/raising-concerns-about-dental-treatment/should-i-raise-a-concern/what-we-investigate.
9. GDC. Hearings and decisions 2021; Available from: https://www.gdc-uk.org/raising-concerns/handling-concerns-about-dental-practice/hearings-and-decisions.
10. GDC. The General Dental Council's road map for 2016 – 2019 2016; Available from: https://www.gdc-uk.org/docs/default-source/business-plans/patients-professionals-partners-performance_gdc-road-map-2016_2019.pdf?sfvrsn=c0bf9571_4.
11. GDC. Shifting the balance-a better, fairer system of dental regulation. 2017; Available from: https://www.gdc-uk.org/docs/default-source/shifting-the-balance/shifting-the-balance.pdf.
12. JB, M., A Case For Refocusing Upstream: The Political Economy Of Illness in IAPHS - Interdisciplinary Association for Population Health Science. 2019.
13. GDC. Corporate strategy 2020-2022: Right time, right place, right touch. 2019; Available from: https://www.gdc-uk.org/docs/default-source/corporate-strategy/right-time-right-place-right-touch.pdf?sfvrsn=47143e2_4.
14. GDC. Moving upstream 2020 2020; Available from: https://www.gdc-uk.org/DownloadHelper.aspx?docID=5b212af9-bcb4-427b-bcbf-a2a1f88371ae.
15. GDC. Fitness to practise learning. 2021; GDC website 2021 (no longer available).
16. PSA. Right-touch regulation-Revised. 2015; Available from: https://www.professionalstandards.org.uk/docs/default-source/publications/thought-paper/right-touch-regulation-2015.pdf?sfvrsn=eaf77f20_20.
17. Bullock A, B.J., Poletti C, Cserzö D, Russ E. A Review of Research into Health and Care Professional Regulation. 2020; Available from: https://www.professionalstandards.org.uk/docs/default-source/publications/research-paper/review-of-research-into-health-care-regulation.pdf?sfvrsn=699c7620_7.
18. Griffin A, M.A., Sarker S-J, Viney R, Knight L, Tweedie J. Developing a methodology to assess the consistency of fitness to practise outcomes 2019; Available from: https://www.professionalstandards.org.uk/docs/default-source/publications/developing-a-methodology-to-assess-the-consistency-of-fitness-to-practise-outcomes-2019.pdf?sfvrsn=97c57420_0.
19. Economics, E. Risk in dentistry: Report for the General Dental Council 2014; Available from: https://www.gdc-uk.org/docs/default-source/research/risk-in-dentistry.pdf?sfvrsn=e67dbf64_2.
20. Zahra D, R.M., Bryce M, O'Brien T, Archer J. Analysis of fitness to practise case data for the General Dental Council-Detailed Report 2016; Available from: https://www.gdc-uk.org/docs/default-source/research/ftp-data-analysis-detailed-report.pdf?sfvrsn=282ff980_2.
21. Zahra D, R.M., Bryce M, O'Brien T, Archer J. Analysis of fitness to practise case data for the General Dental Council-Summary Report. 2017; Available from: https://www.gdc-uk.org/docs/default-source/research/ftp-data-analysis-summary-report.pdf.
22. Barends E, R.D., Briner RB. CEBMa Guideline for Rapid Evidence Assessments in Management and Organizations 2017; Available from: https://cebma.org/assets/Uploads/CEBMa-REA-Guideline.pdf.
23. Varker T, F.D., Dell L, Weston A, Merlin T, Hodson S, et al., Rapid evidence assessment: increasing the transparency of an emerging methodology. J Eval Clin Pract., 2015. 21(6): p. 1199–204.
24. Munn Z, P.M., Stern C, Tufanaru C, McArthur A, Aromataris E., Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Med Res Methodology, 2018. 18(1): p. 143.

25. O'Brien KK, C.H., Levac D, Baxter L, Tricco AC, Straus S, et al., Advancing scoping study methodology: a web-based survey and consultation of perceptions on terminology, definition and methodological steps. BMC Health Serv Res., 2016. 16(1).

26. Popay J, R.H., Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the Conduct of Narrative Synthesis in Systematic Reviews-A Product from the ESRC Methods Programme 2006; Available from: https://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/fhm/dhr/chir/NSsynthesisguidanceVersion1-April2006.pdf.

