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Patient level costing in Australia – Uses, challenges, and future opportunities

Report prepared for the Independent Hospital Pricing Authority

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PATH
Performance Analysis for Transformation in Healthcare Group

UTS

This report has been prepared for the Independent Hospital Pricing Authority (IHPA) by the Performance Analysis for Transformation in Healthcare Group (PATH) at the UTS Business School. The study was funded by IHPA.

The report is based on information obtained through interviews from staff in Local Health Networks and jurisdictions across Australia. We do not provide any assurance as to the completeness or accuracy of the views of respondents.

Executive summary

Public hospital costing is used in a variety of ways by stakeholders around Australia, but trends concerning how such data is applied remain sparse. This report provides an analysis of the uses, challenges, and future opportunities of patient level costing data (PLCD) as identified from interviews with 100 stakeholders. These included clinicians, administrators, business partners, finance and costing practitioners, from local health networks (LHN) and all Australian state and territory jurisdictions.

We find that, in addition to the compliance function, PLCD is used by a majority of responding LHNs for benchmarking (72 per cent), funding (69 per cent), business cases (56 per cent) and external submissions and requests (53 per cent). However, most stakeholders report that although they see significant value in PLCD, it is not systematically used to inform managerial and clinical decision-making.

We also find several barriers that a majority of LHNs face in generating greater value from PLCD. These include data quality (75 per cent), data timeliness (72 per cent), IT and systems integration (66 per cent), inadequate resourcing (63 per cent), data granularity (63 per cent), data accessibility (63 per cent), lack of standardisation and transparency (56 per cent) and limited clinical engagement (56 per cent). However, there were few common patterns in the more technical concerns that stakeholders have in relation to PLCD, which were dependent on the specific operational context of each LHN and jurisdiction.

Based on these findings, we outline six thematic areas below where we consider IHPA to be best placed to increase the value of PLCD for local decision-makers and thereby contribute to delivering efficient and effective healthcare services to the Australian public. Within each thematic recommendation, we also provide recommendations for several practical initiatives for IHPA, in conjunction with jurisdictions, to consider implementing.


1
Improve consistency in the application of costing standards
2
Increase transparency of costing methods used to construct product costs
3
Increasing timeliness of the NHCDC
4
Increase the granularity and scope of data in the National Benchmarking Portal
5
Engage with health professional bodies to incorporate knowledge of costing into graduate certificate in hospital costing
6
Work with jurisdictions to develop and promote patient level costing

Contents

1. Introduction

The Australian public hospital system has long been considered a global leader in the application and use of patient level cost data (PLCD) for pricing and funding purposes. Indeed, the primary method of collecting PLCD, the National Hospital Cost Data Collection (NHCDC), serves as a key input into public hospital funding allocations through the determination of the national efficient price (NEP).

The value of PLCD is not limited to informing funding mechanisms. Cost data has the potential to contribute to more efficient and effective health service delivery by informing decision-making by local administrators and clinicians.

IHPA supports the concept of 'single provision, multiple use' established in the National Health Reform Agreement (NHRA). The intention is to increase the efficiency of data collection efforts where data is used for multiple purposes by different national bodies. In principle, the concept extends to the requirements of not just national bodies but also local stakeholders.

The purpose of this report is to examine the perceptions of PLCD by key stakeholders in local health networks (LHNs).[1] The findings of this report are intended to contribute to the further development of national costing standards and guidelines, the NHCDC.

During 2020, the Performance Analysis for Transformation in Healthcare Group at the University of Technology Sydney Business School conducted extensive fieldwork to canvas stakeholder opinions and perceptions of PLCD. We conducted the study in two stages.

In the first stage we sought to gain an understanding of the state and territory jurisdictional context in which LHNs operate. We interviewed senior executives and managers responsible for costing and funding, and reviewed publicly available documentation in each jurisdiction.

In the second stage, we conducted interviews with LHN stakeholders. In consultation with each jurisdiction, we identified a representative sample of LHNs that varied in size and geographic location (for example, metropolitan, regional, rural). We then constructed a list of potential participants in each LHN, including senior executives, finance managers, business partners, costing practitioners, and clinical department directors, who were subsequently contacted about participation in the project.

Interviews were conducted in a semi-structured manner. An interview guide was developed, with questions relating to the several themes, including the value of PLCD, the purposes and uses of PLCD, and the challenges faced with using PLCD at the local level. The interview guide helped to direct the conversation with participants, while allowing for new themes and insights to emerge (see Appendix A).

Across the two stages, we interviewed 100 participants representing 32 LHNs and all eight state and territory jurisdictions in Australia. Due to disruptions from COVID-19, most interviews were conducted via video conferencing. At least two PATH Group members were present at each interview, with one member tasked with taking notes. All interviews were recorded and transcribed.

[1] The term 'local health networks' (LHN) is broadly used to refer to separate legal entities established by state or territory jurisdictions that are tasked with managing a single or small group of public hospital and healthcare services, usually within a defined geographic area. Within the Australian healthcare context, such entities are also termed 'local health districts' (LHD), 'health services' (HS) and 'hospital and health services' (HHS).

In this report, we provide an overall picture of the applications and challenges associated with PLCD in Australian LHNs. Our analysis is supported by statements of individual stakeholders that represent more widely shared perspectives and concerns (see Appendix B).

This report is structured as follows. In Section 2 we consider the perceived value that stakeholders attribute to PLCD and how this varies between LHNs. In Section 3, we report the main applications of PLCD in LHNs. Section 4 describes the barriers that limit wider application of PLCD. We conclude in Section 5 with a set of recommendations and practical suggestions to increase the value derived from PLCD.

2. Perceptions of value in patient level costing data

Stakeholders share two general perceptions regarding the value of patient level costing data (PLCD). First, there is an almost unanimous agreement that PLCD is a valuable resource. It is also broadly recognised that the value of PLCD extends beyond the outputs of the National Hospital Cost Data Collection (NHCDC), speaking to its potential to shape healthcare decisions and value generation in an operational sense. Second, notwithstanding the above, most respondents feel that the potential value of PLCD is far from being maximised.

In mapping responses from stakeholders, we find that local hospital networks (LHN) tend to fall within three general categories regarding the level of value they receive from PLCD. These are summarised in Figure 1.

The first category of LHNs, which receive the greatest value from PLCD, are the '**engagers**'. In this group, PLCD is regularly used to support major decisions, is perceived to be of good quality, and supported by partly integrated databases and feeder systems. PLCD is routinely reported to executive and is widely available across the LHN through dashboard platforms. Costing staff spend part of their time on analysis and decision-support, and there is relatively high levels of engagement with executives and clinical department heads. The costing function is viewed as a business partner that provides information and analysis to support financial and operational performance.

In the second group, termed '**evolvers**', PLCD is used infrequently or in an ad-hoc manner across the LHN, but there is growing awareness of potential applications especially from senior executive. PLCD is generally available but may require formal access requests. There is an impetus to improve the utility of PLCD for decision-makers, increase reporting frequency, and invest in IT and improve feeder data quality. Costing staff are active in attempting to increase the level of engagement across the LHN, especially with clinicians, and are spending more time on analysis and interpretation of PLCD.

The final group we term the '**compliers'**. This group uses PLCD primarily or only for the purpose of regulatory compliance. Senior executive have little understanding or awareness of the potential of PLCD, and there is no impetus to invest in the typically heavily under-resourced costing function. Costing staff spend almost all their time resolving data quality issues and preparing PLCD in accordance with NHCDC requirements.

There is some association between these categorisations and the location and size of the LHN and constituent health services. Larger LHNs, typically located in metropolitan regions, are more likely to be closer to the 'engager' categorisation, than smaller, rural LHNs. However, there are notable exceptions to this trend.

We next describe the main purposes and uses of PLCD, before exploring factors that act as barriers to the wider application of PLCD.

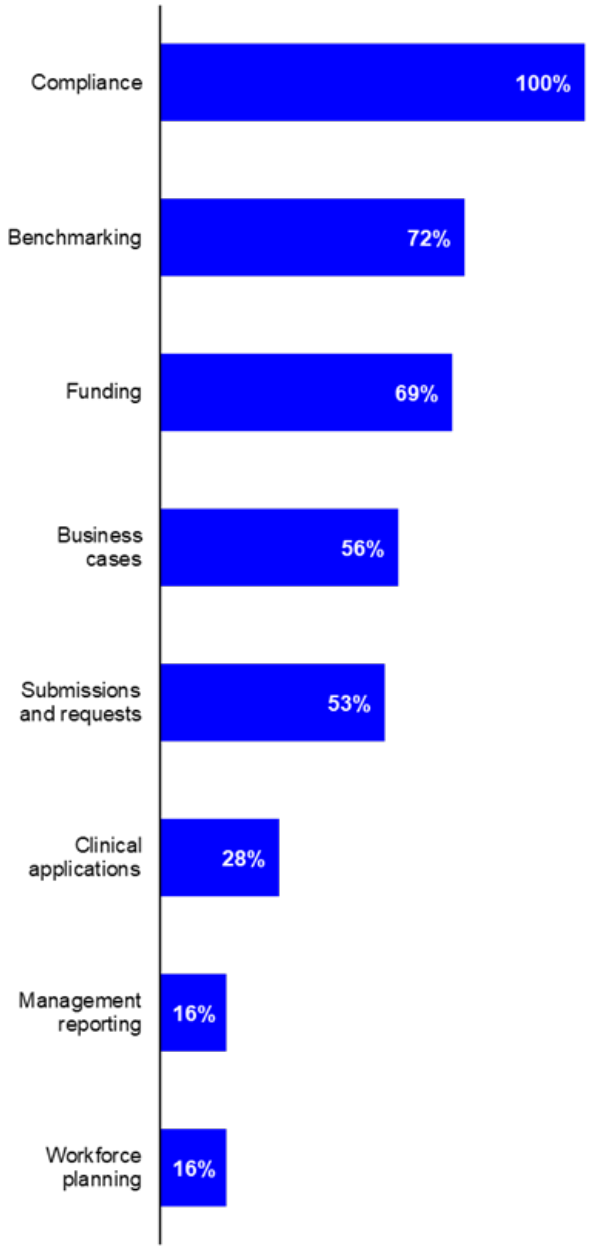
Figure 1: Classification of local hospital networks by value from patient level costing data

