Task and Finish Group Assessment Project Recommendations for consultation

9 January 2023

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1. Executive summary

1.1 Background

The Private Healthcare Information Network (PHIN) is the Information Organisation ("IO") for the Competition and Market Authority's (CMA) Private Healthcare Market Investigation Order 2014 (as amended, "the Order").

PHIN is the only government-mandated organisation collecting and publishing private healthcare data for the UK. We are a not-for-profit body with no commercial interest beyond providing value-for-money services. Our primary aims are to serve patients, support our stakeholders and deliver the CMA Order.

Article 21 of the Order sets out the CMA's expectations for the publication of information for a range of performance measures relating to procedures at hospital and consultant level. There has been significant progress since PHIN's appointment. However, it was acknowledged in the "Roadmap and delivery plan 2022-2026 for the Private Healthcare Market Investigation Order 2014"[1] ("the Plan") that further work was needed to confirm what was required for delivery within the next four years, building on the learnings from the past five years and recognising developments in healthcare and healthcare data since the Order was created.

This was to be determined through an evidence-based assessment of what could meaningfully be published for each measure (the "Assessment Project"). The Assessment Project gathered evidence via consultation with subject-matter experts, through desk-based research (comprising a review of relevant literature and NHS practice), and by analysis of the data that PHIN currently holds.

1.2 Purpose of this document

This document presents the results of the Assessment Project and the consequent recommendations for complete publication of each Article 21 measure for procedures at national, hospital and consultant levels (Section 1.3). It also sets out the general issues and consequent recommended actions to address these that apply across all the measures (Summarised in Section **Error! Reference source not found.** and set out in detail in Section 3.2). Section 4 sets out the detailed rationale for the publication targets for each measure, and whether these differ from the aspirations set out in the Plan, and explains how the recommendations have been applied to each to establish the publication targets.

[1] https://phproduksportalstorage.blob.core.windows.net/website-files/CMA%20Order%20Roadmap%20and%20Delivery%20Plan%202022-2026.pdf, This was approved by the CMA and PHIN's membership, and published in July 2022.

This is very much the start of a conversation with our members and other stakeholders on the proposed way forward, and what these recommendations and guiding principles will mean in practice.

As a result, we are inviting contributions, via a focused engagement and consultation process to make sure there is sector-wide support for and understanding of the proposals. The aim is to have meaningful dialogue with our stakeholders to help refine our planning for delivery.

1.3 Recommendations for publication of the Article 21 measures

The recommended publication targets for each of the Article 21 measures at hospital, consultant and national level are set out in Tables 1-3. A summary of the issues and subsequent recommendations that have shaped these targets is in Table 4.

At a high-level, the Assessment Project recommendations were that:

- Although publication of the hospital-level metrics is essentially complete, PHIN should look to improve data presentation, coverage/participation and data quality, and adopt some minor, technical enhancements to specific measures.
- At consultant level, public publication of measures beyond volume, length of stay, patient feedback and links to registries is not recommended as the quality of the data limit valid, statistical comparison.
- PHIN should publish nationally aggregated data about procedures, including the ability to segment the data to show how outcomes may vary for different patient groups.
- Information on all the Article 21 measures of consultant and hospital practice should be published to the restricted-access part of the PHIN website (the portal), so that consultants and hospitals can use this information to monitor and improve performance. This will ultimately benefit patients and consumers by improving the availability of data and transparency across the sector. It will enable hospitals and consultants to see their performance relative to their peers (for example to support their own clinical governance and quality improvement initiatives) and is a necessary step towards any wider publication. Improvements to the portal will enable consultants and hospital providers to have new insights into their data and new exploratory analysis will inform the next stage of data publication. The aspiration remains to publish information for use by patients. However, as set out in detail later in this document, this will be contingent on factors such as the quality and statistical power of the inbound data.

1.3.1 Table 1: Hospital-level publication

Measure	Portal publication	Participation metric	Publication of performance measure in the public domain
a. Volume	By procedure for private activity (and NHS activity where available from external sources).	Activity data submission completeness and quality.	By procedure for private activity (and NHS activity where available from external sources).
b. Length of stay	By procedure for private activity (and NHS activity where available from external sources).	Activity data submission completeness and quality.	By procedure for private activity (and NHS activity where available from external sources).
c. Infection rates	Hospital-reported HCAI (separately, hospital and community acquired) and all SSI defined by UKHSA (including optionally reported).	Overall adverse event data submission completeness and quality (covers c, d, e, f, g and k).	Hospital-reported HCAI (separately, hospital and community acquired) and mandatory SSI as defined by UKHSA (hip and knee SSI) – no further breakdown by procedure.
d. Readmissions	Hospital-reported readmissions to the same site (and readmissions to other sites, e.g. to the NHS, if external data are available).	Overall adverse event data submission completeness and quality (covers c, d, e, f, g and k).	Hospital-reported readmissions to the same site – no breakdown by procedure.
e. Revisions	Not in scope		
f. Mortality	Hospital-reported, in-hospital deaths (expected vs unexpected) (and deaths from any cause within a defined period, if external data are available).	Overall adverse event data submission completeness and quality (covers c, d, e, f, g and k).	Hospital-reported, in-hospital deaths (expected and unexpected) – no breakdown by procedure.
g. Unplanned transfers	Hospital-reported unplanned transfer.	Overall adverse event data submission completeness and quality (covers c, d, e, f, g and k).	Hospital-reported unplanned transfers – no breakdown by procedure.
h. Patient feedback	Patient satisfaction and patient experience scores at site level.	Patient feedback data submission compared to overall activity volumes.	Patient satisfaction and patient experience scores at site level – no breakdown by procedure.
i. Registries and Audits	Link to external content for sites (where external data available).	Whether external content is available.	Link to external content for sites (where external data available).
j. Outcomes	Proportion of patients showing improvement, worsening or no change for all available PROMs.	PROMs data completeness and quality.	Proportion of patients showing improvement, worsening or no change for 6 high-volume PROMs.
k. Adverse events	Counts (and rates, where applicable) for hospital-reported serious injuries, never events and returns to theatre.	Overall adverse event data submission completeness and quality (covers c, d, e, f, g and k).	Counts (and rates, where applicable) for hospital-reported serious injuries, never events and returns to theatre – no breakdown by procedure.

1.3.2 Table 2: Consultant-level publication

Measure	Portal publication	Participation metric	Publication of performance measure in the public domain
a. Volume	By procedure for private activity (and NHS activity where available from external sources).	Hospitals that consultant works at report the metric	By procedure for private activity (and NHS activity where available from external sources).
b. Length of stay	By procedure for private activity.	Hospitals that consultant works at report the metric	By procedure for private activity.
c. Infection rates	Hospital-reported HCAI (separately, hospital and community acquired) and all SSI defined by UKHSA (including optionally reported).	Hospitals that consultant works at report the metric	Publication in later phase, contingent on data volume, quality, and statistical validity
d. Readmissions	Hospital-reported readmissions to the same site (and readmissions to other sites, e.g. to the NHS, if external data are available).	Hospitals that consultant works at report the metric	Publication in later phase, contingent on data volume, quality, and statistical validity
e. Revisions	Not in scope		
f. Mortality	Hospital-reported, in-hospital deaths (expected vs unexpected) (and deaths from any cause within a defined period, if external data are available).	Hospitals that consultant works at report the metric	Publication in later phase, contingent on data volume, quality, and statistical validity.
g. Unplanned transfers	Hospital-reported unplanned transfer.	Hospitals that consultant works at report the metric	Publication in later phase, contingent on data volume, quality, and statistical validity
h. Patient feedback	Patient satisfaction and patient experience scores at site level.	Hospitals that consultant works at report the metric	Patient satisfaction and patient experience scores at site level – no breakdown by procedure.
i. Registries and Audits	Link to external content for consultants (where external data available).	Either directly from the registry and/or via consultant self-declaration	Link to external content for consultants and self-declaration.
j. Outcomes	Proportion of patients showing improvement, worsening or no change for all available PROMs.	Hospitals that consultant works at report the metric	Publication in later phase, contingent on data volume, quality, and statistical validity
k. Adverse events	Counts (and rates, where applicable) for hospital-reported serious injuries, never events and returns to theatre.	Hospitals that consultant works at report the metric	Publication in later phase, contingent on data volume, quality, and statistical validity

1.3.3 Table 3: National-level publication

Measure	Publication of performance measure in the public domain (including filtering by patient variables) for each procedure
a. Volume	By procedure for private activity (and NHS activity where available from external sources)
b. Length of stay	By procedure for private activity (and NHS activity where available from external sources)
c. Infection rates	Hospital-reported HCAI (hospital and community acquired) and mandatory SSI as defined by UKHSA (hip and knee SSI)
d. Readmissions	Hospital-reported readmissions
e. Revisions	Not in scope
f. Mortality	Hospital-reported, in-hospital deaths (expected and unexpected)
g. Unplanned transfers	Hospital-reported unplanned transfers
h. Patient feedback	N/A – relates to hospitals and consultants
i. Registries and Audits	Link to external content relating to the procedure (where external data available).
j. Outcomes	Proportion of patients showing improvement, worsening or no change for 6 high-volume PROMs. Detail of PROMs question responses.
k. Adverse events	Counts (and rates, where applicable) for hospital-reported serious injuries, never events and returns to theatre.

1.3.4 Table 4: General cross-cutting issues and recommendations[2]

ISSUES	RECOMMENDATIONS
Issue 1: The scope of publication expected by the Order is very broad and presents significant challenges in terms of practicality of delivery. PHIN, on its own, cannot resolve all the issues identified by the Assessment Project due to the diverse, multivariate and interconnected nature of the Order's scope and requirements.	**Recommendation 1:** PHIN should continue to work with the CMA, the private healthcare sector, professional representative bodies and other interested parties (e.g. programmes in the NHS), taking a pragmatic approach to define and refine what information can be published to meaningfully publish information to address the Adverse Effect on Competition (AEC) identified in the Order, building on the other recommendations set out in this document.
Issue 2: The CMA Order does not enable PHIN to collect information about NHS-funded care from providers. However, presenting data on NHS-funded care and outcomes alongside that relating to privately funded care ("whole practice") is required to enable fair, valid and meaningful comparisons between hospitals and consultants.	**Recommendation 2:** Although information about NHS-funded care should continue to be provided where possible as at present, this current phase of development should focus on information related to privately-funded care.

