AUSTRALIAN INSTITUTE OF HEALTH INNOVATION
Faculty of Medicine, Health and Human Sciences

MACQUARIE University

Health Outcomes and Patient Experience (HOPE) Patient Reported Measures (PRMs) Program: Process Evaluation

FINAL REPORT OF FINDINGS

Report prepared by: Associate Professor Reema Harrison, Dr Ramya Walsan, Dr Bronwyn Newman, Dr Louise Ellis, Professor Elizabeth Manias, Australian Institute of Healthcare Innovation, Macquarie University

1. EXECUTIVE SUMMARY

Background: The HOPE (Health Outcomes and Patient Experience) PRMs Program is a partnership across NSW Health between the Agency for Clinical Innovation (ACI), the NSW Ministry of Health, eHealth NSW and Local Health Districts (LHDs), Specialty Health Networks (SHNs) and Primary Care. To support the NSW Health strategic priority of Value Based Health Care (VBHC),

Patient Reported Measures (PRMs) are surveys that allow patients to provide direct, timely feedback about their health-related outcomes and their experiences. They include Patient Reported Outcome Measures (PROMs) and Patient Reported Experience Measures (PREMs). The completion of validated PRMs surveys aims to help assess experiences and outcomes of health care according to patients. The HOPE platform supports the digital collection and reporting of PRM data. Over time it is expected that the completion of PRMs will result in benefits at the individual clinician and patient, service and system levels.

The HOPE/ PRMs Program consists of two connected components: 1) the development of the HOPE IT platform to enable the collection and use of PRMs and 2) the change and adoption strategy to support the clinical practice and system changes required to routinely collect and use PRMs.

Key Evaluation Questions (KEQ): This component of the HOPE PRMs process evaluation aimed to answer five of the eight evaluation questions through a mixed-methods evidence synthesis of the uptake analysis undertaken by the ACI, with survey and interview findings in response to the five evaluation questions in scope.

- *KEQ1: Is the HOPE PRMs program being implemented as intended?*
- *KEQ2: What is the uptake of PRMs?*
- *KEQ3: What is the clinician experience of using HOPE and PRMs?*
- *KEQ5: To what extent is the HOPE PRMs program achieving the changes and outcomes expected at the clinician level?*
- *KEQ6: What are the barriers and facilitators to the HOPE PRMs program achieving its expected outcomes so far?*

Methods: The process evaluation comprised of three elements. The first element was an uptake analysis. The focus of the uptake analysis was on the tranche one LBVC cohorts (except for "falls in hospital"), in which most HOPE PRMs surveys have been completed. The period covered was 01 February 2021 to 31 December 2021. The second element was an online clinician survey which sought to evaluate how clinicians have interacted with the HOPE platform, the extent to which HOPE/PRMs have led to the intended changes at a clinician level and experiences of HOPE PRMs implementation. The survey comprised 24 items across five domains (including demographic information, HOPE platform usability, use of HOPE PRMs, impacts of using HOPE PRMs on clinical practice, and experience of HOPE PRMs implementation). Seven free text items were used to capture additional information about the circumstances in which HOPE PRMs were not used with eligible patients, the PRMs used most, examples of how using HOPE PROMs and PREMs have changed clinical practice and any additional comments. The survey was emailed to 1293 clinicians registered in HOPE. Data from 421 respondents were captured (31% response rate), with 313 clinicians who had used HOPE PRMs and 57 clinicians who had not used HOPE PRMs as the core sample for analysis. The third element was a stakeholder consultation 3 employing qualitative methods with 90 stakeholders who were System-level stakeholders in NSW Health agencies (15), LHD Executive Sponsors (14), LHD PRM leads (20) and clinicians/managers that were invited but declined and clinicians using HOPE and PRMs from both IC and LBVC cohorts

(41). Qualitative data were gathered via stakeholder focus groups conducted with 78 respondents, interviews with three respondents, email communication from nine respondents and nine further respondents who provide multi-source data through two or more of these methods. Descriptive statistics, including frequencies and percentages, were used to describe the clinician sample, their patterns of HOPE PRMs usage and patient cohorts with whom HOPE PRMs were applied. Inferential statistics were used to draw comparisons in the usability and experiences of HOPE PRMs by professional group, patient cohort and extent of use of HOPE PRMs.

Key findings: Findings are summarised in relation to the key evaluation questions addressed.