27. Clarke, V., Using thematic analysis in psychology AU - Braun, Virginia. Qualitative Research in Psychology, 2006. 3(2): p. 77-101.

28. GCC. Annual Fitness to Practise report 2016. 2017; Available from: https://www.gcc-uk.org/assets/publications/FTP_Annual_Report_2016_FINAL.pdf.

29. GCC. Fitness to Practise Report 2015. 2016; Available from: https://www.gcc-uk.org/assets/publications/FTP_Report_2015.pdf.

30. GCC. Fitness to Practise Report 2016. 2017; Available from: https://www.gcc-uk.org/assets/publications/FTP_Report_2016_PCC.pdf.

31. GCC. Annual Fitness to Practise statistics report 2017. 2018; Available from: https://www.gcc-uk.org/assets/publications/FTP_Annual_Report_2017.pdf.

32. GCC. Dealing with concerns about Chiropractors in 2018: Our annual report on Fitness to Practise. 2019; Available from: https://www.gcc-uk.org/assets/publications/FTP_Annual_Report_2018.pdf.

33. GCC. Fitness to Practise Annual Report 2019. 2020; Available from: https://www.gcc-uk.org/assets/publications/FTP_Annual_Report_2019.pdf.

34. GDC. Insights from GDC fitness to practise concerns-Cases opened following initial assessment: Q4 2018. 2019; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/1-gdc-ftp-insights-open-cases.pdf?sfvrsn=8e516d6b_2.

35. GDC. Insights from GDC fitness to practise concerns-Cases closed following initial assessment: Q4 2018. 2019; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/2-gdc-ftp-insights-closed-cases.pdf?sfvrsn=213f06fe_2.

36. GDC. Insights from GDC fitness to practise concerns-Spotlight on antibiotic prescribing: Q4 2018. 2019; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/3-gdc-ftp-insights-spotlight.pdf?sfvrsn=cc380399_2.

37. GDC. Insights from GDC fitness to practise concerns-Cases closed following initial assessment: Q1 2019. 2019; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-closed-cases-q1-2019.pdf?sfvrsn=2bef0545_4.

38. GDC. Insights from GDC fitness to practise concerns-Cases opened following initial assessment: Q1 2019. 2019; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-open-cases-q1-2019.pdf?sfvrsn=d3329cc4_4.

39. GDC. Insights from GDC fitness to practise concerns-Cases closed following initial assessment: Q2 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-closed-cases-q2-2019-final.pdf?sfvrsn=e111b0e8_2.

40. GDC. Insights from GDC fitness to practise concerns-Cases opened following initial assessment: Q2 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-open-cases-q2-2019-final.pdf?sfvrsn=2aff9b45_2.

41. GDC. Insights from GDC fitness to practise concerns-Cases closed following initial assessment: Q3 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-closed-cases-q3-2019-final9d60fbfe-0dcd-492e-8c04-11ce1a58a314.pdf?sfvrsn=a1df3a0b_5.

42. GDC. Insights from GDC fitness to practise concerns-Cases opened following initial assessment: Q3 2019 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-open-cases-q3-2019-finala0d2cadc-e2a9-4d95-b4e0-279b6b20a405.pdf?sfvrsn=5fdd76e_5.

43. GDC. Insights from GDC fitness to practise concerns-Cases closed following initial assessment: Q4 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-closed-cases-q4-2019-final079be382-fb48-4a32-ac58-a66fea1d998f.pdf?sfvrsn=ba606705_7.

44. GDC. Insights from GDC fitness to practise concerns-Cases opened following initial assessment: Q4 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-open-cases-q4-2019-final54a6b664-7f8c-4d0b-bda3-a818e814880c.pdf?sfvrsn=12b195f2_5.

45. GDC. Insights from GDC fitness to practise concerns-Spotlight on scope of practice: Q2 2019 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-spotlight-q2-2019-final.pdf?sfvrsn=42bfdcc1_6.

46. GDC. Insights from GDC fitness to practise concerns-Spotlight on record keeping: Q1 to Q3 2019 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-spotlight-q3-2019-record-keeping-final960ebfdf-4a86-4e7f-b07f-ec3c4cc97ec4.pdf?sfvrsn=fd1b46b3_5.

47. GDC. Insights from GDC fitness to practise concerns-Spotlight on consent: Q4 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-ftp-insights-spotlight-q4-2019-consent-final3349acd3-de2a-4cae-afb6-9d14357c9db5.pdf?sfvrsn=605efbb3_5.