[2] Note: The recommendations appear in a different order, and with slightly different wording, to the summary paper distributed in December 2022. These changes are based on feedback and are aimed at improving the clarity of the narrative and of specific findings. A mapping is provided below:

December Summary Document recommendation number	New recommendation number (s)
1	2
2	4 & 5
3	6
4	10
5	4 & 3
6	7
7	9
8	8
9	1

ISSUES	RECOMMENDATIONS
Gaining access to NHS data of sufficient quality is challenging and depends on factors outside PHIN's control.	
Issue 3: There are definitions in the Order (such as those relating to a consultant's registration body) and omissions (such as the exclusion of outpatient care) that limit PHIN's ability to publish fully comprehensive and meaningful information for the measures.	**Recommendation 3:** PHIN should work to clarify the definitions in the Order and should provide more contextual and descriptive material for patients and consumers, explaining when and how they can meaningfully use the information we publish to support their healthcare choices. PHIN should also explain when and why it may not be possible to publish meaningful information about particular measures.
Issue 4: Although publication for direct patient use remains an overriding aspiration, some measures are unlikely to be publishable in a way that allows meaningful comparisons for patients for a variety of reasons set out in more detail under Issues 5-7	**Recommendation 4:** PHIN should continue to publish meaningful information for patients for as many of the measures as possible, including more contextual and explanatory material for them. Where it is not yet possible to publish meaningful information for patients, PHIN should, as an interim step, publish information for consultants and hospital managers, who can correctly interpret and act on it to improve patient care. Such publication is an important mechanism to address the AEC by increasing transparency and the availability of data across the sector.
Issue 5: Not all measures in the Order were designed as quality indicators, and should not be used beyond their intended purpose, as this may lead to incorrect conclusions.	**Recommendation 5:** PHIN should build on its existing publication by focusing on the further measures that enable meaningful comparison between hospitals and consultants.

Issue 6: Even where measures are valid as comparators, there may be statistical limitations (resulting from rare events and/or small numbers of patients) that mean it can be difficult to confidently identify relevant clinical variation in hospital/consultant performance.	**Recommendation 6:** PHIN should initially publish information relating to all measures and procedures aggregated at a national level, with general breakdowns by broad patient characteristics. This will help to address the AEC by providing additional context for patients/consumers making healthcare choices.
Issue 7: Differences in the characteristics of the patients treated by different hospitals and consultants are likely to account for a large proportion of any variation in measured patient outcomes between them. Without adjusting for these differences in "casemix", publication of comparative information may be misleading. However, the ability to apply casemix adjustment to data depends on two critical factors: having a statistically robust and clinically validated model; and access to data of sufficient quality to adequately support the model (see Issue 8). Given the absence of robust casemix models suitable for the Article 21 measures, PHIN would need to develop them *de novo.* This would be resource-intensive and would be unlikely to be completed within the timescales of the Plan.	**Recommendation 7:** PHIN should not aspire to produce complex casemix models at present. However, where possible, PHIN should publish more information to show the differences between the patients seen by hospitals and consultants, and to segment the data published to show outcomes for those different patients.
Issue 8: PHIN's ability to publish information is dependent on us receiving all the required data, and on it being complete and accurate. There remain significant gaps in reporting to PHIN which need to be addressed.	**Recommendation 8:** PHIN should continue to work with hospitals/consultants to focus on improving the inbound quality of the data it receives as this is the foundation of everything we publish.

Issue 9: PHIN currently defines procedures narrowly using technical language, largely to serve clinical audiences. However, patients find the current, technical definitions unintelligible and of limited use for navigating the information we publish.	**Recommendation 9:** PHIN should review its procedure definitions, recognising the dual requirements of fine granularity for clinical interpretation and broader aggregation to further patient understanding and engagement.
Issue 10: Although PHIN is able to publish information relating to a significant majority of admitted care activity in the UK private healthcare market, there remains a significant number of providers who are yet to fully comply with their legal obligations under the Order in terms of data compliance.	**Recommendation 10:** There should be an increased focus on public publication of information on the compliance of hospitals and consultants and their obligations under the Order, both as a means to motivate them to comply with the Order, but also to provide insight for patients into their efforts to meet their legal obligations.

2. The Assessment Project

The Assessment Project enabled a detailed and methodical assessment of the aspirations set out for PHIN in the CMA Order. It considered how best to publish each of the CMA specified performance measures at hospital and consultant level, following the Publication Principles set out in the approved Strategic Plan and based on the principle that any information published in the public domain should be clinically and statistically valid, and meaningful to patients.

Publication principles:

1) **Patient focus and benefit**
   a) Patients should be consulted when developing the measures to ensure they are 'meaningful' and understandable, and there is a validated method available.
   b) Contextual information and guides should support the measures.
   c) Enable comparison where it is possible and 'reassurance' where comparison is not possible. Explore ways to gather and show NHS funded practice.
2) **Principles of the process and sequencing**
   a) Publish the simpler measures before addressing the more complex ones.
   b) Consider publishing an interim version of a more complex measure where this is possible and helpful to patients.
   c) Aim to publish measures that show meaningful information across all settings. e.g. the initial site and any follow-up site.
   d) Apply case-mix adjustment where relevant and possible.
   e) Publish measures at hospital level first, then consultant level.
3) **Principles for consultant-level publication**
   a) We will publish a consultant level measures metric where there is a clinically meaningful validated method available.
   b) Publish high-level patient information supported by more detail for clinicians.
   c) Focus on private patient data first then explore ways to gather and show NHS-funded practice.
4) **Approach to national / hospital publication**
   a) Focus on private patient data first.
   b) Publish information to show nationally aggregated information about individual procedures.
   c) Work with devolved nations to collect NHS-funded care data.

Evidence was gathered through a variety of channels:

- **Consultation with relevant subject-matter experts.** A range of external stakeholders was consulted during the period July 2022 – December 2022. This was conducted formally via a series of "Task and Finish Group" meetings including with member representatives, and through discussions with other external stakeholders from consultant representative bodies, provider health organisations and NHS national programmes.
- **Research to determine what is standard publication practice in the NHS for equivalent measures.** Desk-based research was conducted, to identify standard NHS publication for each of the Article 21 Measures in the Order, in particular to assess whether there were precedents for publication for each of the measures at national, hospital or consultant level in the NHS. The principal sources included the following:
    - NHS Digital
        - Mortality – all causes
        - Emergency readmissions
        - PROMs
        - The NHS Casemix Office
    - Public Health Scotland
        - Mortality (HSMR)
    - UKHSA (was PHE)
        - HCAI
        - SSI
    - Registries
        - National Joint Registry (NJR)
        - National Ophthalmology Database (NOD)
        - British Association of Urological Surgeons (BAUS)
        - British Association of Endocrine and Thyroid Surgeons (BAETS)
        - National Institute for Cardiovascular Outcomes Research (NICOR)
    - NHS England
        - Friends and family test
    - London School of Economics
        - PROMs (PHIN-commissioned research)
    - Care Quality Commission
        - Notifications

- **Research to identify any general, cross-cutting issues that may constrain or prevent our ability to publish meaningful information.** A narrative literature review was conducted to identify any broader issues that may generally impact data analysis and reporting, and to identify potential methods of mitigating these.
- **Examination of the data PHIN hold.** The data that PHIN receives was analysed to assess it quality and statistical power (largely driven by case volumes), to determine the extent to which they could be used to produce fair and meaningful comparative information for each of the measures at consultant and/or hospital level.

3. Assessment Project Findings

3.1 General

It was agreed by all those consulted that significant progress has already been made by PHIN and the sector to increase the availability of information on private healthcare. There was a shared aspiration to go further, in particular to publish information for direct patient/consumer use wherever possible. However, several issues were identified which have had an impact on this aspiration. Notably, for some measures, these represent significant limitations to reporting on the data and contradict the need for measures to be fair, meaningful, informative and not misleading.

For each of these issues the assessment process developed recommendations which wholly or substantively remediate them. These issues and recommendations are set out below.

3.2 Issues and recommendations

3.2.1 The scope of publication expected by the Order is very broad and presents significant challenges in terms of practicality of delivery. PHIN, on its own, cannot resolve all the issues identified by the assessment due to the diverse, multivariate and interconnected nature of the Order's scope and requirements.

It was noted that the breadth of reporting under Article 21 is extensive when compared to other organisations publishing similar healthcare related data. The Order requires publication of detailed information across a wide range of performance measures, by procedure, for any hospital or doctor[3], throughout the UK, who treated a privately admitted patient[4]. Although there are organisations that publish information similar to those required by Article 21, no single organisation publishes the same comprehensive range of information, at both hospital and consultant level.

For example:

- In the NHS, collection and publication of information has been historically distributed across several different agencies and websites and differs across the four home nations, e.g. in England PROMs are collected by NHS Digital and published by NHS England; infections are collected by the UK HSA and published on gov.uk; and activity volumes are collected and published by NHS Digital. This contrasts with PHIN's UK-wide remit.
- Existing publication of outcome measures e.g. in registries and audit programmes, focus on specific patient groups or interventions. However, the requirement of PHIN

[3] The Order defines "consultant" broadly to include any GMC-registered doctor who has performed a privately funded procedure.
[4] As the Order includes no minimum threshold in terms of number of patients, a single patient treated in an NHS Private Patient Unit (PPU) automatically brings that hospital into scope.

is to capture outcomes relating to all specialties and interventions that may be funded privately in the UK.

The specific NHS publication channels above are currently largely aimed at publishing information for technical users (doctors, researchers and health managers) rather than for patients, and have nonetheless taken significant investment of resource.

3.2.2 Although PHIN can build on these existing endeavours, producing comprehensive, comparative information across the breadth and depth of coverage implied by the Order is challenging and will require a system-wide approach if it is to be tractable. Recommendation 1: PHIN should continue to work with the CMA, the private healthcare sector, professional representative bodies and other interested parties, taking a pragmatic approach to define and refine what information can be published to meaningfully address the Order's Adverse Effect on Competition (AEC).

- There are many parties interested in improving data collection and reporting on healthcare performance in the UK, and PHIN intends to work closely alongside these partners to support these endeavours – notably (in England) GIRFT, NCIP, the ADAPt programme and the CQC – as a thought leader to build on our experience from the private sector. Not only will this support eventual whole-practice views of activity and performance, but it also goes hand-in-hand with patient safety initiatives, such as the response to the Paterson review, and overall system efficiency around data collection and reporting.

It is recommended that PHIN should focus on where it can provide most value, to improve the availability of information to address the AEC. It should continue to work closely with other organisations, such as the clinical registries, NHSD/E, UKHSA, NCIP and GIRFT, to avoid duplication of effort around data collection and submission, methods production, and to avoid presenting potentially conflicting information. PHIN should continue to work with the CMA, the private healthcare sector, professional representative bodies and other interested parties (e.g. programmes in the NHS), taking a pragmatic approach to define and refine what information can be published to meaningfully publish information to address the Adverse Effect on Competition (AEC) identified in the Order, building on the other recommendations set out in this document.