Value from PLCD	Compliers	Evolvers	Engagers
Applications of PLCD	Primarily conducted for compliance; limited and ad-hoc use for benchmarking and business cases; little or no use for executive, managerial, or clinical decision-making	Benchmarking, funding justification, business cases, limited or ad-hoc use in executive, managerial, and clinical decision-making	Benchmarking, funding justification, systematic use in business cases, increasing use by executive, business managers, and clinical department heads
Data quality	Variable data quality; significant use of service weights and cost modelling; RVUs and product fractions infrequently updated	Most data of good quality; moderate use of cost modelling, some use of service weights; some issues with validity of RVUs and product fractions	Good data quality; majority of data traced at a patient level; cost modelling based on causal drivers; little use of service weights; RVUs and product fractions frequently updated
Data accessibility	Restricted access to data	Available upon request, legacy reporting systems	Widely available, self-service dashboards
Frequency of reporting	Annually	Annually or semi-annually	Quarterly or more frequently
IT and systems integration	Little integration of databases; significant issues with consistency, availability, and completeness of feeder data	Limited but increasing integration of databases; improving availability, consistency, and completeness of feeder data	Some integration of databases; high availability of feeder data, with increasing automation and consistency
Executive engagement	Little or no understanding or awareness of PLCD value	Increasing understanding and awareness of PLCD value	General support and awareness of PLCD value; presence of an executive champion
Clinician engagement	Little or no dialogue with clinical department heads; no use of PLCD by clinical staff	Ad-hoc or infrequent dialogue with clinical department heads; little or no use of PLCD by clinical staff	Regular dialogue with clinical department heads; some but ad-hoc use of PLCD by clinical staff; presence of clinical champions
Costing function role	Meeting NHCDC requirements; significant majority of time spent on data cleansing and validation	Some emphasis on analysis and interpretation; majority of time spent on data cleansing and validation	Increasing emphasis on analysis and decision support; moderate amount of time spent on data cleansing and validation
Costing function resourcing	Very high resource constraints	Moderate to high resource constraints	Moderate resource constraints

3. Applications of patient level costing data in local hospital networks

Figure 2 shows the percentage of local hospital networks (LHN) observed to use patient level costing data (PLCD) for purposes reported by study participants. While compliance with National Hospital Cost Data Collection (NHCDC) requirements is universal, stakeholders reported a wide array of uses for PLCD beyond mandatory reporting.

Figure 2: Percentage of local hospital networks reporting purposes of using of patient level costing data



"If we can get the right costing data back out through the [Department of Health], back up through to IHPA, it can actually then help change the way that some procedures or more modern procedures are going to be funded." **Clinician**

"We can be running services to budget, and we think that's great. Then we get to the costing side of things and we realise we're actually losing money on this service. We go into [the jurisdiction portal] and compare it to say [a peer hospital] and we find out that they're doing an episode for a thousand dollars less than we are on average." **Cost Practitioner**

"[PLCD] gives us the ammunition to attack the government that says, 'we want to change your business by doing X, Y, and Z'. This is what the impact is, we need additional funding […] in the absence of [PLCD], it would make it almost impossible for us to give the government an understanding of that."
Senior Business Manager

"You can justify having a service that's expensive because you're getting so much patient benefits, but at least we can help to answer the fundamental question: Will this service be cost effective? And the more I'm seeing is that we are being asked more often to provide costing information for new kinds of proposals." **Senior Finance Manager**

"A lot of research requests. I had one yesterday, someone wanting to look at the cost of same day and overnight, percutaneous cardiac interventions, doing a study on what the outcomes were for individuals that were receiving treatment."
Cost Practitioner

"I've found that [patient costing] information was very useful to better understand what's happening right now, to then initiate or develop a new model of care and to then get funding for that model of care." **Clinician**

"[The costing data] transformed the discussion in those meetings. Now what each division are doing is including the top 10 loss or underperforming DRGs for their division in that executive meeting." **Cost Practitioner**

"On the back of [more relevant costing data], people are starting to look at longer term restructures of their own departments. [One area had] too many senior staff. Instead of trying to recruit those, they've come back and said that we want to get lower level staff so that we can get an extra staff member. And we have, with the overall benefit being a cost saving."
Cost Practitioner

3.1 Compliance

Stakeholders in all LHNs acknowledge compliance as a reason for preparing and reporting PLCD. However, there is significant variation in the perceived value from this exercise. In *engager* LHNs, there is an understanding that providing accurate PLCD in the NHCDC is important as the data can materially affect the level of funding received. This is seen to be particularly pertinent when new or improved medical procedures are being implemented that have significant cost implications.

In contrast, stakeholders from 'complier' LHNs, which are typically smaller and located in regional or rural areas, often see little benefit in ensuring compliance with the NHCDC requirements. Given their proportion of expenditure to other LHNs is relatively small, the impact of cost variations over time are not substantively reflected in changes to the national efficient price.

Furthermore, costs arising from treating indigeneous patients or patients in remote areas (for example, translation services, patient transport, locum physicians), result in substantial deviations from national averages, yet these costs are unavoidable. This has a disproportionate effect on smaller, rural LHNs that have high indigeneous and dispersed populations, as their costs will far exceed funding based on National Weighted Activity Units (NWAU). As PLCD from these LHNs does not translate to funding model adjustments that will provide adequate reimbursement, there is little incentive for these LHNs to invest in producing higher quality and more timely PLCD.

3.2 Benchmarking

After compliance, the most common use of PLCD is benchmarking, with 72 per cent of LHNs reporting this application. Nearly all 'engager' and 'evolver' LHNs periodically evaluate performance against Diagnosis Related Group (DRG) weights to identify variances between funding and costs. The primary purpose is to direct attention to those areas where there is need for efficiency improvements, or funding requests in the case where there are legitimate reasons for higher cost incurrence. Some 'complier' LHNs also conduct benchmarking analyses, although the practice tends to be ad-hoc rather than systematic, with the purpose to seek additional funding rather than for finding areas for operational improvement.

'Engager' and 'evolver' LHNs also use comparative cost data to benchmark themselves against peers. This is most evident in LHNs that have access to shared jurisdictional cost data through dashboards or portals. Stakeholders use this information to identify specialities and service lines that appear to be more expensive than comparable providers – for example, comparing the cost of maternity service provision between rural sites, rather than against jurisdictional or national averages that include metropolitan facilities. Doing so facilitates conversations around whether cost variations are justifiable or whether there is scope for efficiency improvements.

Jurisdiction datasets were perceived to be of limited use for benchmarking facilities with services unique to the jurisdiction. Specialist facilities, such as health services for women and children, can have markedly different cost structures to general service providers, and there may only be few or just one within a jurisdiction. These LHNs tend to see the greatest value in the NHCDC data.

Stakeholders frequently reported that the utility of PLCD for benchmarking is markedly enhanced when combined with detailed activity data. One cost practitioner described benchmarking the frequency and cost of antenatal visits between hospital sites. This was combined with patient data (for example, prenatal complications) to determine benchmarks to compare sites against. Further examples include a comparison of maternity care costs between sites with caesarean and vaginal birth rates and the length of stay of neonates with disorders and complications, to identify opportunities for increased efficiency, and the detailed analysis of variations in pathology costs between services of comparable peers.

A final example was provided by a cost practitioner examining services that were being delivered through both inpatient and hospital in the home models. The analysis considered cost and length of stay at the local level compared to jurisdictional averages. In contrast to expectations, it was found that the hospital in the home model was more expensive than an inpatient model for certain services. However, this did not include the opportunity cost of additional beds that are opened up when patients are treated in the home, as this can increase funding if additional patients are treated. These are all cogent examples of how benchmarking with PLCD enable stakeholders to better understand patterns of resource consumption in service delivery.

However, while a few stakeholders find data from the National Benchmarking Portal valuable, the vast majority make little or no use of this tool. The main reasons, which will be expanded upon later, are the timeliness and perceived quality of the data. When benchmarking against LHNs in other jurisdictions, data from alternate sources such as the Health Roundtable, are preferred.

3.3 Funding

Stakeholders mentioned that an increasingly important use of PLCD is to justify the need for additional funding from jurisdictional health departments. This need arises most acutely in rural and regional LHNs that are required to provide high cost services in low volumes. As noted in section 3.1, additional costs are often incurred when delivering health services to certain patient cohorts that have higher representations in these LHNs (for example, Indigenous patients, remote patients). Such costs are not sufficiently covered by the NWAU, even after loading adjustments, due to the high variability of costs between LHNs.

There was a broad agreement across all LHN types that funding through national and jurisdictional price weights is insufficient to cover the increasing demand and cost of many health services. This is particularly important for hospitals that provide specialist treatments (for example, specific neurodegenerative diseases), where costs are not adequately reflected in a national pricing model. PLCD is seen as essential information for justifying gaps between funding from national and state prices and the actual cost of service delivery. This data is used in negotiations with jurisdictions to obtain additional funding.

PLCD is also used for funding requests when new medical procedures or technologies are implemented. One such example is the production of CAR-T cells for use in the treatment of blood cancers. As it takes several years before the NWAU reflects the cost implications of new or improved treatments, special grants are required to bridge this funding gap.

3.4 Business cases

Stakeholders reported that the most significant increase in the use of PLCD is to support business cases, with 69 per cent of LHNs using PLCD in this manner. In ‘engager’ LHNs, detailed cost benefit analyses are generally conducted whenever a business case is prepared for planned additions, extensions, or discontinuations of services.