48. GDC. Fitness to Practise statistical report 2019. 2020; Available from: https://www.gdc-uk.org/docs/default-source/fitness-to-practise-learning/gdc-statistics-report---ftp-2019-finalaffa7a84-dd53-41ba-b583-956481321a00.pdf?sfvrsn=45d86fc5_5.

49. N., S., Dental infection control violations - an analysis of GDC Fitness to Practise cases between 2014-2018. BDJ Pract., 2020. 33(4): p. 12-6.

50. NMC. Annual Fitness to Practise Report 2015–2016. 2016; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/ftpannualreports/annual-ftp-report-2015-2016.pdf.

51. NMC. Annual Fitness to Practise Report 2016–2017. 2017; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/ftpannualreports/annual-fitness-to-practise-report-2016-2017.pdf.

52. West E, N.S., Taskila T, Al-Haboubi M. The Progress and Outcomes of Black and Minority Ethnic (BME) Nurses and Midwives through the Nursing and Midwifery Council's Fitness to Practise Process-Final Report. 2017; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/other-publications/bme-nurses--midwives-ftp-research-report.pdf.

53. NMC. Annual Fitness to Practise Report 2017–2018 2018; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/ftpannualreports/annual-fitness-to-practise-report-2017-2018-web.pdf.

54. NMC. Annual Fitness to Practise Report 2018–2019 2019; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/ftpannualreports/nmc-fitness-to-practise-report-2019-singles-linked-contents.pdf.

55. NMC. Annual Fitness to Practise Report 2019–2020 2020; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/ftpannualreports/2019-2020-annual-fitness-to-practise-report.pdf.

56. GOC. Annual Report, Annual Fitness to Practise Report and Financial Statements for the year ended 31 March 2015 2015; Available from: https://optical.org/en/publications/annual-reports-and-financial-statements/.

57. GOC. Annual Report, Annual Fitness to Practise Report and Financial Statements for the Year Ended 31 March 2016 2016; Available from: https://optical.org/en/publications/annual-reports-and-financial-statements/.

58. GOC. Annual Report, Annual Fitness to Practise Report and Financial Statements for the Year Ended 31 March 2017 2017; Available from: https://optical.org/en/publications/annual-reports-and-financial-statements/.

59. GOC. Annual Trustees Report and Fitness to Practise Report and Financial Statements for the Year Ended 31 March 2018 2018; Available from: https://optical.org/en/publications/annual-reports-and-financial-statements/.

60. Thurman M, C.A., Pickles Risk in the optical professions-Final report 2019; Available from: https://optical.org/media/55zjedes/risk-in-the-optical-professions-2019.pdf.

61. GOC. Annual Report, Annual Fitness to Practise Report and Finanicial Statements for the Year Ended 31 March 2019. 2019; Available from: https://optical.org/en/publications/annual-reports-and-financial-statements/.

62. GOC. Annual Fitness to Practise Report and Financial Statements for the Year Ended 31 March 2020 2020; Available from: https://optical.org/en/publications/annual-reports-and-financial-statements/.

63. GOsC. Fitness to Practise Report 2015-16 2016; Available from: https://www.osteopathy.org.uk/news-and-resources/document-library/fitness-to-practise/fitness-to-practise-annual-report-2015-16/.

64. GOsC. Fitness to Practise Report 2016-17 2017; Available from: https://www.osteopathy.org.uk/news-and-resources/document-library/fitness-to-practise/fitness-to-practise-annual-report-2016-17/.

65. GOsC. Fitness to practise annual report 2017-18 2018; Available from: https://www.osteopathy.org.uk/news-and-resources/document-library/fitness-to-practise/fitness-to-practise-annual-report-2017-18/.

66. GOsC. Fitness to practise annual report 2018-19 2019; Available from: https://www.osteopathy.org.uk/news-and-resources/document-library/fitness-to-practise/fitness-to-practise-annual-report-2018-19/.

67. D., C. Types of concerns raised about osteopaths and osteopathic services in 2013 to 2017 2018; Available from: https://www.osteopathy.org.uk/news-and-resources/document-library/research-and-surveys/types-of-concerns-raised-about-osteopaths-and-services/.

68. GPhC. Annual report: annual fitness to practise report and annual accounts 2015/16 2016; Available from: https://www.pharmacyregulation.org/resources/corporate-publications.