3.2.3 Issue 2: The CMA Order does not enable PHIN to collect information about NHS-funded care from providers. However, presenting data on NHS-funded care and outcomes alongside that relating to privately funded care ("whole practice") is required to enable fair, valid and meaningful comparisons between hospitals and consultants. Gaining access to NHS data of sufficient quality is challenging and depends on factors outside PHIN's control

Under the Order, PHIN can only collect information about privately funded care. However, the need for "whole practice" views was recognised in the CMA's Private Healthcare market Investigation Final Report [11.486] which stated that the published information should be:

> "fully comparable with that collected by the NHS to allow the information organization to report performance measures for the whole of consultants' practices, both NHS and private, since this is the relevant basis on which to judge performance".

Whole practice information is needed to show a consultant's overall experience, which is independent of how the operations they perform are funded. Publication of privately-funded experience only may underrepresent the experience of those who do NHS work, making them appear less experienced than consultants who perform only private work. This also applies to hospitals, many of which perform significant numbers of NHS-funded procedures in exactly the same setting as their privately-funded procedures, and this experience should be made visible to enable fair comparisons between them.

The power for PHIN to collect information on NHS-funded care was not included in the Order, presumably on the assumption that the NHS would itself provide information on NHS-funded care. However, gaining access to timely and accurate information about NHS practice at the necessary level of detail has proven to be a challenge for PHIN, for technical and information governance reasons outside PHIN's control, which therefore significantly limits our ability to publish comprehensive and meaningful "whole practice" information.

Several options for mitigating this were considered as part of the Assessment Project but none was identified that would solve the issue consistently and reliably. For example:

- Whether NHS data could be sourced from existing registries, reports or other NHS publications. This would have limited success as NHS sources of data vary by home nation, specialty, care setting and individual provider (particularly data sources that are voluntary). There was significant variation in what may be available for each measure/specialty. Additionally, the information governance rules currently in place may not allow the NHS to provide this information to PHIN, as it was not collected for the purpose of delivering the CMA Order.
- Whether PHIN could ask for self-declared NHS activity, but again there was no way to require this information to be provided to PHIN, meaning it would likely vary by consultant, provider and specialty, resulting in fragmented information and missing the aim of capturing true whole practice data.

3.2.4 *Recommendation 2: Although information about NHS-funded care should continue to be provided where possible as at present, this current phase of development should focus on information related to privately- funded care.*

- PHIN's responsibility is to collect data and to ensure it is suitable for publication. While it has been our ambition to publish performance information covering 'whole practice', there are significant issues with securing data on NHS-funded care and ensuring that it is accurate and supports publication.
- Improving the quality and availability of NHS-supplied data is beyond PHIN's control. We will continue to work with NHS Digital and other equivalent national bodies, but for the short and medium term we must focus on publishing information on privately-funded admitted care, as required by the Order.
- The lack of information about NHS-funded care will have an impact on the utility of the information we can publish, and this will affect some providers and consultants more than others. It was recommended that interim solutions (such as consultant self-declaration of NHS-funded activity) be explored, but it was noted that these do not present a permanent solution to a broader issue.

PHIN should nonetheless continue to present (and enhance) information on NHS activity where it is feasible to collect it, but the acquisition of comprehensive information on NHS practice at site and (in particular) at consultant level should be out of scope until we have completed publication on privately funded activity. PHIN should, however, provide signposts to relevant sources of information on NHS-funded care where available, and continue to aim to adopt methods in line with NHS standards.

3.2.5 *Issue 3: There are definitions in the Order (such as those relating to a consultant's registration body) and omissions (such as the exclusion of outpatient care) that limit PHIN's ability to publish fully comprehensive and meaningful information for the measures.*

Even when considering private healthcare only, it was observed that the Order contains specific constraints that limit PHIN's ability to produce meaningful and valid comparative data.

Patients may use the data PHIN publishes for variety of aims. Some may want clarity of fees, others may want insight into the potential time they may need to stay in hospital for a particular procedure, and others may simply want to know which clinician or hospital offers the intervention they need. Some patients may have more complex needs, for example seeking advice on their symptoms before having a formal diagnosis, or those with more complex diagnostic or treatment pathways. PHIN should be clear how far the data it collects and the information it can publish can be used by patients to meet their individual needs.

Notably, the Order excludes outpatient activity. This presents several challenges, not the least of which is that a significant proportion of private treatments are provided exclusively in an outpatient setting. There also appears to be variation in provider interpretation of what constitutes an outpatient setting, and some hospitals have a preference for delivering

certain procedures in an outpatient rather than an admitted one. Increasingly there appears to be a lack of a meaningful distinction (from a patient's perspective) between an outpatient procedure and an admitted day-case procedure. Currently PHIN will only see a partial picture of the national activity resulting in the distortion of comparisons between hospitals and consultants.

The national drive to deliver interventions in lower acuity settings, in combination with advances in surgical practice that will expand minimally invasive options, means that more procedures will be performed in an outpatient setting than at present. Consequently, many more procedures may not be included in PHIN's reporting under the Order. PHIN will work with the CMA and providers to refine the high-volume cases that fall into this grey area so that patients have a complete picture of the options available to them nationally.

The Order excludes interventions delivered by certain practitioner groups. The Order definition of "consultants" only covers practitioners who are registered with the General Medical Council. However, consultants with private admitting rights may be registered with other professional bodies (e.g. Oral surgeons may be registered with the General Dental Council). These consultants fall outside the scope of the Order and PHIN is unable to publish information about their individual practice, despite them providing significant volumes of privately funded procedures.

3.2.1 Recommendation 3: PHIN should work to clarify the definitions in the Order and should provide more contextual and descriptive material for patients and consumers, explaining when and how they can meaningfully use the information we publish to support their healthcare choices.

PHIN should work with the CMA, providers, consultants and patients to agree what should be covered by the Order, to ensure that there is consistent reporting to PHIN. The initial focus should be on agreeing which procedures, if any, should be excluded as they are genuinely considered to be "outpatient-only" and then to ensure that providers send information to PHIN on all the procedures that are in scope.

In parallel with this, PHIN should provide guidance for its users in terms of coverage of the data, and also where its quality limits certain forms of analysis and interpretation. For the former, and as per the Order, PHIN will be explicit that it does not collect or report data pertaining to outpatient activities or interventions and care provided by non-GMC registered clinicians. For the measures that are limited by the data PHIN is able to collect, there should be clear definitions and explanation of the conclusions that are appropriate to be drawn by the user, and also clear signposting when forms of interpretation are inappropriate.

3.2.2 *Issue 4: Although publication for direct patient use remains an overriding aspiration, some measures are unlikely to be publishable in a way that allows meaningful comparisons for patients for a variety of reasons set out in more detail under Issues 5-7.*

Article 21.4 of the Order sets the expectation that PHIN should publish information in "a format that enables comparison of the data and is likely to be comprehensible to patients" when they are considering private healthcare. PHIN's aims remain to publish all measures by procedure, at hospital and consultant level, in the public domain where it is clinically meaningful to do so and where it is informative to patients. There was widespread support for this shared aspiration, however, the Assessment Project identified several issues which may limit PHIN's ability to publish information into the public domain.

Valid interpretation of measures' information can depend both on sophisticated technical/clinical knowledge and an understanding of the context. Without these, there is a real risk that users of the information may be misled rather than informed, which would undermine PHIN's credibility as a trusted source of information. There is a particular risk around publishing inaccurate or incomplete information into the public domain, as this may not only harm patients by leading them to make ill-informed or inappropriate choices, but may also harm hospitals and consultants, whose practice may be unfairly misrepresented, causing them reputational and/or financial loss. For example:

> All procedures have a baseline level of risk associated with them, due to unavoidable, intrinsic factors relating to the operation. For example, for a given procedure, there is a chance of an adverse outcome, such as patient death, even under the best possible circumstances. If the baseline risk of death for a particular operation is 1%, on average, one patient in every 100 operations would not be expected to survive, and that patient deaths at this rate may not indicate anything negative about the care received[5]. If five surgeons each perform 20 identical operations of this type, with all things being equal, it is likely that one of the 100 patients will not survive. This means that one of the consultants will have a 5% death rate (1 of their 20 patients died) and the other four consultants will have a 0% death rate. Publishing these rates without qualification and caveats would be misleading, as it may have been entirely down to chance which particular consultant had the (expected) death. It would be unfair and misleading to suggest that patients should avoid this consultant because they are "less safe" than the others, or that the other surgeons are better.

It was therefore agreed that PHIN should only publish information that is likely to inform and be comprehensible for its intended audience.

PHIN should continue to in provide as much relevant background on its publications as is feasible, in particular to explain any caveats that may potentially limit how the data can be used to avoid misinterpretation. However, PHIN's experience has been that even when caveats are provided, some users may use data inappropriately. For example, users have

[5] Reasons for the death would still need to be investigated, however, to confirm that there were no avoidable causes leading to the death.

tried to use the raw numbers of adverse events that we publish to rank hospitals in terms of their performance, despite the fact we say the information should not be used this way, in line with NHS publication precedent, as it was not designed for this.

As discussed elsewhere in this document, there are some important limitations to the data and measures that PHIN collects. Firstly, some contextual information that is required for publication that is not available, increasing the risks of publication to an uncontrolled, public environment, for example:

- Information on whole practice (including NHS data on activity and outcomes) at both site and consultant level., This is needed to fairly represent clinical experience and to capture outcomes that span patient pathways across the NHS and private sectors. However, as discussed in Issue 2, reliable data on NHS practice is not consistently and easily available.
- Information on the different baseline risks associated with the different types of patients seen by different hospitals and consultants, known as “casemix adjustment”. Casemix adjustment is dependent on the existence of valid models that can be applied and the availability of the data to be used in the models. A lack of both of these present challenges for Order delivery, particularly given the expected breadth of coverage. (See Issue 7)

Secondly, there are some measure specific limitations that impact the appropriate use of the data:

- The measure itself not being intended for use a comparative metric (see Issue 5). Some of the measures in the Order are not recognised (in existing publication precedents in the NHS and/or the research literature) as clinically meaningful indicators of hospital or consultant performance. For example, Never Events are serious, largely preventable safety incidents that should not occur if the appropriate preventative measures have been implemented. Never Events reporting is designed to inform quality improvement at individual sites and to foster transparency, not for comparison of quality. Using such measures as comparative quality indicators has been shown to act as a “perverse incentive”, driving down the availability of information and transparency, as there is a fear that openness will lead to negative consequences.
- Statistical confidence levels making attempts at comparisons potentially misleading. It may not be possible to state for each performance measure whether a hospital or consultant is different (to a stated level of statistical confidence) from either their peers or from a recognised external benchmark. (See Issue 6).
- The lack of models and/or data to enable effective adjustment of data to account for differences between patients seen by hospitals and consultants (see Issue 7)

It was observed that the first two issues above are outside of PHIN’s control, as they relate to intrinsic properties of the measures and the real-world levels of activity in private healthcare, which may never reach appropriate thresholds to enable publication of valid comparisons. The third issue is only partially within PHIN’s control, as it is dependent on the availability of resources (to establish casemix models), on the provision of data from

providers, and on the availability of data on NHS activity (Issue 2) to ensure any comparators fairly consider “whole practice”.