Stakeholders provided numerous examples of where PLCD has supported business case proposals. One of the most common reasons is when requesting additional staff. One costing practitioner recalled determining the cost of additional staff to increase capacity in the emergency department to match increased demand. A clinician reported that soon after moving to a new hospital, they observed that for certain admissions the relative stay index was low but patient costs were high. Further investigation found that RSI was low due tohigh mortality as patients were being admitted in a highly acute state. This led to the preparation of a cost-benefit analysis for employing staff in pre-deterioration roles.

PLCD is also used for the evaluation of outsourcing decisions. A few stakeholders mentioned that elective surgeries were being moved to private facilities as a result of COVID. PLCD was used in these cases to compare the expected cost of providing the surgery, which may be as simple as assessing an average DRG cost against the price charged by a private provider.

Another LHN described that the wait list for cardiac services had increased beyond acceptable levels, prompting discussions around the viability of outsourcing certain cardiac presentations. Exploration of candidate DRGs included analysis of line item expenses such as implant device costs and funding implications. These were weighed against patient outcomes for each service in order to determine whether better value would be achieved through contracting with private providers.

In several 'evolver' LHNs, costing staff reported that the more prominent use of PLCD in business cases is driven by a growing awareness by senior management of data availability as well as the recognition of an increasingly resource constrained environment. A few 'complier' LHNs also noted that PLCD is incorporated into some business cases, but this was more occasional than standard practice.

3.5 External submissions and requests

Apart from the NHCDC, 53 per cent of LHNs make several other external submissions. The most cited is for the Health Roundtable. Others include collections conducted by the Australian Institute of Health and Welfare, Australian Commission on Safety and Quality in Health Care and the Children's and Women Forum, as well as costing studies commissioned by the Independent Hospital Pricing Authority.

Supplying data for research purposes is also common. One example was a request by medical researchers for cost and patient outcomes data to compare same-day and overnight percutaneous coronary interventions.

3.6 Clinical applications

A generally shared perception by stakeholders is that achievement of improved efficiency in delivering high quality healthcare will require use of PLCD when developing models of care and patient pathways. Yet only 28 per cent of LHNs indicated that PLCD was being used for clinical decision-making.

Our discussions with clinical department heads that make use of PLCD suggest that it is most frequently employed when recommending changes to models of care. In one example, a clinician combined PLCD with patient outcome indicators, such as safety incidents, admission rates and length of stay, to change the treatment protocol for a particular service from solely inpatient to one where the patient is discharged earlier but returns periodically for follow-up assessments. In another instance, a costing practitioner reported doing a significant amount of a work with a task group to improve renal services. They constructed detailed cost profiles of different treatment methods by condition, such as transplantation, facility-based dialysis, and home-based dialysis.

The value of PLCD increases when combined with activity data and contextual information. Understanding why costs vary for service delivery between comparable peers, clinicians and other decision-makers requires activity data (for example, type and frequency of pathology procedures) as well as an understanding of differences in the models of care to determine where efficiencies can be achieved.

Despite this, there is limited use of PLCD by clinicians. Even in the 28 per cent of LHNs identifying clinical applications, these instances reflected just a handful of clinicians that understood the relevance of PLCD for improving service efficiency. Costing staff at several LHNs, mostly

evolvers, acknowledged that PLCD systems are not sufficiently developed to translate cost data into meaningful information that can be readily applied by clinicians. In 'complier' LHNs, there is essentially no clinical application of PLCD.

3.7 Management reporting

Regular reporting (quarterly or more frequently) of PLCD to senior managers is relatively uncommon, with just 16 per cent of LHNs indicating this application. Observed in only 'engager' LHNs, it typically entails the inclusion of information from jurisdictional dashboards or portals, or the HRT or National Benchmarking Portal, in routine reports. For example, one LHN includes the top 10 underperforming DRGs in a report that is prepared for monthly executive performance meetings.

The frequency of preparing and reporting local PLCD varies significantly both between and within jurisdictions. The frequency of preparing PLCD by LHNs is shown in Table 1.

Table 1: LHN frequency of preparing PLCD

Reporting frequency	% LHNs
Annual	44%
Semi-annual	13%
Quarterly	22%
Monthly	19%
Weekly	3%

Nearly half of LHNs in our study report annually, often because costing data has little application beyond compliance with the NHCDC. Several 'evolver' and 'engager' LHNs that report annually, semi-annually, or quarterly, expressed desire to increase reporting frequency. Of note is that although 44 per cent of LHNs generate costing data quarterly or more frequently, only a minority of these LHNs incorporate that data into reporting for senior executive.

A few 'engager' LHNs in our sample have developed dashboards incorporating PLCD and tailored for local decision-makers. In one LHN, the dashboard is perceived to have been instrumental in shaping dialogue between executives and the costing team. Discussions moved away from explaining cost data towards how the LHN might respond to emerging issues. Central to the development of the dashboard was the inclusion of end-users in the development process with the dashboard designed to address common questions users have in relation to cost information. An additional benefit of decentralising access to cost information in a way that is accessible and intuitive to use, is that it reduces the burden of addressing ad-hoc requests on the costing function.

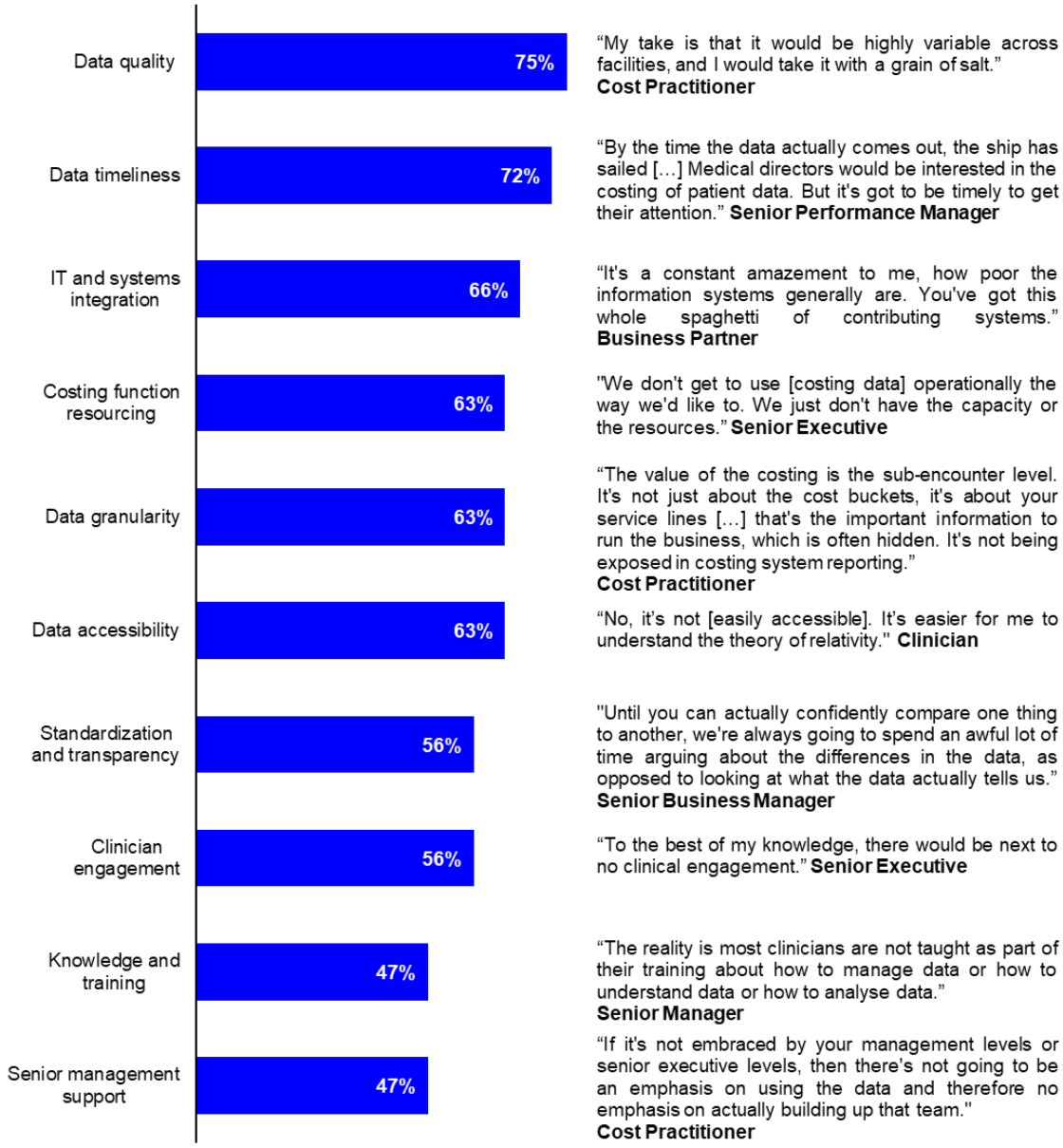
3.8 Workforce planning

A few 'engager' and 'evolver' LHNs reported using PLCD for workforce planning. This was not systematic, but rather part of restructuring programs, business case proposals, or staffing considerations when implementing changes to models of care. One LHN undergoing a restructure considered the relative number of senior and lower level staff that could be employed given budget constraints. The cost data was used to support a decision to reduce senior staff positions to enable more lower level staff to be recruited in key functions.

4. Barriers to patient level costing data application

Having discussed the applications for patient level costing data (PLCD) use (Section 3), we organise and report respondent feedback regarding the barriers preventing a more intensive application of PLCD for decision making below. These are summarised in Figure 3. We then discuss the implications of each barrier and point to initial steps that the Independent Hospital Pricing Authority can take to address these issues. We expand on these initial steps in our recommendations outlined in Section 5.