69. GPhC. Annual report: annual fitness to practise report and annual accounts 2016/17 2017; Available from: https://www.pharmacyregulation.org/resources/corporate-publications.

70. GPhC. Annual report: annual fitness to practise report and annual accounts 2017/18 2018; Available from: https://www.pharmacyregulation.org/sites/default/files/document/gphc_annual_report_2017-18_0.pdf.

71. GPhC. Annual report: annual fitness to practise report and annual accounts 2018/19 2019; Available from: https://www.pharmacyregulation.org/sites/default/files/document/gphc_annual_report_2018-19.pdf.

72. CT., G., Factors associated with severity of sanctions among pharmacy professionals facing disciplinary proceedings. Res Soc Adm Pharm, 2020.

73. PSNI. Annual Report and Accounts 2014-15 2015; Available from: https://www.psni.org.uk/wp-content/uploads/2012/10/ANNUAL-REPORT-ACCOUNTS-2014-15-FINAL1.pdf.

74. PSNI. Annual Report and Accounts 2015-16 2016; Available from: https://www.psni.org.uk/wp-content/uploads/2012/10/Pharmaceutical-Society-NI-Annual-Report-Master-2015-16-16-09-16-Final-approved-by-Council.1.pdf.

75. PSNI. Annual Report and Accounts 2016-17 2017; Available from: https://www.psni.org.uk/wp-content/uploads/2012/10/PSNI-Annual-Report-and-Accounts-2016.17-Master-Copy.pdf.

76. PSNI. Annual Report and Accounts 2017-18 2018; Available from: https://www.psni.org.uk/wp-content/uploads/2012/10/Pharmaceutical-Society-NI-Annual-Report-and-Accounts-17-18.pdf.

77. PSNI. Annual Report and Accounts 2018-19 2019; Available from: https://www.psni.org.uk/wp-content/uploads/2012/10/Annual-Report-and-Accounts-2018.19-Final-Council-Approved.pdf.

78. PSNI. Annual Report and Accounts 2019-20 2020; Available from: https://www.psni.org.uk/wp-content/uploads/2020/10/PSNI-Annual-Report-Accs-2019.20-Council-Approved-18.09.20-Laid-06.10.20.pdf.

79. Harris R, S.K. Analysis of cases resulting in doctors being erased or suspended from the medical register-Report prepared for: General Medical Council 2015; Available from: https://www.gmc-uk.org/-/media/documents/Analysis_of_cases_resulting_in_doctors_being_suspended_or_erased_from_the_medical_register_FINAL_REPORT_Oct_2015.pdf_63534317.pdf.

80. GMC. The state of medical education and practice in the UK 2015 2015; Available from: https://www.gmc-uk.org/-/media/documents/SOMEP_2015.pdf_63501874.pdf.

81. GMC. The state of medical education and practice in the UK 2016. 2016; Available from: https://www.gmc-uk.org/-/media/documents/SOMEP_2016_Full_Report_Lo_Res.pdf_68139324.pdf.

82. GMC. The state of medical education and practice in the UK 2017 2017; Available from: https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/the-state-of-medical-education-and-practice-in-the-uk/archived-the-state-of-medical-education-and-practice-in-the-uk-reports.

83. Redding S, N.C. The costs of fitness to practise: a study of the Health and Care Professions Council 2015; Available from: https://www.hcpc-uk.org/globalassets/resources/reports/research/the-costs-of-fitness-to-practise---a-study-of-the-health-and-care-professions-council.pdf?v=636873143940000000.

84. J., M.-W., The Sexual Abuse of Vulnerable People by Registered Social Workers in England: An Analysis of the Health and Care Professions Council Fitness to Practise Cases. Br J Soc Work., 2016. 46(8): p. 2190–207.

85. HCPC. Fitness to practise annual report 2016 2016; Available from: https://www.hcpc-uk.org/globalassets/resources/reports/fitness-to-practise/fitness-to-practise-annual-report-2016.pdf?v=637112255420000000.

86. HCPC. Fitness to practise annual report 2017 2017; Available from: https://www.hcpc-uk.org/globalassets/resources/reports/fitness-to-practise/fitness-to-practise-annual-report-2017.pdf?v=637112255260000000.