Considering the above, it was concluded that the release of specific, measure-related information at hospital or consultant level into the public domain should be treated with caution, and in some instances was not advisable as it would be more likely to lead to consumers being misled than informed.

It was recommended that information should be published for use by consultants and providers, however. PHIN remains in the unique position where it can collect information across UK private healthcare sector, and that this information could be presented to audiences other than patients to address the AEC. The CMA acknowledged that even where public domain publication is not appropriate, there are other publication channels that PHIN can use that would further the aims of the Order, by increasing the availability of information in private healthcare to address the AEC. For example by:

- Making information available to the hospital providers and consultants who deliver care will enable them to see and learn from the performance of their peers, which will ultimately benefit patients. It will also promote transparency and competition within the sector, and as a secondary benefit, should enable them to improve clinical quality and minimise unwarranted variation (for example by enabling them to identify, investigate and address potentially anomalous practice).
- Making information available to GPs and other patient advisors (such as insurers) who may help a patient choose a hospital or consultant, which should help to improve patient choice as they should be better informed when they advise patients.

It was recognised that is it potentially “safer” to release information to more technical users than to the public as they have been trained in data interpretation and understand the contextual influences that may account for apparent variation in performance, and so should be less likely to draw incorrect conclusions from the information. However, PHIN should make it clear that the responsibility for the correct interpretation and use of the data rests with them. For example, it will be the responsibility of the providers/consultants to investigate whether variance is really due to a difference in clinical performance or due to other factors (such as data quality or clinical complexity) and to then take appropriate and fair action.

In the future, as some of the issues outlined in this document are addressed across the entire healthcare sector, PHIN’s approach will also evolve so that the availability of information for direct patient will further widen and improve.

3.2.3 *Recommendation 4: PHIN should continue to publish meaningful information for patients for as many of the measures as possible, including more contextual and explanatory material for them. Where it is not yet possible to publish meaningful information for patients, PHIN should, as an interim step, publish information for consultants and hospital managers, who can correctly interpret and act on it to improve patient care. Such publication is an important mechanism to address the AEC by increasing transparency and the availability of data across the sector.*

- Research and consultation with stakeholders confirmed that it is not always appropriate to use some Article 21 measures as direct indicators of hospital or consultant quality (something acknowledged by the CMA). This is due to the nature of certain measures (such as length of stay), which are not designed to be used as direct quality indicators, limitations in the statistical power of the data (due to cohort size) and the lack of suitably verified case mix models, all of which make it challenging to confidently identify clinically valid statistical outliers, particularly at consultant level.
- It is therefore recommended that a pragmatic approach is taken to public publication of the measures, given the potential risks of unfair or misleading information being published. The implications of this for the individual measures are outlined in detail in the main technical document.
- To mitigate this approach in terms of its effect on delivery of the Order, PHIN is planning to further enhance publication of all Article 21 measures information on the restricted-access PHIN portal, for the use of hospitals and consultants first. This will ultimately benefit patients and consumers, by improving the availability of data and transparency across the sector. It will enable hospitals and consultants to see their performance relative to their peers (for example to support their own clinical governance and quality improvement initiatives) and is a necessary step towards any wider publication. The aspiration remains to publish information for use by patients, however this will be contingent on factors such as the quality and statistical power of the inbound data.
- There should be more background material to explain how the information PHIN publishes can be used meaningfully to support its different users, and particularly to support patients and consumers in their conversations with, and choice of, healthcare provider and consultant. In addition, the strengths and weaknesses of the information that is published should be clearly communicated, to help ensure it is used appropriately.

PHIN's existing website estate has different publication channels and different information products aimed at the stakeholders. These are:

- The Public domain – information available to anyone, with no requirement for logon, comprising:
    - Publication of information into the public domain for direct patient use. PHIN's publication channel for patients and consumers is the consumer-facing section of the website, available to all without any need for a logon.

It provides performance information on hospitals, consultants and procedures, as well as other information to help inform patient/consumer choice.

  - Publication of information into the public domain for use by clinicians and other third parties. This area currently consists of series of publicly available datasheets, available to all without any need for a logon, that provide more detailed and technical performance information on hospitals, consultants and procedures. The datasheets also contain contextual information and caveats to help ensure only appropriate conclusions are drawn from the data. This information is supplemented with information about the processes by which the data is collected and processed6.

- The Portal domain – information available to a restricted audience and requires a user account and login to access
  - PHIN's secure publication route for providers and consultants. It requires authorised access and provides b more granular/patient level information against each of the measures, which is not suitable for publication in the public domain.

PHIN should aim to publish information across all of the measures into the Portal domain (subject to information governance constraints) as soon as possible. This would enable consultants to see all of the information it has received about their privately funded practice from all providers in the Portal relating to the measures (e.g. including all adverse events associated with episodes for which they are the Consultant in Charge). This should increase consultants' engagement with the data (e.g. by providing information they can use for their appraisals), improve transparency and facilitate improvements in data quality. PHIN should also consider enabling Responsible Officers, Medical Directors, etc. access to this information, to give them an insight into consultants' overall private practice.

It was noted that there is a natural progression of information publication from the portal domain to the public domain, with information published into the portal domain first. This has an intrinsic value in itself as set out above, but also enables hospitals and consultants to interact with the data to improve its quality and to input into the development of meaningful information prior to publication in the public domain. This approach will continue for the remainder of the Roadmap and Delivery Plan.

Each of the above publication channels will be enhanced, for example, to include more sophisticated breakdowns of the information, time series, more contextual information, and broader coverage, both within and across the measures to help meet user needs.

[6] This information is found on the publicly accessible pages on the PHIN "portal"

3.2.4 *Issue 5: Not all measures in the Order were designed as quality indicators, and should not be used beyond their intended purpose, as this may lead to incorrect conclusions.*

Several of the Article 21 measures are not appropriate to be used directly as comparative quality indicators, but rather are often published elsewhere to foster a culture of transparency and openness in healthcare and to drive discussions about the quality and safety of care and process improvement.

For example:

- The NHS publishes Never Events at hospital level, but makes it clear that these should not be used as a comparative measure of hospital performance. The rationale being that linkage to financial penalties could encourage a "blame culture" that could have perverse incentives towards openness and ultimately lead to lower levels of reporting (see https://www.england.nhs.uk/wp-content/uploads/2020/11/Revised-Never-Events-policy-and-framework-FINAL.pdf). The NHS does not publish Never Events at consultant level, as this could potentially attribute blame for system-wide errors over which the consultant has no control.
- The Summary Hospital Mortality Indicator (SHMI) shows mortality rates in NHS Trusts, but its guidance states that "The SHMI is not a measure of quality of care. A higher than expected SHMI should not immediately be interpreted as indicating poor performance and should instead be viewed as a 'smoke alarm' which requires further investigation. Similarly, an 'as expected' or 'lower than expected' SHMI should not immediately be interpreted as indicating satisfactory or good performance (see https://files.digital.nhs.uk/BB/F7852B/SHMI%20interpretation%20guidance.pdf).
- The NHS's guidance for using the **Friends and Family Test** to improve patient experience states that "The FFT is not designed to make comparisons across organisations" and "The numerical results data generated by the standard question are not comparable between organisations." (See https://www.england.nhs.uk/wp-content/uploads/2022/12/FFT-IP-Oct-22.xlsm)
- Although the CQC use mortality rates and feedback from people who use services to generate insights about providers of care, they are clear that they do not use these insights on their own to make judgements on quality. (see https://www.cqc.org.uk/what-we-do/how-we-use-information/how-we-use-information)

Additionally, not all measures are relevant at the procedure, consultant or hospital level. Some only apply at a system level, and so are largely independent of the particular procedure being performed. For example, for hospital-acquired infections, the risk may relate to the environment, processes of infection control and staff compliance, as opposed to the individual clinician or procedure being performed. It is considered unfair to imply blame by association to consultants for adverse outcomes if they were not responsible for the event, even when they are responsible for the patient's care overall. There are separate, robust, parallel processes to monitor consultant performance and to identify any issues which are beyond the scope of the Order. Many of these may be specialty specific. For example, consultants performing endoscopy report their individual data into the

National Endoscopy Database which assesses individual consultant performance against multiple measures including colonoscopy completion rates and adverse events. These data are reported at consultant level and include the identification of outliers or reporting to a minimum quality threshold. These outcomes are discussed with the local endoscopy lead and the process of this forms part of the assessment of quality of the department as well as that of the individual clinician.

3.2.1 Recommendation 5: PHIN should build on its existing publication to by focusing on the further measures that enable meaningful comparison between hospitals and consultants.

See the detailed recommendations for publication of each measure in Tables 1-3.

3.2.2 Issue 6: Even where measures are valid as comparators, there may be statistical limitations (resulting from rare events and/or small numbers of patients) that mean it can be difficult to confidently identify relevant clinical variation in hospital/consultant performance.

Care should be taken to ensure comparisons are valid, and false comparisons should be avoided. A standard, validated approach, adopted by the NHS, is to perform a statistical analysis on outcomes data to try to identify where there is a significant deviation ("outliers") from what is expected (see e.g. the National Joint Registry and the Children's' Heart Surgery Outcomes Register.

It is important to note where values fall within expected limits, they should not be used for comparisons between different hospitals and consultants, as the data show they are statistically indistinguishable (see e.g. Proudlove et al.[7]). Even where it can be confidently stated that values appear outside expected limits, this may not indicate that a hospital or consultant is clinically performing exceptionally well or badly, as there may be other factors outside their control that influence their outcomes (see Issue 7 where the impact of casemix variation is discussed).

The Children's' Heart Surgery Outcomes Register emphasise these points by stating that:

> "A hospital's survival rate should only be compared to its own predicted range. It is not valid to directly compare survival rates between hospitals."