Figure 3: Percentage of local hospital networks reporting barriers to patient level costing data use



4.1 Data quality

The most significant barrier to making wider use of PLCD, cited by 75 per cent of LHNs, is data quality. This was the case for all 'complier' LHNs and most 'evolver' LHNs. Interestingly, though, opinions of data quality often vary within an LHN. A frequent comment by preparers of costing information is that even if the quality of PLCD has improved over time, it is difficult to change ingrained perceptions that the data inherently lacks validity. This results in decision-makers, especially clinicians, remaining sceptical of the utility of PLCD. LHNs invariably have greater 'buy-in' when decision-maker perceptions of data quality were positive.

Costing practitioners also noted that the quality of the data depends on the service category. The quality of admitted acute care data is regarded as being quite good, while non-admitted care is a significant concern for the majority of LHNs. There is also ambiguity around the most effective methods to capture and allocate costs associated with teaching, training, and research.

It is broadly recognised that there have been significant gains in the scope and quality of data collected through the NHCDC. However, data quality remains a major concern of stakeholders and is a primary contributor to the National Benchmarking Portal being an underutilised resource.

Several LHNs and jurisdictions noted that the focus of the NHCDC should be on quality rather than quantity. A stakeholder at one jurisdiction suggested that it would be better for them to invest resources in costing just a few hospitals rather than attempting to submit for a significantly larger number. They noted that because of significant resourcing constraints, much of their PLCD is based on cost modelling estimates rather than directly traced at the patient level.

The main factors that contribute to PLCD quality at the LHN level are clinician engagement, costing methodology, feeder systems, and resourcing. These issues are briefly discussed in relation to data quality below, and are expanded upon in subsequent sections.

4.1.1 Clinician engagement

Engaged clinicians are more likely to be concerned with the quality of clinical data input. For costing practitioners, it enables better understanding of the points of cost incurrence in service delivery and how expenses are recorded. Interactions between costing staff and clinicians are also essential for developing and updating relative value units (RVUs) (to allocate expenses to intermediate product costs) and product fractions (to allocate general ledger expenses to the cost ledger).

In some LHNs, business partners act as an intermediary between the costing function and clinical departments. Costing practitioners reported that they also face similar issues with getting engagement with business partners, who typically have the role of forming product fraction estimates.

4.1.2 Costing methodology

Australian Hospital Patient Costing Standards (AHPCS) encourage costing practitioners to avoid RVUs, product fractions, and service weights, where possible. However, we observe that these methods are widely used, albeit to differing degrees, across all jurisdictions.

In a handful of 'evolver' and 'engager' LHNs, significant attention is given to ensuring RVUs reflect actual service delivery. In an 'engager' LHN, the primary role of one of the cost practitioners is to ensure RVUs are continuously updated to reflect any changes in clinical practice.

In 'complier' and some 'evolver' LHNs, product fractions and RVUs are rarely updated and any revisions that do occur are often based on very limited first-hand information. There is also a reliance in many LHNs on service weights to allocate clinician and nursing costs as they lack

processes to capture local variations in the resource intensity of different services. Material effects arise especially in wards that have multiple specialities with significant variations in resource consumption.

The reliance on weights or outdated estimates is primarily due to the lack of clinician engagement and limited resources in the costing function. One clinical department head claimed that it had been two decades since they had seen any meaningful clinical input into costing processes.

4.1.3 Feeder systems

Nearly every costing practitioner in our study considered feeder systems to be a major contributor to PLCD quality. Some LHNs have feeder systems that are largely automated and provide data in relatively consistent formats. Most, however, have significant variation in the format and quality of feeder data.

One illustration of the effect of feeder systems on data quality was in relation to haemodialysis. A cost practitioner pointed out that there was a significant shortfall between the funding they receive and the actual cost of the service. The reason for the difference is that they trace pharmacy costs, which can account for the majority of the overall cost, to the patient level, whereas other LHNs do not have feeder data available and have to make allocations based on activity drivers such as bed days. As haemodialysis is a short stay procedure, but with relatively high pharmacy costs, the service is significantly undercosted.

Generally, feeder system availability and data quality are improving. However, there remain a significant number of LHNs where either availability or completeness is a persistent issue. Where data feeds are available, there can be significant amounts of incomplete activity data and missing patient identifiers. Areas reported where there are information deficits include non-admitted services, theatre, blood products, pharmacy, private pathology, and patient transport.

Feeder data issues were not limited to ‘compliers’ and ‘evolvers’. A cost practitioner in an ‘engager’ LHN recalled a recent decision by an allied health provider to discontinue providing activity data feeds, resulting in a substantial set of costs that are no longer traceable to the patient level.

4.1.4 Resourcing and support

The level of staffing numbers and information technology infrastructure influence the overall capability to provide accurate cost data. This issue is most acutely felt by ‘complier’ LHNs – the level of resourcing inhibits any concerted effort to improve the quality, timeliness, and usefulness of PLCD.

In two jurisdictions, which generally have better resourced LHNs, costing practitioners have formed working groups that meet regularly to discuss costing standards and rules. One of these jurisdictions has a costing guide that is routinely updated and refined based on these discussions.

Initial steps to address data quality: Independent Hospital Pricing Authority to work with jurisdictions to identify best practice application of RVUs and cost allocation methods, and incorporate into the AHPCS.

4.2 Data timeliness

Stakeholders at 72 per cent of LHNs reported significant frustration with the interval between cost submissions and receiving access to data from both their Departments of Health and especially IHPA.

There was acknowledgement that the quantity of data and complexity of the NHCDC places limitations on how quickly the data can be collected, validated, and made available for analysis. Nevertheless, timeliness directly impacts the perceived currency of the data. Costing practitioners repeatedly stressed the difficulties of getting 'buy in' from clinicians and managers with outdated information. Irrespective of data quality concerns, the National Benchmarking Portal (NBP) will not meaningfully inform decisions unless timeliness is significantly improved.

The difference between current timeframes and those desired by stakeholders is far from trivial. Stakeholders reported that it takes between one to two years for jurisdictional or national data to become available, whereas the desired timeframe is a delay of just one quarter.

Several stakeholders suggested that the frequency of NHCDC submissions could be increased to improve the timeliness of benchmarking data. The main impediments to increasing the frequency of reporting were information technology (especially feeder systems) and resourcing of the costing function. As outlined in Section 3, the preparation of local costing data varies significantly between LHNs. While 'engager' LHNs produce cost data quarterly or more frequently, 'complier' LHNs report that they struggle to prepare just the annual NHCDC submission to meeting mandatory reporting requirements. The compound effect of these factors is that for 'complier' LHNs, and some *evolver* LHNs, increasing frequency is currently unrealistic.

Initial steps to address data timeliness: In conjunction with jurisdictions, conduct a process mapping of NHCDC submission and reporting activities. Identify critical bottlenecks and determine opportunities for improvement.

4.3 IT and systems integration

Investments in data collection and reporting technology have substantial impact on the quality of PLCD. Automated technology eases the burden of manual data processing, freeing up the costing function to focus on more value generating activities. However, we find a stark disparity in the levels of investment made between jurisdictions and LHNs into information infrastructure infrastructure and platforms, with 66 per cent of LHNs in our sample citing limitations with technology as being a significant concern for the quality and utility of PLCD.

Feeder systems are a concern for the majority of cost practitioners. In several 'complier' and 'evolver' LHNs, many data feeds consisted of manually inputted spreadsheets that are inconsistent in format and lack any kind of validation checks. Reconciling to individual patients creates an immense amount of work, especially with significant variability in the quality and completeness of feeder data.

In 'engager' and some 'evolver' LHNs, there have been concerted efforts to increase the level of consistency and automation of feeder systems. However, integration between clinical systems (for example, emergency department systems disconnected from patient administration systems), as well as financial and costing systems are a persistent problem. This arises from the reliance on legacy systems as well as uncoordinated investments into new systems that cannot interface with one another.

The structure of the general ledger is another area of concern. Ideally the general ledger is purposefully designed to facilitate product costing. Although some LHNs report improvements in the alignment of the general ledger to cost centres, the majority of costing practitioners perceive the general ledger structure to be an impediment to accurate product costing.

There were also fundamental problems with systems used to capture clinical activity. Several costing practitioners noted that they often lack the capability for basic validation checks, for instance, recording an admittance to hospital before a patient was born, or the time of separation being before admittance.

Some sites have seen enhancements in technology for capturing activity data. Several health services have implemented H-Trak that monitors the purchases and utilisation of medical and surgical products. One LHN reported that some allied health services are using Activity BarCoding, which creates more accurate records of staff time spent on individual patient treatment. Stakeholders are generally aware of such systems, and their potential benefits. The primary reason why there is not wider implementation is resource constraints.

Existing interfaces for accessing local, jurisdictional, and national costing databases were generally considered to hamper accessibility and usability of the data for decision-makers. However, several 'evolver' and 'engager' LHNs and jurisdictions have made significant progress in, or are in the process of, developing or upgrading dashboards and portals, with simpler and more intuitive interfaces. In a few 'engager' LHNs, dashboards have been co-designed with end-users to ensure data is presented in a way that is meaningful for them.

A few stakeholders argued that the use of data analytic tools and artificial intelligence should receive greater attention. For instance, there are programs that can predict the likely treatments that chronic disease patients will require in the future. This allows the clinician to weigh the costs and patient benefits of preventative interventions.

Initial steps to address IT and systems integration: Conduct a review of data feeder systems being used across jurisdictions and LHNs. Identify and document best-in-class systems for major data streams. Documentation to provide guidance for jurisdictions and LHNs when undergoing system improvements and in contract negotiations with service providers.

Resourcing of the costing function

Costing practitioners in every LHN commented that if the costing function were better resourced then far greater value could be generated from PLCD. More concerning is that 63 per cent considered that the costing function was significantly under resourced. In a few LHNs, the costing function consisted of just one person employed part-time.

Some of the jurisdictions where costing is conducted centrally lamented the limited resources dedicated to the costing function – just complying with the NHCDC is a significant challenge. These jurisdictions see value also in other IHPA initiatives, such as costing studies, but their ability to adequately participate is hampered by available resources.