KEQ1: Is the HOPE PRMs program being implemented as intended? In the absence of established targets for the change and adoption process, it was not possible to address this evaluation question conclusively. At this stage in the implementation of the HOPE PRMs program, the evaluation data indicated overall that clinicians' experiences vary widely in whether HOPE PRMs have been implemented effectively in their service/s, with substantial variation between patient cohorts and LHDs. The synthesis of the uptake analysis, clinician survey and qualitative work indicates that HOPE PRMs, and the associated change and adoption process, has been implemented more successfully with certain patient cohorts and their clinicians. Namely, clinicians working in LBVC clinics who did not previously use another PRMs approach, are allied health professionals and are using HOPE PRMs with the general patient population as opposed to priority patient populations such as people who are culturally and linguistically diverse, Aboriginal and Torres Strait Islander, or who have disabilities. Data synthesis of the survey, interviews and focus groups further indicates that education and training in preparation for go-lives was extensive and generally well-received. Clinicians and LHD staff indicated that insufficient engagement about the roll out and way in which HOPE PRMs may be used in their district contributed to missed opportunities in localising the implementation strategy. Some respondents felt the pace of roll out was not at pace with their readiness, either being held back when they were ready to proceed or being required to proceed when not yet ready. Further refinement and adaptation may be required to the HOPE PRMs Program, and the change and adoption process, for HOPE PRMs to be successfully implemented across districts.

KEQ2 What is the uptake of PRMs?: Between February 2021 and December 2021, 233 clinics went live in HOPE. Of the seven LBVC initiatives with higher levels of uptake, 28% of eligible clinics had gone live in HOPE, which ranged from 14% to 71% across initiatives. For the initiatives in which there was greater certainty regarding the number of eligible clinics (High Risk Foot Services, Osteoarthritis Chronic Care Program (OACCP), Osteoporosis Refracture Prevention, Renal Supportive Care), 60% of eligible clinics had gone live in HOPE. Of the 18,692 eligible patients, 58% (n = 10,874) were registered in HOPE. Although registered with HOPE, only 57% of registered patients consented to using the HOPE platform.

6204 patients were allocated at least one survey, with 18,638 surveys allocated in total. About half of the surveys allocated (52%; 9659), were from one LBVC initiative – OACCP. 5992/18,692 (32%) eligible patients attending clinics live in HOPE completed at least one survey. In total, 69% (12944/18520) of the allocated PRM surveys were completed, with higher completion rates for PROMs - condition specific (75%, 6731/8951) and generic PROMs (68%, 5454/7992) than PREMs (45%, 759/1577). On average, clinicians read the completed surveys 79% of the time (10,166/12,947), ranging between 40% to 84% between LBVC clinics, which suggests that survey results are being reviewed for potential use variably between clinics and clinicians. Overall, PRM survey completion rates decreased from the first allocation (79%, 9516/12073) through to the third allocation (49%, 728/1474), diminishing the ability of clinicians to review how results may have changed over time.

*KEQ3 What is the clinician experience of using HOPE and PRMs?***:** Clinician experiences of HOPE PRMs were determined from the survey, including the usability analysis, and through 21 themes that resulted from the qualitative analysis of the interview and focus group data, which were grouped under four categories. The System Usability Survey (SUS) revealed that the HOPE platform achieved a mean usability score of 50.84 ± 19.59, which indicated usability below the acceptable level, but with substantial variation across the sample. Most (204/256; 79%) respondents scored the usability of the HOPE platform below the cut off score of 68, which is considered acceptable usability. Key challenges when using the HOPE platform appear to be the platform being perceived as cumbersome to use (43% agree or strongly agree; 110/256 as compared to 30%; 77/256 who did not find it cumbersome) and/or being unnecessarily complex (41%; 105/256 agree or strongly agree as compared to 31%; 79/256 who did not find it unnecessarily complex). Most respondents (65%; 166/256) reported that they did not need the support of a technical person to use the HOPE platform. Significant associations were identified between usability scores and professional group, patient cohort, frequency of HOPE use, percentage of eligible patients for which HOPE is used and previous experience with PRMs. The nature of these relationships was that those who had significantly higher usability scores for the HOPE platform were allied health professionals ($p<0.001$) as compared to nurses and doctors, those who collected HOPE PRMs in admitted and non-admitted LBVC cohorts as compared to other patient cohorts ($p<0.01$), those who used HOPE frequently (i.e. daily, weekly, or monthly) as compared to those using HOPE occasionally or rarely ($p<0.05$), and those who used HOPE with more than 50% of eligible patients ($p<0.001$).

Qualitative data confirmed the main advantages of the HOPE platform as actionability of PRMs results for some users and staff ease of use. Disadvantages were patient challenges to completing surveys in HOPE (44%) and staff challenges using HOPE (28%), which was clunky and time-consuming, and they encountered process issues (including Service NSW login and lack of integration with hospital EMR). Clinicians highly valued patient-reported information and using this data to improve person-centric in care, however experiences of gathering HOPE PRMs were varied and determined by the patient cohort (general population vs. priority populations) and service context (LBVC clinics vs. integrated care). Clinicians identified in multiple data sources that good experiences of the HOPE PRMs program occurred when they perceived ease of use of the HOPE PRMs platform for both patients and staff, utility of HOPE surveys for their patients, had resources to support completion and perceived a relative advantage of HOPE PRMs compared to other PRMs methods available for them. Conversely, where these factors were not present, clinicians generally cited poorer experiences.