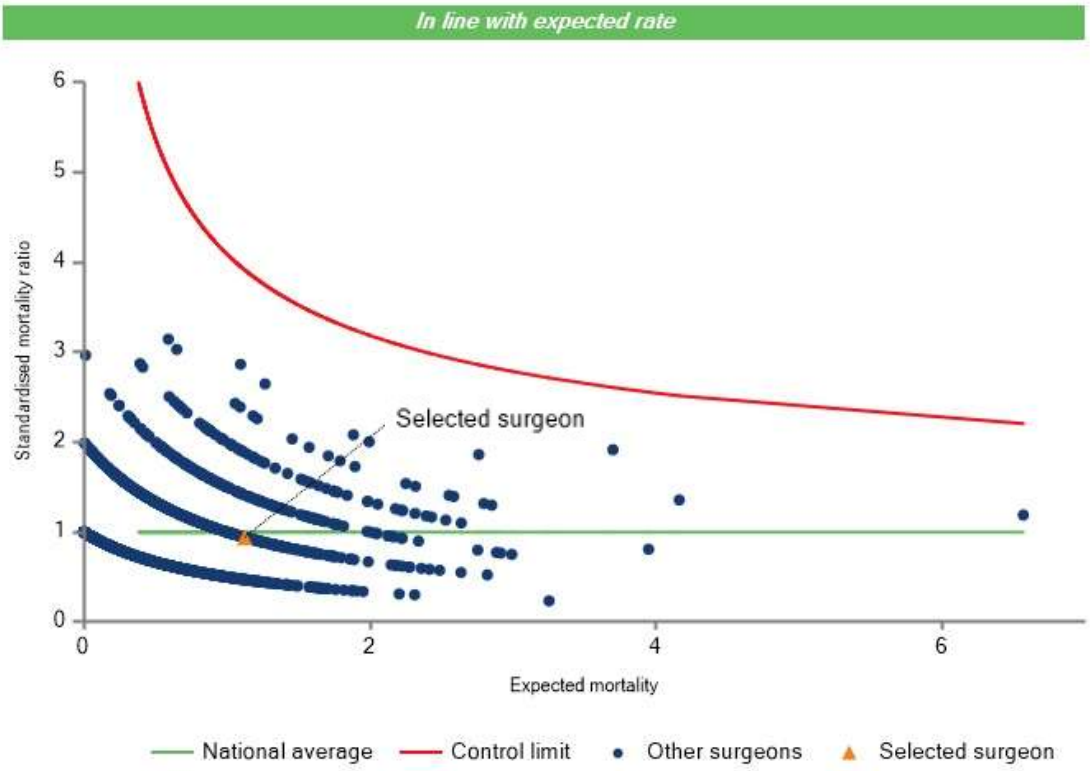
However, taking an approach that reports that performance is within or outside expected limits can reassure patients and consumers that the treatment offered by hospitals or consultants is in line with expected norms, or can alert them when it may not be.

In order to be able to identify whether performance is as expected or not, there needs to be an appropriately "powered" dataset, to ensure the statistical analysis is valid. Statistical

[7] Nathan C. Proudlove, Mhorag Goff, Kieran Walshe & Ruth Boaden (2019) The signal in the noise: Robust detection of performance "outliers" in health services, Journal of the Operational Research Society,70:7, 1102-1114, DOI: 10.1080/01605682.2018.1487816

power is a measure of how well a particular dataset can support the identification of a particular effect of a certain size is due to a given reason rather than down to pure chance (see https://www.statisticsdonewrong.com/power.html). The power of any dataset is dependent on a variety of factors, principally the size of the sample and the rarity of the event. This presents a problem for the production of comparative information as any individual hospital or consultant may not perform enough procedures for an analysis to confidently state whether they are performing "as expected" or not.

This can be illustrated using a "funnel plot" as Figure 1 below, from the National Joint Registry, which shows the 90-day mortality rates for consultants during the period August 2016-August 2021. The figure also takes into account casemix, which is discussed further under Issue 7.



In the figure, surgeons who appear below the red line have a mortality rate that is within expected statistical limits. The further to the right a surgeon appears, the more cases (and the more complex) cases they have performed. It will be noted that there are several consultants who have above average mortality rates but still have an "as expected" rate overall (those consultants between the green line and the red line). There are some consultants for whom it is impossible to say whether their rate is as expected or not, as their level of activity is too small (consultants to the left of the red line). In the example, it should be noted that although there is apparent variation between the consultants, they all appear within the "as expected" or "can't say" zones, and it is not possible to say whether any one

consultant is better than another[8]. If a consultant was outside the expected range (above the red line) they would be an "outlier" and would need further investigating to determine the cause (which may be down to their clinical practice or may be due to factors outside their control – see Issue 7).

Conversely, a lack of events does not necessarily indicate that any particular hospital or consultant is safer than others, particularly for rare events, as the chance of that event occurring at all is low, and avoidance may be due to good luck rather than good clinical judgement (see e.g. Walker et al.[9])

During the Assessment Project, the PHIN data was tested to determine whether it had the statistical power to be able to confidently identify outliers. The results demonstrated that given the current data, it was not possible to identify outliers at consultant level for adverse events nor for outcomes (PROMs) because the size of the dataset and the rarity of the events was such that there was not the statistical power to do so. It was possible to identify outliers in the non-casemix-adjusted data at site level for some measures, but it appeared that the variation could have been explained due to differences in casemix (patient demographics, complexity and underlying diagnosis) as discussed under Issue 7 as opposed to 'true' differences in performance. The reasons for the lack of power in the data were:

- The rarity of adverse events, making it harder to determine whether any particular event happened by chance or not.
- The relatively small number of procedures performed by each consultant (and, to a lesser extent, site).
- Data quality issues, in particular missing data, as PHIN only has a subset of the information necessary for analysis. For example, PROMs data is only available for less than 5% of some of the required PROMs procedures, meaning we are blind about the outcomes related to the remaining 95%. See Issue 8.
- Lack of data over a long enough time period to be able to spot whether any potential outlier is a one-off chance event or is true anomaly.
- Narrow definitions of current procedure groups, which limit the sample sizes (i.e. the numbers of procedures determined to be alike and available for valid comparison). See Issue 9.

As well as the issues above, as the PHIN data only contains privately-funded care, any comparisons may not be themselves valid. For example, even if a site is confidently identified as being the worst performer for a particular privately-funded procedure, they could still be a better performer than most or all of the providers overall when the NHS-funded procedures are taken into account. Thus, for properly valid comparisons to be made, information on NHS-funded care is also needed, which is outside the scope of the Order (see Issue 2).

[8] In more technical terms, the diagram shows that there is variation in the data, but the null hypothesis that all surgeons perform to a similar standards cannot be rejected as all of them appear below the control limit.
[9] https://doi.org/10.1016/s0140-6736(13)61491-9

It was, however, recognised that the PHIN data were powerful enough to be used to publish national-level national overviews of the measures by procedure in the public domain. Such overviews could help consumers considering procedures by giving them insight into the volumes and outcomes of the procedure they are considering, helping to inform their choices. It will help patients understand what they should expect from an operation and help inform their conversations with consultants, hospitals and insurers. Publication at this level will overcome many of the statistical and clinical barriers to publication encountered in finer-grained publication.

For example, while the publication of PROMs data for certain procedures at hospital and consultant level may not be possible for the reasons above, aggregated results at regional or national level could provide valuable context and insight into what a patient might reasonably expect to gain from the treatment. Aggregating at this level would also enable the publication of more detailed outcomes information about the procedure itself.

Similarly, average length of stay (or length of stay distributions) for a procedure at national level but segmented by age band or sex may again provide more personally relevant information to a particular patient.

The procedures in scope for this national view will need to be of sufficient volume to avoid small number rules. There will be some variation for each measure, but it is expected that minimum reporting would include total volume, LOS and demographic data to allow segmentation of the information, the latter to facilitate patients to select a sub-group that represents 'patients like them'.

3.2.1 Recommendation 6: PHIN should publish information relating to all measures and procedures aggregated at a national level, with general breakdowns by broad patient characteristics. This will help to address the AEC by providing additional context for patients/consumers making healthcare choices.

- In order to mitigate some of the challenges in publishing procedure-based information for patients and consumers at hospital and consultant level, it is recommended that PHIN publishes information on high volume procedures at national level.
- This will also include the ability to segment the information by different patient attributes such as age and sex to enable patients and consumers to gain insight into what to expect for each procedure.

PHIN should publish national-level views of the measures for each procedure, to give patients/consumer more information about the procedure they are considering. Where possible, these views should enable the patient/consumer the ability to tailor the view to show information relating to patients like them (age, sex, diagnosis, etc.). See also Recommendation 7.

Issue 7: Differences in the characteristics of the patients treated by different hospitals and consultants are likely to account for a large proportion of variation in measured patient outcomes. Without adjusting for these differences, publication of comparative information may be misleading. However, the ability to perform casemix adjustment is dependent on clinically validated model, which is absent for all the Article 21 measures. There was extensive discussion on the need for casemix adjustment, in order to account for patient risk factors and comorbidities that may influence outcomes independently of operator technique or operator setting. It was agreed that identifying, adapting or devising novel casemix models would not be feasible.

In healthcare data, casemix is a way of grouping together cohorts of patients who share certain defined characterises for the purposes of statistical analysis and to help understand the factors that may cause any variation seen in the data. These characteristics can be divided into “clinical” and “non-clinical”. The former describes the physical, mental, and emotional health of a patient, e.g., the presence of comorbidities, their BMI or their ASA score. The latter describes characteristics such as age, sex, ethnicity or living levels of deprivation.

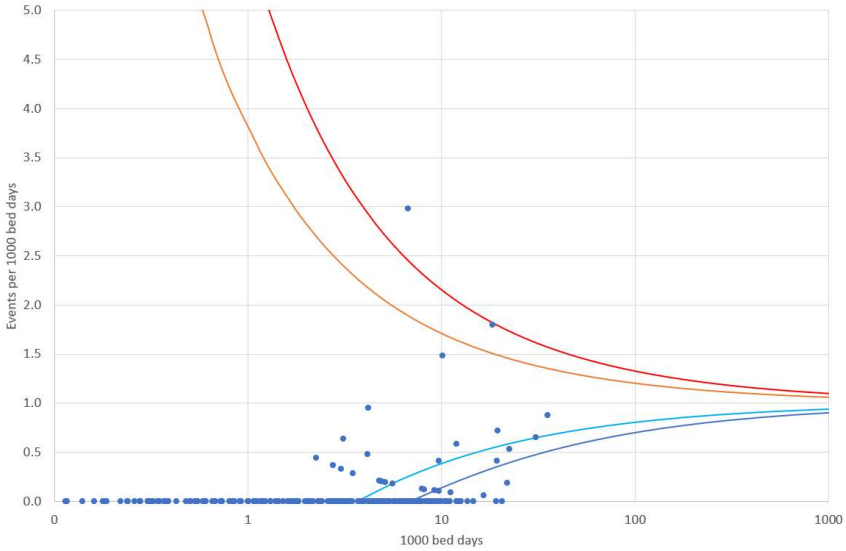
Casemix can be used in two ways: to segment information i.e. to break it down by a particular variable (such as by age bands); and to adjust data i.e. to remove or statistically mitigate the effect of a particular variable (such as deprivation) on the measure. The feasibility of applying each of these to the PHIN data was explored in several ways.

The PHIN data was analysed to assess the impact of casemix on several of the measures and to see whether it would be possible to adjust the data based on casemix variables.