In one LHN, there has been a concerted effort to develop relationships with clinical teams and generate interest in PLCD. However, increasing demand for costing information from clinicians, stretched available resources past the point where they were able to respond to all requests.

The issue of resourcing goes beyond just financial limitations. A significant concern expressed by many LHNs, especially but not exclusively those in rural and regional areas, is the availability of qualified costing personnel. Several costing practitioners we talked to are close to retirement. A legitimate worry is that without 'new blood' being recruited in the near future, the substantial body of knowledge and know-how that they have accumulated over decades will be lost.

There is also broad recognition that to enable the shift from a focus on compliance to value-adding activities requires the costing function to have a broad skillset, including analytical skills, knowledge of databases and coding, financial and accounting literacy, and an understanding of clinical processes. Few LHNs had costing functions that came close to this.

Initial steps to address costing function resourcing: Develop case studies from *engager* LHNs on the value provided by better resourced costing functions. Provide guidance on minimum FTE staffing of the costing function relative to LHN size and complexity.

4.5 Data granularity

The level of data granularity was cited as a significant barrier to making greater use of PLCD by 63 per centof LHNs. The main issue raised is that the granularity of data required for developing national funding models is substantively different to that required to inform LHN and facility level decision-making. Stakeholders regard the data reported back to jurisdictions from the NHCDC as lacking in scope and detail.

Numerous examples were provided. One costing practitioner noted that length of stay is reported based on whole days, which is unhelpful when considering efficiency of same day procedures. Several commented that while aggregate metrics such as average costs per Diagnosis Related Groups are informative, for the data to have clinical relevance it needs to be analysed at the service line level. This would also be informative for understanding variation in what different LHNs are including or excluding in cost buckets, whether variations are due to direct costs or overheads, the extent that cost variation is controllable, and the level of overheads attributable to a facility versus those that arise at the LHN level.

A few stakeholders argued that the NHCDC buckets need revision in order to make better use of the data. Comparisons were made with the cost framework used by the Health Roundtable, which are seen to be more intuitive than those used in the NHCDC. The NHCDC cost buckets are perceived to serve the purpose of informing a funding model, rather than being developed with the aim of assisting LHN management.

A second matter concerned the lack of activity data provided alongside PLCD. Without information on the clinical activities associated with Diagnosis Related Groups costs, combined with the lack of transparency around how costs are constructed, it is difficult to determine the reasons for observed cost variations between health services.

One stakeholder explained how their local reporting system allows decision-makers to identify variations in the models of care underlying patient level costs. High granularity is required for data to be clinically relevant, but it is not available in the NBP.

Initial steps to address data granularity: Identify and prioritise activity data to be reported in the NBP to increase understanding of the clinical context in which costs have been incurred.

4.6 Data accessibility

The accessibility of PLCD to decision-makers outside of the costing function varies significantly, most noticeably between LHNs in different jurisdictions. Stakeholders in 63 per cent of LHNs highlighted issues with accessing relevant PLCD, and in some ‘complier’ LHNs there was no access to PLCD whatsoever.

In several ‘engager’ LHNs, PLCD is widely accessible through local dashboards or portals. Decentralising data access is considered the first step in getting decision-makers engaged with PLCD. Importantly, the data needs to be provided through an intuitive interface, presented in a format and language that is understandable to the end-user, and provided with sufficient context to give the data meaning. It was reported by some stakeholders, mostly clinicians, that the complexity of user interfaces rendered PLCD essentially inaccessible.

In some ‘complier’ LHNs, outside of periodic reporting, PLCD could only be obtained through formal requests with the costing function. However, in most jurisidctions we found at least one stakeholder that did not have access to the NBP, even after requesting access. In one jurisdiction access was deliberately restricted, the primary concern being that a lack of understanding by end-users can lead to incorrect conclusions being drawn from the data.

Initial steps to address data accessibility: IHPA to work with jurisdictions to reinforce the importance of widening access to national and local PLCD. IHPAs decision to make the NBP public may reduce resistance in jurisdictions to providing greater access to local stakeholders.

4.7 Standardisation and transparency

While benchmarking is the most common use of PLCD after from compliance, the ability to make meaningful comparisons between health services is impeded by uncertainty around the costing methodology applied by other LHNs, both within but especially between jurisdictions. This concern was cited by 56 per cent of LHNs.

Costing practitioners agree that there have been significant improvements to the most recent version of the AHPCS (Version 4.0). However, those that are new to health service costing or do not have an accounting background tend to view the AHPCS as being too esoteric and lacking practical guidance. A concern more widely shared is the inconsistency in how standards are applied. Several costing practitioners attribute this to the lack of specificity in the AHPCS in how costs should be treated.

Stakeholders cited numerous instances where differences in costing methods have material differences on the final product cost. One example concerned whether catheters were being allocated or traced to the patient level. In one facility, catheters were being treated as a consumable and allocated as part of overhead. This had a material impact on patient costing as catheter costs can vary by several thousands of dollars. Another costing practitioner noted variation in how anaesthetic costs are treated, with some facilities including the cost in operating theatres while in other sites it appears in a medical or even nursing line items.

Stakeholders wanted to see IHPA take a more proactive role in determining best costing practice. Some of the specific issues raised include how to cost organ procurement, how to treat specific teaching, training and research allocations (for example, time spent by registered nurses on research projects), costing of services that are delivered in both inpatient and outpatient models (for example, chemotherapy treatments), inclusion of special purpose funds for clinician payments, inclusion of depreciation charges, allocation methods for pharmacy and pathology costs, processes for allocation nursing costs and mental health costs, what feeder systems are most effective for capturing specific data, and generally more guidance on the approaches to allocating overheads (for example, specifying activity drivers) and on mapping cost buckets to line items and cost centres.

The widely shared view is that increasing standardisation across jurisdictions and LHNs will provide significant benefits. Nevertheless, it was acknowledged that uniformity in cost methodology is not always achievable due to data limitations and resource constraints, and that some variation is necessary to ensure that costing accurately reflects differences that arise in clinical practices between health services.

Where standardisation can’t be achieved, stakeholders commented that there needs to be significantly more transparency regarding the costing methods applied (for example, whether costs are traced to the patient level through feeder system data or allocated by RVUs).

Several stakeholders further contended that IHPA needs to be more judicious in the selection of sites that are incorporated into activity based funding calculations. One cost practitioner argued that facilities unable to directly trace costs with material effects, such as pharmaceuticals, should be excluded from national efficient price calculations.

There were also calls for increased transparency concerning how IHPA adjust the raw cost data supplied through the NHCDC in the construction of the national efficient price. A few costing practitioners mentioned that for internal benchmarking purposes they have tried to construct the national efficient price using NHCDC data but are unable to accurately do so.

Initial steps to address standardisation and transparency: IHPA to collaborate with jurisdictions to prioritise areas of concern, and conduct additional deep dives outside of annual Independent Financial Reviews (IFRs). Additionally, IHPA to collaboratively develop a process for collecting data on costing methodologies used to construct costs submitted in the NHCDC.

4.8 Clinician engagement

Just over half of LHNs (56 per cent) cited a lack of clinician engagement as being a major concern. Unsurprisingly, as reported in Table 2, clinicians were also found to make the least use of PLCD, while costing practitioners made the most use of PLCD for decision-making. Yet even in LHNs where clinicians do make use of PLCD, much of this is on an ad-hoc basis – only 13 per cent of all LHNs reported that there is active engagement between clinicians and either costing practitioners or business partners regarding PLCD.

Table 2: Percentage of LHNs with functions using PLCD for decision-making

Function	% LHNs
Costing practitioners	66%
Senior executive	47%
Finance	47%
Business partners	41%
Clinicians	31%

The extent to which PLCD is used to influence clinical activity is concerning. As noted, stakeholders recognise that cost considerations need to be embedded in clinical decision-making in order to generate substantive value in health service delivery. The main factor inhibiting engagement with clinicians is data quality. However, somewhat paradoxically, clinician input is necessary for improving the quality of PLCD.

Stakeholders, especially from 'engager' LHNs, argue that a more proactive use of PLCD requires identifying 'champions' within clinical units that understand the value of PLCD and have sufficient knowledge to be able to interpret it. LHNs that have developed close relationships with clinicians, note that proximity and interaction frequency were essential for creating engagement and fostering the use of PLCD in clinical decision-making.

A few 'evolver' and 'engager' LHNs have implemented the practice of going on 'roadshows' where they periodically visit health service sites and present local and peer data to clinical department heads. In one LHN, costing practitioners attend monthly meetings held between clinical department heads and consultants. It was noted that it took considerable time to develop rapport with clinical teams and move beyond concerns around data quality.

An important consideration for creating buy-in is presenting information in a way that is clinically meaningful. This requires integrating PLCD with data around clinical processes and patient outcomes.

Several stakeholders noted that the biggest increase in value to the national model has been the focus on hospital acquired complications and avoidable hospital readmissions. The value was not perceived to be gained from their funding implications, however, but because it was a way of connecting clinical activity to PLCD.

One suggestion made by several stakeholders to increase clinician engagement is to align budgets and resource allocations to the activity based funding. The vast majority of LHNs allocate

resources based on extrapolation from historical data. The few LHNs that have trialled or implemented activity-based budgeting reported substantive effects on the level of engagement with business managers and clinical department heads.

Initial steps to address clinician engagement: Increase clinician presence on advisory committees (beyond CAC), working groups, and other administrative bodies.

4.9 Knowledge and training

Most costing practitioners indicated that there is a general lack of knowledge within LHNs concerning PLCD, how it relates to activity based fudning, and how that information can assist decision-making. In 47 per cent of LHNs, cost practitioners considered this to be a critical barrier for gaining greater value from PLCD. In a few 'complier' LHNs, costing practitioners indicated that business managers and senior executive have little to no understanding about activity based funding or how PLCD feeds into funding model development.

While stakeholders do not see IHPA as being an education provider, several strongly believe that IHPA should be taking a more active role in promoting the benefits of PLCD. Many stakeholders lamented the lack of training programs or workshops for disseminating costing best practice and for better understanding the mechanics of changes to costing methodology and classification frameworks.