87. van der Gaag A, G.A., Zasada M, Lucas G, Jago R, Banks S, et al. People like us? Understanding complaints about paramedics and social workers. 2017; Available from: https://www.hcpc-uk.org/globalassets/resources/reports/people-like-us-understanding-complaints-about-paramedics-and-social-workers.pdf?v=636820367270000000.

88. HCPC. Fitness to practise annual report 2018-Protecting the public, promoting professionalism 2018; Available from: https://www.hcpc-uk.org/globalassets/resources/reports/fitness-to-practise/hcpc-fitness-to-practise-annual-report-2018.pdf?v=637109615350000000.

89. HCPC. Fitness to practise annual report 2019-Protecting the public, promoting professionalism. 2019; Available from: https://www.hcpc-uk.org/globalassets/resources/reports/fitness-to-practise/fitness-to-practise-annual-report-2019.pdf.

90. Banks S, Z.M., Jago R, Gallagher A, Austin Z, van der Gaag A., Social Workers under the Spotlight: An Analysis of Fitness to Practise Referrals to the Regulatory Body in England, 2014–2016. Br J Soc Work. , 2020. 50(2): p. 326–47.

91. GMC. UK health regulator comparative data report 2016-Prepared by the GMC for the Chief Executive Steering Group. 2017; Available from: https://www.gmc-uk.org/-/media/documents/uk-health-regulator-comparative-report-final-220217_pdf-73538031.pdf.

92. Searle R, R.C., McConnell AA, Dawson JF. Bad apples? Bad barrels? Or bad cellars? Antecedents and processes of professional misconduct in UK Health and Social Care: Insights into sexual misconduct and dishonesty 2017; Available from: https://www.professionalstandards.org.uk/docs/default-source/publications/antecedent-amp-processes-of-professional-misconduct-in-uk-health-and-social-care.pdf?sfvrsn=1e087320_0.

93. GOsC. Fitness to Practise Annual Report 2019-2020 2020; Available from: https://www.osteopathy.org.uk/news-and-resources/document-library/fitness-to-practise/fitness-to-practise-annual-report-2019-2020/.

94. NMC. Annual Fitness to Practise Report 2014–2015. 2015; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/annual_reports_and_accounts/ftpannualreports/annual-ftp-report-2014-2015.pdf.

95. Gallagher CT, D.S.A., A retrospective analysis of the GDC's performance against its newly-approved fitness to practise guidance. Br Dent J. , 2015. 219(5).

96. Gallagher CT, G.V., Hickman AC., Eram, ergo sum? A 1-year retrospective study of General Pharmaceutical Council fitness to practise hearings. Int J Pharm Pract. , 2015. 23(3): p. 205–11.

97. School, U.M. Fairness of decisions to refer doctors to The Medical Practitioners Tribunal Service Interim Orders Tribunal 2018; Available from: https://www.gmc-uk.org/-/media/documents/updated-iot-report-docx-final-july2018_pdf-79991341.pdf.

98. Jayaweera HK, P.H., Keshwani K, Valerio C, Baker M, Mehdizadeh L, et al., The GP tests of competence assessment: which part best predicts fitness to practise decisions?. BMC Med Educ, 2018. 18.

99. Caballero JA, B.S., Engagement, not personal characteristics, was associated with the seriousness of regulatory adjudication decisions about physicians: a cross-sectional study. BMC Med 2019. 17(1).

100. Unwin E, W.K., Dacre J, Potts HW., Sex differences in fitness to practise test scores: a cohort study of GPs. Br J Gen Pract, 2019. 69(681): p. e287–93.

101. Searle, R. Sexual Misconduct In Health And Social Care: Understanding Types Of Abuse And Perpetrators' Moral Mindsets-Report for Professional Standards Authority. 2019; Available from: https://www.professionalstandards.org.uk/docs/default-source/publications/research-paper/sexual-misconduct-in-health-and-social-care-understanding-types-of-abuse-and-perpetrators-moral-mindsets.pdf?sfvrsn=630f7420_2.

102. Tiffin PA, P.L., Mwandigha LM, McLachlan JC, Illing J., Predicting fitness to practise events in international medical graduates who registered as UK doctors via the Professional and Linguistic Assessments Board (PLAB) system: a national cohort stud. BMC Med., 2017. 15(1).

103. Wakeford R, L.K., Woolf K, McManus IC., Fitness to practise sanctions in UK doctors are predicted by poor performance at MRCGP and MRCP(UK) assessments: data linkage study. BMC Med, 2018. 16(1).