Hospital Reported Adverse Events (HRAE) data was tested to see if any statistically significant differences could be discerned between hospital sites’ self-reported mortality and infection (HCAI) rates. The exercise used a Poisson test to determine p values for each site’s event rates per 1000 discharges (for mortality) and bed-days (for infections). Figure 2 depicts self-reported HCAIs and illustrates how the majority of hospitals fall within two standard deviations of expected performance, one hospital was between 2 and 3 standard deviations above, and one was 3 standard deviations above.

These are industry standard thresholds and are typically referred to, respectively, as “alert” and “alarm”. Similarly, those within the +/-2 standard deviation range could be said to be performing “as expected”. Thus, based on the data PHIN collects for this measure, we can discern no statistically significant difference in performance for the overwhelming majority of hospitals in the cohort.

Figure 2: Funnel plot of crude HCAI rates by hospital (excludes hospitals with no data or suppressed counts)

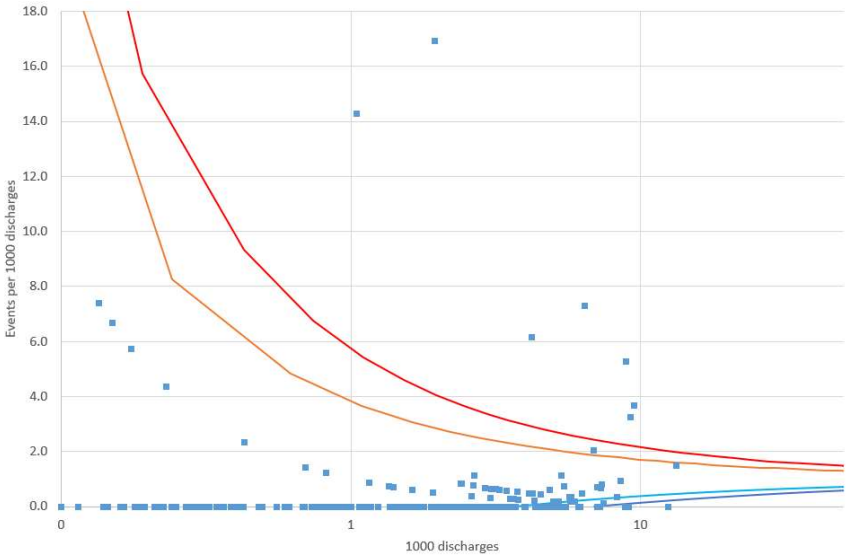


The two hospitals flagged as “alert” and “alarm” were followed-up to determine why they were outliers. It became apparent that these hospitals had used a different definition of ‘HCAI’ which included community-acquired infections. These are infections which are contracted in a non-hospital setting, and so are outside the hospital’s control. Public publication of these sites as outliers, without casemix adjustment, would be misleading, without the provision of further context, as there may be no underlying clinical issue at these hospitals nor any increased risk to the patients treated there.

However, publication of these results in PHIN’s portal would, it would be assumed, lead to further investigations by the hospitals concerned to determine if the statistical analysis was highlighting genuine underlying clinical issues. (Similarly for the sites below the blue lines, who are positive outliers with lower than expected rates, this may have been due to the fact that they either do not comprehensively test for community-acquired infection due to the nature of their practice.)

For self-reported mortality (Figure 3), seven hospitals fell outside of the upper control limits. However, all of these hospitals provide some form of either specialist or palliative care for cancer patients and most of the deaths were of cancer patients. Most measures of mortality exclude these types of cases from their models, and when these cases are excluded, these hospitals no-linger appear as outliers.

Figure 3: Funnel plot of crude mortality rates by hospital (excludes hospitals with no data or suppressed counts)



The performance of casemix adjustment is dependent on two factors:

- The availability of appropriate models for the casemix adjustment; and
- The availability of data to be able to support the model, as casemix models typically rely on multiple, co-dependent patient characteristics, data on all of which need to be present for the model to be applied (see Issue 8).

To identify appropriate casemix models for the Article 21 measures, the Assessment Project looked to existing NHS precedent and the research literature. It was found that there were no casemix models that were used across the breadth of the measures in the Order. Simple models (based on age and sex) were commonly used, but these would require testing on the PHIN data and external validation to make sure they are appropriate.

It was noted that where measure-specific casemix models exist, these are context-dependent and rely on variables that are specialty- or procedure-specific, which are not currently available to PHIN. Additionally, many models may have been developed and validated in datasets from other countries or an NHS population, but as yet are lacking in validation in a population of patients undergoing privately funded care. This may mean that the assumptions in the model do not apply to the population of patients that PHIN processes data on.

Where casemix models do not exist, PHIN would need to develop models anew. This is resource intensive, requires significant data science skills and would deviate from the core aim of PHIN. Additionally this may still not improve the ability to draw comparisons from the data, for the reasons set out below.

The aim of casemix adjustment is to be able to separate out the “signal from the noise” and in the context of PHIN to separate out indicators of clinical performance from the many other factors that may contribute to different patient outcomes not all of which are

represented in the data. This presents a significant methodological challenge as noted in the research literature.

Considering the ranking of consultants, Gutaker et al.[10] conclude:

> "Consultants vary in terms of their clinical outcomes and resource utilisation, and that in general the proportion of unexplained variation at consultant level exceeds that at hospital level. However, both consultant and hospital factors explain only a small fraction of the variation in risk-adjusted patient outcomes and process measures (length of stay, mortality, and readmissions) compared with unmeasured patient characteristics and random noise, … In addition, relatively small patient samples per consultant make it difficult to form reliable judgements about consultants' individual performance, and [we] suggest that producing and publishing such comparisons may be at best uninformative and at worst misleading."

This applies both to peer-to-peer comparisons (i.e. comparing one consultant or hospital to another) and to comparisons against benchmarks. It should be noted that the above conclusions were drawn from analysis of NHS datasets with a significantly larger sample size than found in the privately funded data available to PHIN. This means that PHIN's data are more likely to impacted by small sample size and so some results may not be an accurate depiction of performance.

Similarly, Proudlove et al.[11] conclude for trusts (NHS healthcare providers):

> "Our results show that rankings must be treated with great caution, especially in the middle-ranges of "league tables". [This presents] more evidence for Goldstein and Spiegelhalter (1996)'s view that rank-ordering units may lead to spurious, non-robust results, and for the recommendation from the Royal Statistical Society (Bird et al., 2005) that performance measures should always be reported with consideration of the uncertainty underlying their construction. The use of league tables by organisations to accrue status, or by governments to reward organisations (for example with greater autonomy; Talbot, 2010), should be approached with care and caveats."

Proudlove et al. do recognise that models can be developed to identify potential outliers, but these models take significant effort to develop, need clinical validation and should be used for learning and improvement in the first instance, rather than as a ranking tool.

The significant consequences of misrepresenting performance by either not applying casemix adjustment models or by misapplying models has also been reported (See, for example, Nashef et al.[12] and Sharma et al.[13]).

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[10] https://doi.org/10.1016/j.healthpol.2018.04.004
[11] Nathan C. Proudlove, Mhorag Goff, Kieran Walshe & Ruth Boaden (2019) The signal in the noise: Robust detection of performance "outliers" in health services, Journal of the Operational Research Society,70:7, 1102-1114, DOI: 10.1080/01605682.2018.1487816
[12] https://doi.org/10.1016/S0140-6736(17)31609-4
[13] Sharma V, Chowdhary S, Abdul F, *et al* A detailed analysis of patients included in the Summary Hospital-level Mortality Indicator (SHMI) for myocardial infarction (MI)—all is not what it seems? *BMJ Open Quality* 2020;**9:**e000836. doi: 10.1136/bmjoq-2019-000836

Given the above, and the issues described under Issues 6 and 8, NHS organisations (e.g. clinical registries, GIRFT, NCIP) have been cautious about publishing comparative outcomes data in the public domain at hospital and (particularly) consultant level, as such publication is more likely to mislead than inform, even though some of these organisations have been collecting richer data sets than PHIN over an extended period of time (see also Issues 6 and 8).

Although PHIN has an aspiration to perform detailed casemix adjustment, this is currently not possible because each measure would require its own model, and each model would require a significant additional amount of descriptive variables to be collected (see Issue 8).

Notwithstanding the difficulties surrounding casemix adjustment identified during the Assessment Project, the potential value of being able to show the differences between patients treated by different hospitals and consultants was recognised ("casemix segmentation"). This would, in particular, enable patients/consumers to be able to see where patients like them were treated and to give them a view of the potential surgical outcomes that is more tailored to their own particular circumstances.

3.2.1 Recommendation 7: PHIN should not aspire to produce complex casemix models at present. However, where possible, PHIN should publish more information to show the differences between the patients seen by hospitals and consultants, and to segment the data published to show outcomes for those different patients.

- At the current time, PHIN should not attempt to include complex (i.e. clinical) case mix adjustment in its reporting. Such adjustments are dependent on the existence of validated models and are usually specific to individual procedures. There are no models that cover the full breadth of PHIN's publication obligations. Waiting on the development of, and gaining endorsement for, complex adjustment models that apply to private sector data (even if possible) will require considerable time and effort, which would significantly delay the publication schedule for basic metrics for these procedures and therefore is not currently justified.
- As an interim step, users (including patients and consumers) should have access to information segmented by variables, such as patient age and sex, to show how differences in patient characteristics affect the measures, recognising that this is not a substitute for a rigorous statistical analysis of the data. This should form part of general presentational improvements to the data, in both the public and restricted access (portal) domains.

Until a time when there are appropriately validated risk adjustment models that only rely on data that is feasibly and reliably collected by private consultants and providers PHIN should focus on providing sufficient data segmentation to allow patients to select a sub-group that matches their demographic or condition, e.g. by age or gender. PHIN should enhance all of its publication channels to enable more sophisticated presentation of the data held. This will enable differences in the patients seen by different hospitals and consultants to be made visible and would enable patients to see where "patients like them" were treated.

3.2.2 Issue 8: PHIN's ability to publish information is dependent on us receiving all the required data, and on it being complete and accurate. There remain significant gaps in reporting to PHIN which need to be addressed.

A major theme identified in the Assessment Process was around the need for high-quality data. PHIN is dependent on private providers to supply data that is "detailed and complete" enough for the production of the measures.

It was noted that not all hospitals provide the data that they are required to provide to PHIN. The lack of rudimentary data about the operations performed at each hospital, the surgeon and the patient significantly limit PHIN's ability to be able to publish even basic information about procedures.

PHIN has established a process for collecting and validating data from providers, but there remains a shortfall between what is required and what is received, with some data fields not being populated sufficiently or at all.

Data quality issues are widespread problem across healthcare data, particularly where information is routinely collected for one purpose (requiring a certain level of completeness and accuracy) but then repurposed for another use (which may require higher levels of each).

For example, in the mandatory NHS PROMs programme, typically only 40% of the records kept to support direct clinical are coded sufficiently to enable casemix adjustment (see https://nhs-prod.global.ssl.fastly.net/binaries/content/assets/website-assets/data-and-information/data-tools-and-services/data-services/proms/proms_guide_v12.pdf and https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-reported-outcome-measures-proms/proms-methodologies).