One possibility is for IHPA to work with educational institutions, to develop training programs tailored for specific LHN functions (for example, executives, business managers), that are delivered through traditional or online learning modes.

In relation to clinicians, several advocated for embedding hospital funding and costing into education providers. One jurisdiction is currently in preliminary conversations with a university about integrating content on activity based funding and the role and importance of individual health service professionals in ensuring accurate data capture.

Particularly in jurisdictions and LHNs where PLCD is not widely used, stakeholders suggested that a repository of case studies demonstrating the value of costing information could be particularly useful for promoting the use of PLCD and support for the costing function. This would comprise short case study detailing how PLCD has been used by decision-makers to generate efficiencies while maintaining high quality patient outcomes.

Smaller jurisdictions commented that they would benefit from greater information sharing between jurisdictions. Although IFRs are considered useful, they see the potential for more frequent identification and documentation of best practices (for example, systems and processes for blood products). These can then be incorporated into the AHPCS.

Initial steps to address knowledge and training: IHPA to advocate for the inclusion of public hospital funding and costing knowledge into costing degree programs with relevant health professional bodies.

4.10 Senior management support

Although senior management support was not cited as a concern in the majority of LHNs (47 per cent), several stakeholders consider it to be one of the most important conditions for PLCD to be used more widely in the LHN.

Costing practitioners stated that unless senior management understand the potential value that can be derived from PLCD, there is likely to be little investment into the costing function or technology to improve PLCD capture and reporting. Concerningly, in some *complier* LHNs,

executives are perceived to have little interest in supporting the costing function beyond meeting compliance obligations.

Initial steps to address senior management support: Develop case studies based on 'engager' LHNs where senior management derive significant value from PLCD. Collaborate with jurisdictions to promote the benefits of PLCD to LHN management supported by case-based evidence.

5. Future of patient level costing in Australian public hospitals

The National Hospital Cost Data Collection (NHCDC) has resulted in significant benefits for the Australian public hospital system. Along with activity based funding (ABF) reforms, these initiatives have sharpened the focus on the importance of patient level costing data (PLCD) not only for deriving funding models, but for applications by jurisdictions and local decision-makers. This is evidenced in our study through numerous examples of how PLCD has helped to make substantive impacts on the efficiency and quality of patient care. Stakeholders also readily acknowledge the contributions of the Independent Hospital Pricing Authority (IHPA) in driving improvements in the public hospital system. However, our findings indicate that the potential value of PLCD is far from being fully realised.

Future challenges lay ahead. ABF has undoubtedly played an important role in promoting efficiency gains in hospital services. However, a limitation of ABF is that it reimburses providers based on activity volume rather than treatment quality. This can lead to perverse incentives, such as keeping activities within a hospital to maintain funding rather than prioritising hospital avoidance (for example, through intermediate care facilities) which can deliver the same quality of care more efficiently.

While ABF will remain an important mechanism for funding many services, there is an increasing need to consider other approaches that directly incentivise healthcare providers to deliver models of care that maximise value for the health system. Possible mechanisms include bundled payments (payments that cover the full episode of care to treat a patient) and alliance contracting (payments made to multiple care providers that share the delivery of an episode of care).

Value-based funding approaches will place greater demands on data collection and reporting. Envisioning what cost, activity, and outcomes data is required from local hospital networks (LHN) and jurisdictions to support funding models is essential. Moreover, there needs to be a wider vision and strategy that encapsulates not only how that information will be used to determine funding allocations, but how it can be applied by stakeholders to generate value at the jurisdictional and local levels.

Below we present a series of recommendations and practical initiatives to address some of the key issues identified in this report over the short to medium term. The general focus of these recommendations is in deriving greater value from PLCD at the local level.

5.1. Recommendation 1: Improve consistency in the application of costing standards

There is significant variation in the methodologies used to cost health care products across LHNs, especially between jurisdictions but also within jurisdictions. Variability partly relates to the ambiguity of how costing standards should be implemented in practice. More explicit and precisely defined standards will reduce variation in how costs are allocated. Greater standardisation will provide better data for developing funding models and increase the ability for decision-makers to compare the efficiency of services between providers.

There are currently two main mechanisms to improve the application of costing standards. First, the practice of conducting a deep dive into a specific area was introduced in Round 22 of the Independent Financial Review (IFR). Second, improve understanding in data linking, feeder and information technology systems. Additionally, we suggest the following:

- Conduct additional deep dives – Given the importance of consistency in the application of costing standards, we advise increasing the frequency of deep dive analyses. We recommend expanding the deep dive as part of the IFR.
- Prioritise areas of concern – This report, as well as the Round 22 IFR report, points to several areas identified as there is inconsistency in costing practice between hospitals and jurisdictions. We also suggest canvassing LHN and jurisdiction costing practitioners (for example, through a survey) to identify and prioritise the areas that are of most concern.
- Incorporate findings into the AHPCS – Findings from deep dive analyses may not have a significant effect on costing practice unless they are incorporated into the AHPCS. There should, however, be an adjustment window to give time to jurisdictions and LHNs to make necessary changes to ensure compliance.
- Conduct a review of data feeder systems – As part of the deep dive, the data feeders that are currently being used by LHNs and jurisdictions, their characteristics, and their benefits and limitations, should be documented. Best-in-class systems should be identified.
- Document linking methodology – The methodology for linking feeder data to patient encounters or episodes should be documented and the preferred method/s identified.

5.2. Recommendation 2: Increase transparency of costing methods used to construct product costs

Limitations in existing information technology infrastructure and significant resource constraints in several jurisdictions and LHNs will inevitably lead to variations in costing methods for the foreseeable future. Certain standards will therefore need to allow flexibility to ensure product costs adequately reflect local circumstances. In this context, the utility of the NHCDC will be enhanced if the costing methodology used to construct product costs is reported. Specifically, we suggest the following:

- Develop a process for collecting data on costing approaches – As part of the NHCDC, an additional process should be established to report on the methodology used to construct product costs. Of importance are the cost allocation methods (that is, whether feeder data, relative value units, or service weights are used) as well as the activity drivers that are used where costs are estimated.
- Conduct a pilot implementation – Not all LHNs might have formal documentation methodology for how product costs are constructed. To effect this, a voluntary pilot implementation should be conducted with a select few jurisdictions to understand the opportunities and challenges that arise from this initiative. This will provide an opportunity to improve the collection process. To make the task less onerous, the initial methodology document for product cost construction as part of the NHCDC might be limited to a few cost buckets. Then, gradually, over a few NHCDC rounds, it could be staged and scaled up to eventually cover a majority of critical cost buckets.
- Incorporate analysis of costing methodologies into the AHPCS – The data should be analysed by IHPA or an independent party to provide detailed guidance and recommendations within the AHPCS. IHPA may also consider providing periodic reports on specific cost allocation issues.
- Publish costing methodologies – Costing methodology data should be made available alongside product cost data in the National Benchmarking Portal (NBP).

5.3. Recommendation 3: Increase timeliness of the NHCDC

The interval between financial year end and the reporting of NHCDC data in the NBP is a well known, but difficult to address, problem. The quantity and complexity of data, resource limitations,

quality audits, and jurisdiction regulatory processes, constrain the timeliness of reporting NHCDC data. However, unless timeliness is significantly improved, the value of the NHCDC at the LHN level will remain limited. To improve the currency of NHCDC data, we suggest the following:

- Process mapping – A detailed mapping of the NHCDC submission process should be conducted. The process maps developed in the *2013 Strategic Review of the NHCDC* can be used as an initial basis. These should be revised and documented for each jurisdiction, including time frames, detailed descriptions, and bottlenecks of each process.
- Define the ideal process – This includes identifying where newer technologies could play a role, for instance, to reduce data processing time. One issue cited by a few stakeholders is that they need to do a full resubmission even when only a small subset of the data requires correction. The ideal process is compared to the actual process maps to identify opportunities for improvement.
- Increase the frequency of the NHCDC – In the longer term the NHCDC should be conducted more frequently. An aspirational target is that jurisdictions make quarterly submissions, with data available in the NBP by the end of the subsequent quarter. This ambitious target will require long-term planning, investment in information technology and increased integration between jurisdictional and national databases.

Initial discussions regarding the first two suggestions can be held with jurisdictions about the feasibility and timeframe of conducting the mapping exercise. An independent consultant could also be appointed. With regards to increasing the frequency of the NHCDC, jurisdictions should be consulted, with the possibility of forming a working group.

5.4. Recommendation 4: Increase the granularity and scope of data in the National Benchmarking Portal

PLCD is most useful when decision-makers can identify cost variations in the specific activities that underlie the patient encounter or episode. These variations may relate to clinical variation, contextual factors (for example, remote patients), differences in cost inclusions and exclusions, as well as differences in cost methodology. Increasing the granularity and scope of the data available in the NBP will significantly enhance the value of the data for decision-makers. To this end, we suggest the following:

- Increase activity data – Additional activity data should be provided in the NBP. This will provide contextual information to understand the association between clinical activity. and cost variations.
- Disaggregate cost data – The NBP should provide an additional layer of detail below the current cost bucket matrix. The value of the data for benchmarking will be improved if decision-makers are able to view variations in the service line items that constitute each cost bucket.
- Include patient outcome data – Future funding models are likely to incorporate and place greater emphasis on value-based outcomes. This will require the collection of a wider array of patient-level outcomes than is currently collected (e.g. hospital acquired complications, avoidable readmissions). Additional data, especially related to patient outcomes, beyond existing submissions will be necessary We suggest that IHPA identify the data that will provide the greatest value to decision-makers and rank these in terms of priority and collection difficulty.
- Transform the NBP user interface – The existing NBP interface is considered an impediment to wider use by stakeholders outside of the costing function. A few jurisdictions and LHNs have adopted interactive dashboard interfaces (for example, Qlikview) which are more easily accessible and have better analytical capabilities for identifying opportunities for improving health service delivery.