104. McManus IC, H.A., Horsfall HL, Joseph T, Smith DT, Marshall-Andon T, et al., Exploring UK medical school differences: the MedDifs study of selection, teaching, student and F1 perceptions, postgraduate outcomes and fitness to practise. BMC Med., 2020. 18(1).

105. Regan De Bere S, B.M., Archer J, Lynn N, Nunn S, Roberts M. Review of decision-making in the General Medical Council's Fitness to Practise procedures-Final Report 2014; Available from: https://www.gmc-uk.org/-/media/gmc-site/about/review-of-gmc-decision-making-in-fitness-to-practise-procedures.pdf.

106. Leigh J, W.A., McLaughlin K., An analysis of HCPC fitness to practise hearings: Fit to Practise or Fit for Purpose?. Ethics Soc Welf, 2017. 11(4): p. 382–96.

107. Gallagher A, J.R. A Typology of Dishonesty-Illustrations from the PSA Section 29 Database. 2016; Available from: https://www.professionalstandards.org.uk/docs/default-source/publications/research-paper/a-typology-of-dishonesty---illustrations-using-the-fitness-to-practise-database.pdf?sfvrsn=6.

108. P., N., Social media and professionalism: a retrospective content analysis of Fitness to Practise cases heard by the GDC concerning social media complaints. Br Dent J., 2017. 223(5): p. 353–7.

109. PSA. Categorisation of fitness to practise data 2017; Available from: https://www.professionalstandards.org.uk/publications/detail/categorisation-of-fitness-to-practise-data.

110. Elledge R, J.J., Character failings in the surgeon fallen from grace: a thematic analysis of disciplinary hearings against surgeons 2016-2020. J Med Ethics., 2021.

111. Hanna A, H.L.-A., Topic Analysis of UK Fitness to Practise Cases: What Lessons Can Be Learnt? Pharm J Pharm Educ Pract 2019. 7(3).

112. GMC. The state of medical education and practice in the UK 2018 2018; Available from: https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/the-state-of-medical-education-and-practice-in-the-uk/archived-the-state-of-medical-education-and-practice-in-the-uk-reports.

113. GDC. Business plan 2017. 2016; Available from: https://www.gdc-uk.org/docs/default-source/business-plans/gdc-business-plan-2017.pdf?sfvrsn=c8babb5f_2.

114. GMC. Business plan 2015. 2015; Available from: https://www.gmc-uk.org/-/media/documents/2015-business-plan_pdf-59614534.pdf.

115. GMC. The state of medical education and practice in the UK 2020 2020; Available from: https://www.gmc-uk.org/-/media/documents/somep-2020_pdf-84684244.pdf?la=en&hash=F68243A899E21859AB1D31866CC54A0119E60291.

116. NMC. Ensuring public safety, enabling professionalism-New strategic direction 2018; Available from: https://www.nmc.org.uk/globalassets/sitedocuments/consultations/2018/ftp/ensuringpublicsafety-english.pdf.

117. GPhC. Managing concerns about pharmacy professionals: Our strategy for change 2020; Available from: https://www.pharmacyregulation.org/sites/default/files/document/gphc-strategic-plan-2020-25-year-three.pdf.

118. GDC. 2018 Business Plan 2017; Available from: https://www.gdc-uk.org/docs/default-source/business-plans/gdc-2018-business-plan.pdf?sfvrsn=50d8a45c_2.

119. GOC. Fit for the future-Strategic Plan 1 April 2020 to 31 March 2025 2020; Available from: https://optical.org/en/publications/fit-for-the-future-strategic-plan-1-april-2020-to-31-march-2025/.

120. GMC. Business plan 2018 2018; Available from: https://www.gmc-uk.org/-/media/documents/Business_plan_2018.pdf_73265002.pdf.

121. Masters G, S.M., Chase P. 2015 Business Plan and Budget. 2014; Available from: https://www.gdc-uk.org/docs/default-source/business-plans/2015-business-plan-and-budget.pdf?sfvrsn=277ecbab_2.

122. GDC. Costed Corporate Plan 2020 2020; Available from: https://www.gdc-uk.org/docs/default-source/corporate-strategy/general-dental-council-costed-corporate-plan-2023---2025-final.pdf?sfvrsn=59e034eb_3.