The presence of accurate data about patient diagnosis has presented particular challenges for PHIN. PHIN routinely monitors and compares the quality of the diagnostic clinical information it receives from providers in the form of ICD10 codes[14]. As well as being needed for basic measures reporting, these data are key ingredients in most clinical casemix adjustment models, whereby a failure to fully record the comorbid state of a patient will result in erroneous and potentially misleading results.

Table 5 below[15] compares the average number of secondary diagnostic codes (that record patient comorbidities which are relevant to the main condition they are being treated for) present in the data for four common procedures between the private Admitted Patient Care (APC) data and the same for the NHS[16]. Given that both sets of data are based on elective treatments the table reveals a consistently greater number of secondary codes for each procedure. Taken at face value that would either indicate that the NHS treats more complex elective cases, or the private sector is failing to fully record the complexity of its patients.

Table 5: Comparison of depth of coding between private and NHS elective activity for four common procedures

	Mean (secondary) diagnosis coding depth	
	Private APC	NHS APC
Cataract surgery	1.4	3.6
Diagnostic upper GI endoscopy	1.4	3.2
Hip replacement (primary)	1.9	4.3
Knee replacement (primary)	2.0	4.5

As a secondary analysis, Table 6 compares the coding of the same four procedures between two private providers. Again, one could conclude that either Provider A treats more complex patients or Provider B is under recording comorbidities (a third conclusion could be that Provider B is "over coding" its activity).

[14] ICD10 is the 10th revision of the International Classification of Diseases, a medical classification list by the World Health Organization (WHO). It contains codes for diseases, signs and symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or diseases.
[15] The data in **Error! Reference source not found.** and **Error! Reference source not found.** are sourced from PHIN's portal (https://portal.phin.org.uk/Report/ClinicalCodingDepth
[16] This is elective NHS admissions present with the Hospital Episode Statistics (HES) data supplied by NHS Digital.

Table 6: Comparison of depth of coding between two private providers' elective activity for four common procedures

	Mean (secondary) diagnosis coding depth	
	Private Provider A	Private Provider B
Cataract surgery	2.0	1.0
Diagnostic upper GI endoscopy	2.7	0.9
Hip replacement (primary)	2.9	1.5
Knee replacement (primary)	3.4	1.5

Although some hospitals need to work on improving the quality of the data they send to PHIN, it was also noted that the current data specifications that PHIN may not capture information in a way that optimally supports measure production, as these specifications were based on older standards that cannot completely represent the complexities of care provision in the private sector. In particular, the specification currently does not support cases where the consultant performing an operation is different from the consultant that is responsible for the patient admission, meaning that it may appear that some consultants have performed operations that they have not, or that they have not performed operations that they have. Additionally, more granularity in some of the specifications would enable more sophisticated reporting, for example in the case of mortalities, where it is not currently possible for providers to distinguish between deaths that were expected (e.g. where a patient was admitted for end of life care) and those that were not.

3.2.1 Recommendation 8: PHIN should continue to work with hospitals/consultants to focus on improving the inbound quality of the data it receives as this is the foundation of everything we publish.

- Throughout the Assessment Project, a recurring theme was the need for high volumes of high-quality data as a key precursor for the future publication pathway e.g., for linked measures and consultant activity attribution. Improvements in the quality of the private activity data are also required if aspirations to do complex case mix are to be met. An example of this is the lower recording of comorbidity variables in PHIN's data compared with that of the NHS.
- As outlined in the Plan, key enablers have been developed to address this, notably the Data Quality Improvement and Presumed Publication projects. These will continue as originally proposed to improve the volume and accuracy of incoming data.

PHIN should work with the CMA and hospitals/consultants to ensure all the data that is required is submitted. PHIN should ensure that guidance that it produces for the submission of data is clear, to ensure data is submitted consistently. PHIN should also review its data specifications to ensure they are able to support measures publications optimally, without imposing undue burden on hospitals or consultants.

3.2.2 *Issue 9: PHIN narrowly defines procedures to serve clinical audiences using technical language. However, patients find the current, technical definitions unintelligible and of limited use for navigating the information we publish.*

PHIN receives data about procedures from hospitals in the form of internationally standard OPCS codes[17]. These technical codes are used clinically to represent which detailed procedure was performed, often in combinations of OPCS codes and/or ICD-10 codes. However, these codes were not intended for direct use for reporting of outcome measures such as those set out in the Order. As a result of this, several organisations who use OPCS/ICD codes for reporting have attempted to group the codes into meaningful 'bundles' so that data with those codes can be analysed. Such groupings are domain-specific and it does not necessarily follow that grouping for one purpose will suit use for another purpose.

For example, the NHS defines "hip replacement surgery" using a variety of different codes for different purposes:

- For PROMs, to identify eligible procedures for whom the outcomes questionnaires are relevant
- For surgical-site Infections reporting
- For payment purposes (via HRGs – Healthcare Resource Groups)

PHIN has attempted to devise its own single "Procedure Group" list, but this requires revision, not least of all because it is trying to satisfy at least two separate audiences with differing purposes, namely clinicians (who would like fine-grained data to be able to ensure subtle differences in clinical practice are represented) and patients (who usually want to find more general information about the procedure).

There was feedback that in general, the current way that PHIN defines procedures is unhelpful, often being too fine-grained and technical to be recognisable by patients. The current definitions appeared to have been driven clinically by the need to differentiate between interventions. The procedure groupings that PHIN currently uses have been designed to ensure that only very similar procedures are grouped together. This 'similarity judgement' is determined by the anatomical location of the procedure, its complexity, the surgical approach and revision or redo status. Grouping only very similar procedures together minimises the impact of variation in the process of surgery on outcomes, so that variation that is driven by surgeon or hospital performance theoretically are more easily identifiable.

Fine-grained procedure definitions have the compounding negative consequence of dividing activity into many small, specific categories, each of which only contains a few procedures, which triggers small number information governance disclosure rules, and (as discussed under Issue 6) limits statistical analysis, hampering PHIN's ability to publish information.

[17] See https://digital.nhs.uk/services/terminology-and-classifications/clinical-classifications

3.2.1 Recommendation 9: PHIN should review its procedure definitions, recognising the dual requirements of granularity for clinical interpretation and aggregation for patient understanding and engagement.

- The assessment process demonstrated that PHIN's current "one size fits all" approach to procedure grouping is not sufficiently flexible to effectively engage with its wide spectrum of users. For example, a patient considering knee replacement surgery may not understand the distinction between total knee replacement surgery, and hemi-knee, or patellofemoral, even though these are clinically distinct procedures and separately reported on by PHIN.
- Presenting patients with technical clinical terms is unhelpful and likely to confuse them. However, a clinician might want to differentiate between these different operations, as they may intrinsically have different risks and outcomes. PHIN should work with its range of stakeholders and experts in the clinical nomenclature field to develop a more flexible and tailored approach to procedure groups.

PHIN should review its procedure definitions, for example to include less granular groupings. This may also better serve the needs of patients as they are likely to be interested in fairly broad categories of information, for example, seeking surgeons or sites who perform knee surgery, rather looking to find where very a specific, clinically defined knee procedure has been done. Outcomes should only be reported at this more simplified level where it is meaningful to do so, and PHIN will continue to publish granular procedure groupings in the portal domain for use by expert users. Additionally, PHIN should work with other agencies and programmes (e.g. GIRFT, NCIP, etc.) to align procedure definitions wherever possible.

3.2.2 Issue 10: Although PHIN is able to publish information relating to a significant majority of admitted care activity in the UK private healthcare market, there remains a significant number of providers who are yet to fully comply with their legal obligations under the Order in terms of data compliance.

The Assessment Project found that there remain a number of sites that provide no, incomplete or poor-quality information to PHIN (see Issue 8). This places such organisations in breach of their obligations under the CMA Order, and limits PHIN's ability to publish information to address the AEC. It was argued that more transparent reporting about organisations' compliance with their reporting obligations would be useful for consumers in itself, and would also drive compliance across the sector.

Participation and data quality metrics give useful insight into how seriously consultants and hospitals take their obligations on reporting to PHIN. Evidence from studies of chronic conditions and elective surgery suggests that participation in healthcare registries has a positive impact on healthcare processes and outcomes. Reasons for this include the generation of performance feedback reports for physicians and hospitals which can help to identify processes of care and outcomes that are not in accordance with guidelines, or expected variation, which in turn can create a trigger for action by consultants or hospitals.

It is likely that the same principles can be applied to PHIN, and so the submission of data to PHIN is likely to be quality indicator in its own right.

3.2.1 Recommendation 10: There should be an increased focus on public publication of information on the compliance of hospitals and consultants their obligations under the Order, both as a means to motivate them to comply with the Order, but also to provide insight for patients into their efforts to meet their legal obligations.

- PHIN should publish information on the extent to which organisations and consultants are complying with their legal duties under the Order, i.e. the submission of high-quality data to PHIN. PHIN should strengthen its public reporting on provider data participation (including overall compliance, data maturity and data quality) and on consultant participation. This should provide further impetus and incentives to hospitals and consultants to engage appropriately with PHIN and comply with their legal duties under the Order.

As well as the publication of outcomes, PHIN should publish data in the quality and completeness of data provided by provided by providers and consultants.

4. Rationale for measure-specific recommendations

Tables 6 and 7 below explain recommendations have been applied to each measure to arrive at the publication targets set out in Tables 1-3, and whether/how this differs from the publication aspiration set out in the Plan. Where variations are being recommended, the explanation as to why this is necessary, based on the research and consultation set out in this document, is provided.

4.1 At hospital level

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Volume	While the measure published meets the requirements of the Order, PHIN will enhance the information presented to further aid patient comparisons (e.g., by introducing new views of the information, and filtering to enable patients to focus on patients like them), trends and benchmarking. We will work to improve participation and coverage, in particular considering how to capture NHS-funded activity more accurately to show "whole practice" information for hospitals.	No change from the Plan.	N/A – No change from the Plan
Length of stay	While the measure published meets the requirements of the Order, PHIN will enhance the information presented to further aid patient comparisons (e.g., by introducing new views of the information, and filtering to enable patients to focus on 'patients like me'), trends and benchmarking. We will work to improve participation and coverage, in particular considering how to capture NHS-funded activity more accurately to show "whole practice" information for consultants and hospitals.	As stated in the Plan but with the following exceptions: a) Any publication incorporating casemix will initially only be in the portal domain.	a) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication of simple casemix adjustment in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
	Consideration will also be given to how to further develop our length of stay metric to reflect the impact of casemix and complexity in a more sophisticated way than our current model.		consultant locally e.g. for quality improvement.
Infection rates (SSI)	Publication of SSI for individual procedures as defined by the UKSHA and set out in our current data specifications, including casemix adjustment if possible.	As stated in the Plan but with the following exceptions: a) Public domain publication will remain limited to SSI rates for hip and knee replacement. b) In the portal domain only, we will publish information on all available UKHSA defined SSI procedures. c) Any publication incorporating simple casemix will initially only be in the portal domain.	a) Because the extended range of procedures in the UKHSA list is not mandatory, levels of reporting vary widely across providers meaning that comparisons would be unfair and uninformative to the public. b) Encouraging hospitals to report these infections for more procedures offers the opportunity to eventually put these measures into the public domain. c) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement.