5.5. Recommendation 5: Engage with relevant health professional bodies and education providers

The collection and reporting of accurate cost, activity, and outcome data needs to be a shared responsibility of clinical and administrative professionals across the health system. This requires a wider dissemination of knowledge about public hospital funding and patient level costing, and the role of individual healthcare workers in this process. During our consultation, many clinicians enthusiastically supported the idea of embedding such knowledge into the educational programs from which they have graduated or previously completed (university and post-graduate training courses).

While IHPA has no formal responsibility for developing or providing educational content or programs, they can play an important role as an advocate for incorporating funding and patient level costing into relevant tertiary education courses. We suggest the following:

- Graduate certificate in hospital costing – IHPA could liaise with relevant health professional bodies and education providers to identify opportunities for costing related training that could be recognised as a credit towards graduate certificate in hospital costing. IHPA and/or jurisdictions to put out a call of interest to relevant education providers to develop course content and delivery.

5.6. Recommendation 6: Work with jurisdictions to develop and promote patient level costing

Stakeholders involved in this study were appreciative of the opportunity to express concerns and provide feedback to IHPA. Several stakeholders believe that IHPA could work with jurisdictions to more concertedly seek the feedback of key stakeholders within the system – those at the 'coalface' with first-hand expertise and understanding of current practice. This is especially the case when classifications are refined or developed that impose significant challenges for data collection and reporting. Several stakeholders feel that there is a disconnect between the outcomes required by IHPA and an understanding of the constraints faced by LHNs to provide necessary data inputs.

We see an opportunity for increased information sharing between IHPA, jurisdictions, and LHNs. Costing practitioners, and other stakeholders, expressed interest in learning from peers and developing networks beyond their own jurisdiction. Given the resource constraints faced by LHNs, and especially costing functions, there is significant value to be gained from sharing costing and reporting methodologies between jurisdictions and LHNs.

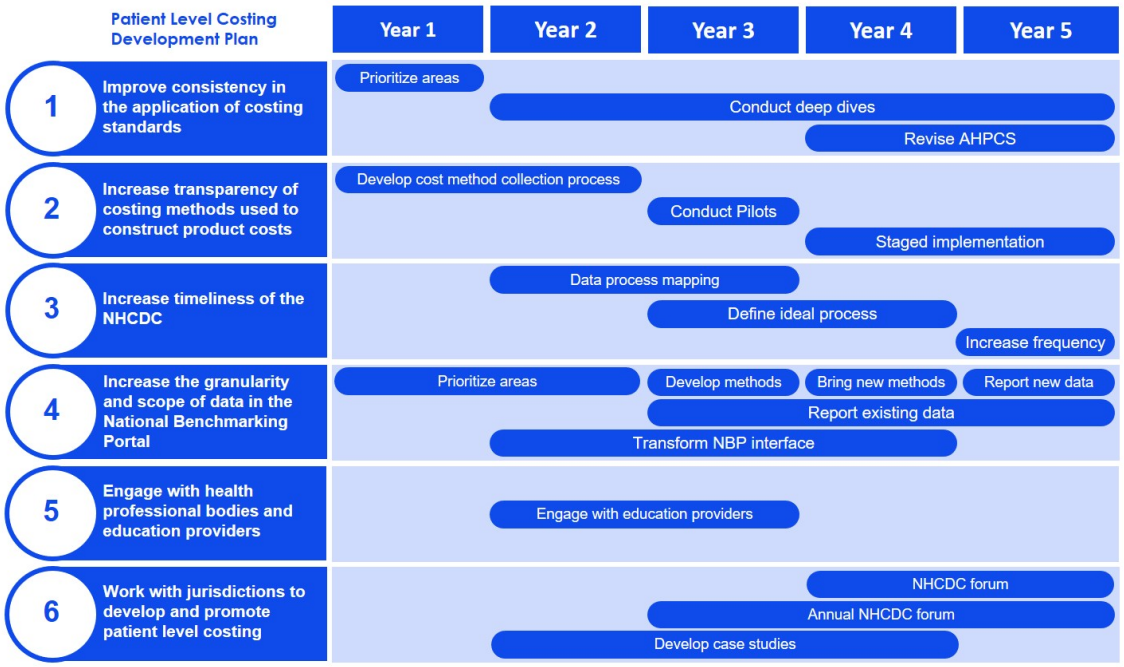
While IHPA communicates directly to jurisdictions, rather than LHNs, we suggest the following to increase engagement of stakeholders at the local level:

- Annual NHCDC forum – In an addition to existing Activity Based Funding Conferences, a forum or symposium centred on the NHCDC and associated developments, would facilitate further engagement and information sharing between IHPA, jurisdictions, and LHNs, and provide an opportunity for network building.
- Develop case studies – IHPA to work with jurisdictions to identify 'engager' LHNs. Develop case studies that report how PLCD is used to derive value by various stakeholders (including senior executive, business managers, and clinicians). Collaborate with jurisdictions to share and promote the benefits of PLCD to local stakeholders supported by case-based evidence.

5.7. Implementation timeline

The specific details and implementation timeline for each recommendation will need to be determined through discussions between IHPA, relevant advisory committees, and jurisdictions. These discussions are likely to result in certain recommendations being considered more feasible or of higher importance. Notwithstanding this, we provide the following implementation timeline (Figure 4) as an initial point of reference for these discussions.

Figure 4: Initial implementation timeline



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Appendices

Appendix A: Interview protocol

The following questions were used as a basis for interviews with staff at the local hospital network (LHN) level. Questions were adapted for stakeholders at the jurisdiction level or in a health service.

1. What value do you see in patient level costing? What value do you see in the National Hospital Cost Data Collection?
2. What are the main challenges you face with patient level costing?
3. How has costing evolved over the last ten years in your LHN? What are the main changes and why have these occurred?
4. What are your thoughts about the quality of patient level costing data?
5. What are the main uses of patient level costing data in your LHN?
6. Who are the main users of patient level costing in your LHN? What information do they have access to? How is the information reported and how frequently?
7. What opportunities do you see to make better use of patient cost information? What are the main barriers for making better use of patient level costing data?
8. Who in your LHN are the main supporters of patient level costing?
9. What are your views on the technology infrastructure to support collection, processing and reporting of patient cost information?
10. What are your views on the support and training available to understand and interpret the patient cost information in your LHN?
11. What are your thoughts about the National Benchmarking Portal?
12. What are your thoughts about the level of engagement that the Independent Hospital Pricing Authority has with jurisdictions and LHNs?

Appendix B: Illustrative quotes

Perceptions of value in patient level costing

‘We take the view that we try and partner with the business to give them their costs as a service to them. We see ourselves as a service team to help them, to give them the best view of their activity costs so that they can get efficiency gains, cost savings, better revenue.’

Cost practitioner

‘We're going through a pretty intense process in the department now as well to get resources so that we can make more use of this costing data rather than just send it into IHPA.’

Cost practitioner

‘It’s just totally underutilised here. Really, all it's serving at the moment is to do the annual National Hospital Cost Data Collection (NHCDC).’

Business partner

‘The costing data is really valuable, it's a valuable way to look at our services and see where there is opportunity for improvement.’

Clinician

‘Everybody acknowledges the value that patient level costing can add.’

Cost practitioner

‘There's no overarching strategy of how we should be using this information, and to me, there's also no real push to use it.’

Cost practitioner

‘There's potential for significant value. Certainly in this jurisdiction, I think we've got a long way to go in really realising the value of that data.’

Senior executive

‘[The NHCDC] was implemented to drive efficiencies within public hospitals. I know from where I'm sitting, that is not happening.’

Cost practitioner

‘It's really become just a compliance [exercise] rather than trying to get costing ingrained into business decisions and management.’

Senior executive

Compliance

‘The things that are really significant and material for us are not material in the national model […] so when [a significant percentage] of our legitimate costs get excluded from the national model, it makes it really hard for it to be meaningful and useful.’

Senior executive

Funding

“In rural, particularly things like maternity, paediatrics, high-cost low-volume, yet they are activity based funding funded […] your funding allocates us this, but the realities are that we basically operate almost as blockfunded in the behaviour of that service, then have that dialogue with the [Department of Health] about what does that mean in terms of operational costs.”

Senior finance manager

Business cases

‘You can justify having a service that's expensive because you're getting so much patient benefits, but at least we can help to answer the fundamental question: Will this service be cost effective? And the more I'm seeing is that we are being asked more often to provide costing information for new kinds of proposals.’

Senior analytics manager

Clinical applications

‘I'm working on a project to expand our hospital in the home service and develop a virtual hospital on top of that. So really looking at the current costing and current cost of delivering care for inpatient Diagnosis Related Groups, and then we're trying to sort of figure out what that would look like if it was delivered in an outpatient model and what costs would be reduced and what costs would be increased and what's the offset going to be there.’

Clinician

‘I don't think we're yet at the stage where we have got the level of understanding of the data that's available, down to the level where it means something to an individual clinician at the bedside.’

Senior business manager

Management reporting

‘We’re not at all. It gets reported if anything annually. But otherwise costing information is being used for the submission through the NHCDC. That’s basically it.’

Cost Practitioner

‘One of the aims of our dashboard is to present the data in the most meaningful way. When it came to doing the design, we asked ourselves, ‘what are some of the key questions people ask about costing data?’ […] We want to give people the capability of asking broad questions and then finding the answers, as a one stop shop service. So, we are very much trying to decentralise access to data, giving everyone access to simple tools, so that we don't get phone calls every five minutes, asking for data, asking for explanations.’

Senior business manager

Data quality

‘Half the problem is with the acceptance of the data.’

Senior executive

‘The NHCDC data that comes back is a very limited use, in fact it's not used by [the LHN]. There's no way that I would go to any of the finance managers or chief financial officers to say, ‘Hey look, here's how we did.’