KEQ5 To what extent is the HOPE PRMs program achieving the changes and outcomes expected at the clinician level?: Clinicians who used HOPE frequently, and who did not use PRMs prior to the HOPE PRMs program, were those who reported positive changes in practice in line with those intended at a clinician level. These were mostly allied health professionals working in LBVC programs, such as OACCP clinics, with a general patient population who had fewer support needs than priority populations. Experiences outside of LBVC clinics were less favourable in the use of HOPE PRMs. Examples of positive change reported were increased ability to provide holistic care, being better informed to make relevant referrals and improving interactions between clinicians and patients. Most clinicians (60%) did not report positive changes in practice from using HOPE PRMs. Many described that they already gathered patient reported information in their existing practice so HOPE PRMs did not create change. In some cases, patient-reported information was gathered via other surveying approaches such as using Redcap, but in others eliciting and using patient-reported information was described as an organic element of their practice occurring through conversation with the patient rather than via a data collection tool.

The clinician survey indicated the main reasons that HOPE PRMs were not collected with eligible patients as due to: a) the lack of agreement from patients to complete the PRMs because they did not see the value or because they did not have the support required to complete the survey, b) lack of suitability for the patient cohort in terms of their diversity, support needs, or point in the care process, and c) resource implications – either in lack of support to complete surveys or in terms of the opportunity cost for clinicians to undertake this work. Resourcing relative to patient support needs was identified as pivotal in the decision to use HOPE PRMs.

KEQ6 What are the barriers and facilitators to the HOPE PRMs program achieving its expected outcomes so far?: From survey responses of 254 clinicians, most respondents (75%) agreed that they received sufficient education and training on how to collect PRMs via HOPE. Service-level implementation barriers were reported, including lack of administrative support. Only 30% of respondents did not feel that HOPE PRMs created additional unnecessary burden. Both the survey and qualitative evidence depicted common barriers to HOPE PRMs implementation as perceived lack of opportunity for clinicians to engage in decision-making about how to collect and use PRMs, or how the HOPE platform would be implemented in their service. Several respondents indicated that for HOPE PRMs to realise their expected outcomes, LHDs must have: HOPE use to be linked to KPIs or service agreements, variations for reporting and information displays, and increased information sharing between practitioners. A common sentiment was that there was great potential for PRM data to change care, but a lack of clarity regarding the models of care that enable change to occur. Reliance on PRM Leads was noted, which was impacted from COVID-19 and redistribution of staff with inconsistent resourcing. The ability of LHD Executives and PRM leads to communicate the value of HOPE PRMs was considered critical. Where LHD Executives visibly valued the HOPE PRMs program, PRM leads often described being more able to effect change to achieve the program goals.

Conclusions: HOPE PRMs intend to improve patient care by increasing knowledge of individual needs and enabling clinicians to be equipped with the information they need to know to provide person-centric care. This process evaluation highlighted via the survey and qualitative data that patient reported information is highly valued by clinicians. HOPE PRMs have been predominantly used in LBVC clinics for OACCP, but patients have been registered, consented, and completed surveys across multiple LBVC clinics. When considering the proportion of patients registered and eligible, there are clear opportunities to increase the number of patients registered and consenting to surveys. The survey responses indicate that several factors appear to be influential in whether patients are registered and consented, and complete baseline and subsequent surveys. These factors were discussed as affecting the clinician experience of collecting and using HOPE PRMs, including: perceived utility of the HOPE PRMs patient surveys and of the HOPE platform for the patient cohort, resourcing the collection of HOPE PRMs surveys, being able to access the relevant information from HOPE reports and whether other existing approaches are well-established for collection and use of PRMs locally. At this stage in the implementation**,** HOPE PRMs are having the intended impacts on practice for subsets of clinicians, but this is specifically among clinicians in LBVC clinics for whom the HOPE PRMs surveys are relevant to the patient cohort, where another PRM system is not in use and only in the use of PROMs.

Opportunities for attention: Several opportunities for attention that may be considered in the further roll-out of HOPE PRMs to enhance the achievement of the intended outcomes at a clinician level.