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Infection rates (HCAI)	Publication of HCAI at hospital level to be enhanced to differentiate between community- and hospital-acquired infections, and other casemix variables if possible.	As stated in the Plan but with the following exceptions: a) Publication of community- versus hospital-acquired infections will initially be in the portal only. b) Any publication incorporating casemix will initially only be in the portal domain.	a) The explicit recording of community- versus hospital-acquired routes of infection is insufficiently uniform across hospitals to enable publication for the public. In the portal, we will enable filtering and analysis of the infections data that may help identify the source of the infection, and if these prove successful, they may be carried over to the public domain in due course. b) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement.
Readmission rates	Publication of self-reported readmissions at site level and per procedure ("as expected" and rates) – enhanced to include casemix if possible.	As stated in the Plan but with the following exceptions: a) There will be no enhancements to the current public domain publication, but breakdowns by procedure will be	a) It is not possible to break down the hospital-level readmission rates by procedure nor to provide expected rates for publication in the public domain due to limitations in the

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
	This will be extended to include readmissions to other hospitals (including to the NHS).	available in the portal and provide experimental benchmarking information for the use of hospitals and consultants. b) Any publication incorporating casemix will initially only be in the portal domain. c) Readmissions to hospitals other than the one providing the index treatment will be published in the portal domain, where possible.	statistical power of the data we receive. d) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement. b) The addition of readmissions linked to NHS hospitals and other private sites relies on patient-to-patient record linkage. This relies on being able to accurately follow patients' journeys across multiple providers (both private and NHS, and internationally) and this is not currently possible due to limitations in the data, and prevailing information governance rules. We will investigate the feasibility of publication in the portal domain to assess whether publication in the public domain is possible at a later date beyond the current plan.

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Revision surgery rates	Further work will be completed by the task and finish groups and PHIN will work with the CMA to finalise a policy position on this in 2022.	It has been agreed that this is out of scope.	N/A
Mortality rates	Publication of mortalities per procedure ("as expected" and rates) – enhanced to differentiate between anticipated (e.g., palliative care) and unanticipated deaths, and other casemix variable if possible. Inclusion of "all-cause mortality" rates, via linkage to ONS mortality data.	As stated in the Plan but with the following exceptions: a) Breakdowns by procedure will be available in the portal and provide experimental benchmarking information for the use of hospitals and consultants. b) Any publication incorporating casemix will initially only be in the portal domain. c) All-cause mortality (i.e. reporting of all deaths regardless of cause within a defined time after discharge) will be initially published in the portal domain, where possible.	a) It is not possible to break down the hospital-level mortality rates by procedure. b) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement. c) Publication of all-cause mortality requires linking private care records to externally provided mortality data. It is not possible to produce information of a sufficient quality for public publication due to limitations in the data, prevailing information governance rules, and the need to include international patients.

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Unplanned transfers	Publication of unplanned transfer rates at overall hospital level to be enhanced to differentiate between those attributable to clinical vs. financial causes. Case-mix adjustment if relevant and possible. As unplanned transfers largely relate to processes at a hospital level rather than a procedure-level, this is may not be publicly reported at procedure level. However, we will additionally explore whether there are particular risks related to specific procedures.	As stated in the Plan but with the following exceptions: a) We will not differentiate between clinical and financial causes. b) Any publication incorporating casemix will initially only be in the portal domain.	a) Discussions indicated that capturing the different reasons for unplanned transfers would be too difficult in the absence of a standardised approach across the sector. Therefore it would not be viable to present this information in a more granular level than already published. b) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement.
Patient feedback	PHIN and its members will look to introduce comments and testimonials in a later phase of the Plan.	No change from plan.	N/A – No change from the Plan
Links to registries	PHIN remains committed to exploring further opportunities to co-operate with additional registries.	No change from plan.	N/A – No change from the Plan

Measure (hospital-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Patient-reported outcomes	PROMs reported for a minimum of six measures with overall completion rates from eligible hospitals and minimum of national-level view of pre- & post-treatment outcomes published for each measure.	No change from plan.	N/A – No change from the Plan
Adverse events	Publication of Never Event numbers at hospital level. These reflect system-wide safety issues and as such publication at procedure level is not appropriate. Publication of rates and casemix adjustment are not appropriate, according to NHS standards. Publication of Serious Injury numbers and rates. This will be enhanced to include more comprehensive information about different types of events. For returns to theatre, publication of rates at site and procedure level ("as expected" and rates), including casemix adjustment where possible	As stated in the Plan with the exception that: a) For Serious Injuries, there will be no further breakdown by type or severity of event b) For Returns to Theatre there will be no further breakdown of hospital-level data by individual procedures. c) Any publication incorporating casemix will initially only be in the portal domain.	a) The further breakdown of Serious Injuries remains an aspiration but is on hold while the implications of changes in the national reporting framework for these events are being finalised. b) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement.

4.2 At consultant level

Measure (consultant-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Volume	While the measure published meets the requirements of the Order, PHIN will enhance the information presented to further aid patient comparisons (e.g., by introducing new views of the information, and filtering to enable patients to focus on patients like them), trends and benchmarking. We will work to improve participation and coverage, in particular considering how to capture NHS-funded activity more accurately to show "whole practice" information for consultants.	No change from the Plan.	N/A – No change from the Plan
Length of stay	While the measure published meets the requirements of the Order, PHIN will enhance the information presented to further aid patient comparisons (e.g., by introducing new views of the information, and filtering to enable patients to focus on 'patients like me'), trends and benchmarking. We will work to improve participation and coverage, in particular considering how to capture NHS-funded activity more accurately to show "whole practice" information for consultants and hospitals.	As stated in the Plan but with the following exceptions: a) Any publication incorporating casemix will initially only be in the portal domain.	a) Public publication of information that incorporates clinical casemix complexity, is not currently possible due to the lack of available casemix models and to the under-reporting of casemix variables (e.g. comorbidities and ethnicity). However, publication in the portal domain will help drive up the quality and completeness of the required diagnostic information, and can be used by hospitals and consultant locally e.g. for quality improvement.

Measure (consultant-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
	Consideration will also be given to how to further develop our length of stay metric to reflect the impact of casemix and complexity in a more sophisticated way than our current model.		
Infection rates (SSI)	Publication of SSI for individual procedures as defined by the NHS and set out in our current data specifications, including casemix adjustment if possible.	SSI rates at consultant level will only be published in the portal domain.	Research, consultation and examination of the data we hold have shown that due to the rarity of surgical site infections, the lack of casemix adjustment models and limitations in the data we receive, it is not possible to identify statistically and clinically meaningful variations in practice between consultants that are suitable for public publication.
Infection rates (HCAI)	No direct publication of HCAI, as these relate to processes at a hospital site, but we will show information about the hospitals at which the specific consultant works.	No change from plan.	N/A – No change from the Plan
Readmission rates	Publication of Readmissions per procedure ("as expected" and rates) – enhanced to include casemix if possible. This will be extended to include readmissions to other hospitals (including to the NHS).	Readmission rates at consultant level will only be published in the portal domain.	Consultants should have access to readmissions attributed to their patients and have the opportunity to audit and review these cases. Research, consultation and examination of the data we hold have shown that due to the lack of casemix adjustment models and limitations in the data we receive, it is not possible to identify statistically and clinically meaningful variations in practice

Measure (consultant-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
			between consultants that are suitable for public publication.
Revision surgery rates	Further work will be completed by the task and finish groups and PHIN will work with the CMA to finalise a policy position on this in 2022.	It has been agreed that this is out of scope.	N/A
Mortality rates	Publication of mortalities per procedure ("as expected" and rates) – enhanced to differentiate between anticipated (e.g., palliative care) and unanticipated deaths, and other casemix variables if possible. Inclusion of "all-cause mortality" rates, via linkage to ONS mortality data.	Mortality rates at consultant level will only be published in the portal domain.	Consultants should have access to mortality information attributed to their patients and have the opportunity to audit and review these cases. Research, consultation and examination of the data we hold have shown that due to the lack of casemix adjustment models and limitations in the data we receive, it is not possible to identify statistically and clinically meaningful variations in practice between consultants that are suitable for public publication.
Unplanned transfers	As unplanned transfers relate to processes at a hospital level rather than at consultant level, this may not be publicly reported at procedure level. However, the relevance (or not) of reporting at consultant level is yet to be discussed in detail, so may be included.	Unplanned transfer rates at consultant level will only be published in the portal domain.	The research and consultation have confirmed that unplanned transfers are overwhelmingly a reflection of hospital-wide processes and so publication at consultant level is not appropriate. However, consultants should have access to information about unplanned transfers attributed to their patients and have the opportunity to audit and review these cases. Research, consultation and examination of the data we hold have

Measure (consultant-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
			shown that due to the lack of casemix adjustment models and limitations in the data we receive, it is not possible to identify statistically and clinically meaningful variations in practice between consultants that are suitable for public publication.
Patient feedback	PHIN and its members will look to introduce comments and testimonials in a later phase of the Plan.	No change from plan.	N/A – No change from the Plan
Links to registries	PHIN remains committed to exploring further opportunities to co-operate with additional registries.	No change from plan.	N/A – No change from the Plan
Patient-reported outcomes	Further work is needed to determine the feasibility of publication at consultant level.	Publication in the portal only	Consultants should have access to PROMs information attributed to their patients and have the opportunity to audit and review these cases. Research, consultation and examination of the data we hold have shown that due to the lack of casemix adjustment models and limitations in the data we receive, it is not possible to identify statistically and clinically meaningful variations in practice between consultants that are suitable for public publication.

Measure (consultant-level)	Aspiration stated in the Plan	Revised publication goal	Rationale
Adverse events	As Never Events and Serious Injuries reflect system-wide safety issues publication at consultant level is not appropriate. However, information will be presented about the sites at which a specific consultant works. For returns to theatre, publication of rates at procedure level ("as expected" and rates), including casemix adjustment where possible	Publication in the portal only	Consultants should have access to information about adverse events attributed to their patients and have the opportunity to audit and review these cases. Research, consultation and examination of the data we hold have shown that due to the lack of casemix adjustment models and limitations in the data we receive, it is not possible to identify statistically and clinically meaningful variations in practice between consultants that are suitable for public publication.