123. GPhC. Strategic plan 2016–19 2015; Available from: https://www.pharmacyregulation.org/news/gphc-publishes-its-strategic-plan-2016-19.

124. GMC. Business plan 2016 2016; Available from: https://www.gmc-uk.org/-/media/documents/2016-business-plan-may16_pdf-66274333.pdf.

125. GMC. Business plan 2019 2019; Available from: https://www.gmc-uk.org/-/media/documents/business-plan-2019_pdf-77123423.pdf.

126. GMC. The state of medical education and practice in the UK 2019. 2019; Available from: https://www.gmc-uk.org/-/media/documents/somep-2019---full-report_pdf-81131156.pdf.

127. GMC. Business plan 2020 2020; Available from: https://www.gmc-uk.org/-/media/documents/business-plan-2020_pdf-81560223.pdf.

128. PSNI. Corporate Strategy 2017-2022 2016; Available from: https://www.psni.org.uk/wp-content/uploads/2013/06/Corporate-Strategy-2017-22-Final-Version-.pdf.

129. Piovani D, B.S., Real World—Big Data Analytics in Healthcare. International Journal of Environmental Research and Public Health, 2022. 19(18).

130. Agrawal, R., Prabakaran, S., Big data in digital healthcare: lessons learnt and recommendations for general practice. Heredity 2020. 124: p. 525–534.

131. Dash, S., Shakyawar, S.K., Sharma, M. et al., Big data in healthcare: management, analysis and future prospects. Journal of Big Data, 2019. 6(54).

132. Maben, J., Hoinville, L., Querstret, D., Taylor, C., Zasada, M. & Abrams, R., Living life in limbo: experiences of healthcare professionals during the HCPC fitness to practice investigation process in the UK. BMC Health Services Research. 21.

133. Ely, J. Fitness to practise process 'damages nurses' careers', regardless of outcome. 2019; Available from: https://rcni.com/nursing-standard/newsroom/news/fitness-to-practise-process-damages-nurses-careers-regardless-of-outcome-146011.

134. Gillespie A, Reader T., The Healthcare Complaints Analysis Tool: development and reliability testing of a method for service monitoring and organisational learning. BMJ Quality & Safety, 2016. 25: p. 937-946.

135. Reader, T.G., A. Healthcare Complaints Analysis Tool (HCAT). 2022; Available from: https://healthcarecomplaintsanalysis.com/#:~:text=Healthcare%20Complaints%20Analysis%20Tool%20(HCAT,every%20year%20to%20healthcare%20institutions.

136. Bismark, M., Spittal, M., Gurrin, L. et al, Identification of doctors at risk of recurrent complaints: a national study of healthcare complaints in Australia. BMJ Quality & Safety, 2013. 22: p. 532-540.

137. Donaldson, L.J., Penesar, S. S., McAvoy, P. A. & Scarrott, D. M., Identification of poor performance in a national medical workforce over 11 years: an observational study. BMJ Quality & Safety, 2014. 23(2): p. 147-152.

138. Spittal, M.J., Bismark, M. M. and Studdert, D. M., The PRONE score: an algorithm for predicting doctor's risks of formal patient complaints using routinely collected administrative data. BMJ Quality & Safety, 2015. 24(6): p. 360-368.

139. Austin, E.E., Do. V., Nullwala, R., Pulido, D. F., Hibbert, P. D., Braithwaite, J. et al, Systematic review of the factors and the key indicators that identify doctors at risk of complaints, malpractice claims or impaired performance. BMJ Open 2021. 11(8).

140. Tingle, J. Patient safety: a multifaceted issue. British Journal of Nursing 2020 29:21, 1294-1295.

141. GDC. Fitness to Practise performance. 2022; Available from: https://www.gdc-uk.org/about-us/our-organisation/our-corporate-strategy-and-business-plans/our-annual-reports/annual-report-and-accounts-2021/fitness-to-practise-(ftp)-performance2021.

142. GDC. Register; Available from: https://www.gdc-uk.org/about-us/what-we-do/the-registers/registration-reports.

143. WHO. Global patient safety action plan 2021–2030: towards eliminating avoidable harm in health care. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.

144. WHO. Patient safety incident reporting and learning systems: technical report and guidance. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO.

145. GDC. Register; Available from: https://www.gdc-uk.org/about-us/what-we-do/the-registers/registration-reports