Cost practitioner

Clinician engagement

‘Having that local presence makes a difference. Being able to talk about data is one thing, being able to see what drives the data, gives you a more intimate understanding of what those figures mean, and it helps you improve the quality.’

Cost practitioner

Costing methodology

‘Time in theatre for particular surgeries, and all of that sort of stuff, we're just basing that on conversations we've had with clinicians maybe three or four years ago.’

Senior executive

‘The main function of my role is to update the relative value unit's. I engage with clinicians, find out what they're doing, identify potential alternative activity sources that better reflect what they're doing, and then try and improve the accuracy of the costing system to better align with the clinical activity that's being undertaken.’

Cost practitioner

Feeder systems

‘We don't have the nursing activity system to capture the nurse nursing intensity for the patient level. Currently the nursing ward cost, we’re just using a Diagnosis Related Groups weight, which is probably five years old.’

Senior finance manager

‘We did have an allied health feed. Then for some reason, we begged them not to, they took a unilateral decision that ‘we don't like that system, therefore we're going to stop collecting our activity’ […] It's actually quite a substantial service, and we've got no data for them now. That to me is a tragedy, whereas if activity based funding was a focus that would not be allowed to happen.’

Cost practitioner

‘We have so many feeder systems into the costing process with so many places for errors, cause it's not one standard MRN across everything. For example, my coster, he spent three days trying to match ambulance data to emergency department presentations, because there were no MRNs. He had to do it by date of birth, address, anything you could to try to match it. And he still ended up having about 30 per cent of it that couldn't be matched.’

Senior performance manager

‘Every jurisdiction seems to have limitations that are material including [this jurisdiction]. We don't include any private pathology costs because we don't have the systems to do it.’

Cost practitioner

Resourcing and support

‘We have no costs associated with critical care in our [patient level costing data] information. That's simply because we haven’t got the ability to do the piece of work required to start separating out the ICU costs from the rest of the episode of care. We essentially don't know how much our intensive care unit, at a patient level, is costing us.’

Senior business manager

Data timeliness

‘I guess it's obvious, but if you're trying to put costing information in front of management and executives, the fact that it can be two years outdated before they get it is quite problematic.’

Senior finance manager

‘The costing guys here have got some quite advanced models that they use to allocate costs to the activity, but there's not a lot of, well, there's no documentation around it. So, what might be right one year […] the following year, may not be right. There's just not a lot of rigour around the costing process.’

Senior executive

‘We're not particularly interested in going back and looking at it historically because we are moving, we are growing, at quite a rapid rate. Year-old data does not well-inform current practice.’

Cost practitioner

‘Our costing information is quite often four to six months behind the actual activities. If somehow we can bring out the results a lot sooner that would provide a much quicker response to the business to make changes or to adapt.’

Senior finance manager

IT and systems integration

‘We keep buying programs, but we don't check that they interface to anything or that they can get an extract. And that's a big failing of [this jurisdiction]. We bought [a system] for cancer services, but we can't get an extract to the patient level out.’

Cost practitioner

‘None of [our systems] are really set up to capture patient cost information. They're set up as a patient administrative system. And then we're trying to use that to merge it with our general ledger, which is set up based on our organisational structure, not based on a specialty group.’

Cost practitioner

‘Because the legacy system was very laborious to maintain, I'm hoping that the staff who are now no longer maintaining the costing system can actually be getting out and using the information and promoting it.’

Cost practitioner

‘You can make a mistake really, really easily, just by clicking on the wrong box and clicking on the wrong filter. And it will give you something which you then take as gospel, which is completely wrong. We also have to have a way which makes it a bit more user intuitive just in terms of how the system's set up […] unless you really understand how the system works and how the data is layered; you can make it tell lies basically.’

Senior business manager

Resourcing of the costing function

‘[The costing and reporting team] can't keep up with the requests for information by clinicians to use in their own units. So certainly, it's not a problem that they're not asking. It's a problem that we can't keep up with demand.’

Business partner

‘Costing people are like hen’s teeth to find right across Australia. Some of it has reverted to contract work to the costing vendors because there just aren't the people, young people coming through who've got the skills.’

Business partner

‘An ideal costing team has got someone with a clinical background, someone with an analytical background, someone with an IT background, someone with a finance background, someone with a coding background, how many costing teams have that many people available to them? Almost none.’

Cost practitioner

‘We have a very small unit that by national standards is under resourced for the task set for us. Responding to the national agenda is quite challenging for us […] we're not ignorant to the fact that there's a wealth of information there we could be using more strategically, but we just can't dig ourselves out of the ditch to find the time to do it.’

Senior executive

‘When we sit around the table at our monthly meetings, it is the same group that's been in it for years. We're already looking down the barrel of retirement basically, and there doesn't seem to be young blood coming through to this, which is a huge issue.’

Business partner

Data granularity

‘The data that we've got at a jurisdictional level and hospital level, is significantly more granular than what happens at the Independent Hospital Pricing Authority (IHPA). Now you don't need that granularity for funding models, but you can't explain variances unless you have the more granular data.’

Cost practitioner

‘Being able to drill down under the buckets to actually see what are the items that are making up that bucket would enable us to make much better judgments about the information that we're seeing.’

Senior business manager

‘The great thing with the costing systems is that you can drill down. Is it because I spent more time in theatre? Is it because one hospital uses a team of three surgeons versus a team of one? Are they using more blood? Are they using different medications? All these kinds of things, it's possible to tease all that out […] that's a point around bringing in data other than just purely costing data to make a proper assessment.’

Senior analytics manager

Data accessibility

‘You need to be mindful of the audience in the first instance and the level of detail you need to provide them and then design a solution around that… [clinical teams] want something that's reasonably clear and simplistic but highlights to them where they need to look and what they might need to do in response to that.’

Cost practitioner

“At the moment they come to us and that's okay because they don't have the knowledge and the background. They don't understand how the costing data has been generated. So it gives us an opportunity to explain how the data is generated. Releasing it and having access to it, I can see the benefits, but there's also I think a bit of risk there if they don't fully understand the process around costing.”

Cost practitioner

‘I come [to this jurisdiction] and there's nothing, there's literally nothing. I'm kind of used to it now, but I felt like somebody had taken away one of my arms when I first came here because the data just isn't available.’

Senior executive

‘We've had a couple of instances where some clinicians have got their hands on costing data and spruiked how efficient they are, but they've made the wrong filter selections […] for the average clinician, it's too complex and it's too prone to making incorrect selections and so then you're getting distorted data.’

Senior executive

Standardisation and transparency

‘When you start to benchmark, you are relying on the processes at the local sites, and there's often times not much transparency over the quality of the process that they've gone through.’

Clinician

‘We adopted the national cost accounting guidelines but there is a lot of vagaries in that and a lot of room for interpretation. Our [jurisdiction] guidelines, where there’s room for interpretation, we’ve closed that room. We’ve added a lot more to it so that we can get better consistency and better meaning out of the cost allocation buckets.’

Senior executive

‘There is also a lack of standardisation in costing across health services [but] sometimes it's difficult to standardise. If one hospital has got a data in their core system and other hospitals are not even collecting it. So you can have standards, but the range of data being collected in core systems can vary quite considerably.’

Senior finance manager

‘IHPA needs to be working on getting that commonality across the whole of Australia, so being able to compare facilities in the same way.’

Senior business manager

‘IHPA needs to be much more rigorous in selecting the data that they use to determine National Weighted Activity Unit (NWAU). In my opinion, any facility which can't assign drug costs at a patient level shouldn't have their costs included in the activity based funding pricing […] there's a spectrum from very poor costing data up to good costing data, and the problem with IHPA is that it all gets bunched in together.’

Cost practitioner

‘There's opportunities to provide even greater uniformity and for things to come out of these deep dives and a recommendation on best practice be made and then you can report against that as well.’

Cost practitioner

‘[IHPA] went from here's the costs that we submitted, here's the national efficient price that we built, here's what goes in the benchmarking portal and all three numbers are different […] It's really important to know all of that because it is being scrutinised heavily [by the jurisdiction].’

Cost Practitioner

Clinician engagement

‘The amount of time that [we] spend on getting the costing processes right, cleansing the data, that does pay off […] if you go to a clinician, make sure it's right, because they'll pick holes, and if they pick holes, they will start losing faith.’

Cost practitioner

‘The systems on which the hospital is actually relying on have flawed data within them. It requires clinicians to sit down with the costing personnel to actually identify where those errors might be and start to try to fix them.’

Clinician

‘All our heads of department, so the heads of each specialty, are interested in these numbers. They interested in seeing how they're performing, they are interested in looking at how they rate amongst their peers, and almost all the heads of department, I would say, are familiar with these numbers […] so we work very closely with them.’

Senior performance manager

‘We'd be available to provide data or information as needed. That's the only way that you implement clinical change or clinical review, and it's the way you get buy in from the clinicians […] We've moved from a position where I’d turn up to meetings and there'd be a Spanish inquisition to find something wrong with some bit of the data.’

Cost practitioner

‘It's always got to be quality of care first, so we've got to be able to say, ‘well, the quality of care was similar, but this place did it for this cost and you did it for this cost.’ Getting that hospital acquired complication information in there and specific complications and finding a way to actually measure the outcome of the work that's happening is a way to really get clinicians interested.’

Senior business manager

Knowledge and training

‘If I speak to my business managers including the most senior business manager about ABF and NWAUs, they honestly don't know what I'm talking about.’

Senior clinical executive

‘IHPA's role in promoting the role of costing and elevating the importance of it, which will help feed the resources into it, it is an opportunity that's being sadly missed.’

Cost practitioner

Senior management support

‘The only way I've seeing that happened is when the executive come on board.’

Cost practitioner

‘It needs to be top down. They need to come to us and say, right, we want to come with you on the journey […] you know, the first time I met my execs was last year. And I'm a decade there.’

Cost practitioner

PATH

Performance Analysis for Transformation in Healthcare Group

Report prepared for the Independent Hospital Pricing Authority

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