Targeted implementation of HOPE and PRMs: Models of care (MOC) relevant to the use of HOPE PRMs for patient cohorts may contribute to improved experiences of implementation. Critical elements within a MoC may include but not be limited to the: a) identification of referral pathways where health needs identified by PRMs are beyond current service capacity, b) acknowledgement of the need for complementary PRMs data capture methods where HOPE PRMs is not suitable, and c) provision of guidelines to support adequate resourcing of practice.

Explore targeted and tailored methods for PRMs data capture: PRMs collected via survey instruments may not suit all patient cohorts and populations. HOPE is designed to gather PRMs via surveys. In addition, HOPE as a digitised system may limit some patients in completing the surveys, some technical support and support for completion may be needed for key patient groups. Exploration of surveys relevant to specific patient cohorts and of approaches to support completion where digital literacy is low may provide complimentary or alternative tools and methods for gathering PRMs. Consideration of clinicians having flexibility in survey selection and whether items may be marked as not applicable may also be valuable.

Optimise reporting of information from HOPE: Access to and use of HOPE PRMs results through relevant reports were identified by LHD Executive sponsors and clinicians. Optimising the nature of reports required and their visualisation for optimal use may be valuable to enhance reporting of HOPE PRMs. User engagement with LHD and clinician stakeholders may provide insight to determine the reporting approaches that may support greater use of PRMs results for patient care and service enhancement.

Establish evidence for value and use of HOPE PREMs: The process evaluation indicates that HOPE PREMs are being under-utilised, with the existence of several other PREMs at service and system-levels identified as a reason for limited use by some respondents. Given the collection of PREMs at service and system level in NSW Health, it may be pertinent to explore the contribution of HOPE PREMs to the intended changes and outcomes intended of the HOPE PRMs program.

Clarify and align intended scope of HOPE PRMs: Clinician's perceive that patient cohorts have varying experience of HOPE PRMs, for example those with high health and digital literacy were considered more likely to be able to use and benefit from HOPE PRMs. Lack of clarity regarding whether HOPE PRMs are to be limited to LBVC clinics or may ultimately be used system-wide was apparent among stakeholders. Given that experiences outside of admitted LBVC clinics were less favourable in the use of HOPE PRMs, clarity regarding the scope of this program may be pertinent to consider and articulate to stakeholders. In clarifying the program scope, it is important to consider for whom HOPE PRMs are well-suited and add value.

Resource implementation and ongoing practice: Resourcing HOPE PRMs requires PRMs leads to actively communicate the program purpose, but also administrative support to address the burden of survey completion. The PRM Lead role is critical beyond the implementation of the HOPE platform to ensure engagement with the program in LHDs. Consider how PRM Lead roles and administrative support for the program may be sustained and supported to achieve the outcomes intended.

2. INTRODUCTION

The HOPE (Health Outcomes and Patient Experience) Patient Reported Measures (PRMs) Program is a partnership across NSW Health between the ACI, the NSW Ministry of Health, eHealth NSW, LHDs/SHNs and Primary Care. To support the NSW Health strategic priority of Value Based Health Care (VBHC).

Patient Reported Measures (PRMs) are surveys that allow patients to provide direct, timely feedback about their health-related outcomes and their experiences. They include Patient Reported Outcome Measures (PROMs) and Patient Reported Experience Measures (PREMs). They are based on the completion of validated surveys that help assess the quality of health care according to patients. The HOPE platform supports the digital collection and reporting of PRM data. Once registered on the HOPE system, patients can be assigned PRMS surveys and receive a link to the surveys via SMS or email. Over time it is expected that the completion of PRMs will results in benefits at the individual clinician/patient, service and system levels as documented in the monitoring and evaluation plan. Expected clinician-level outcomes that were explored in this evaluation were that PRMs increase clinician understanding of patients' needs and preferences, PRMs enhance patient/clinician interactions and discussions, facilitate shared decision making, PRMs lead to more holistic care aligned with needs and preferences of patients and PRMs elevate the experience of patients and clinicians.

The HOPE/ PRMs Program consists of two connected components: 1) the development of the HOPE IT platform to enable the collection and use of PRMs and 2) the change and adoption strategy to support the clinical practice and system changes required to routinely collect and use PRMs. This component of the HOPE PRMs process evaluation aimed to answer the following evaluation questions through a mixed-methods evidence synthesis from the uptake analysis undertaken by the ACI with survey and interview findings.

2.A.1 EVALUATION QUESTIONS

i. KEQ1: Is the HOPE PRMs program being implemented as intended?

ii. KEQ2: What is the uptake of PRMs?

iii. KEQ3: What is the clinician experience of using HOPE and PRMs?

iv. KEQ5: To what extent is the HOPE PRMs program achieving the changes and outcomes expected at the clinician level?

v. KEQ6: What are the barriers and facilitators to the HOPE PRMs program achieving its expected outcomes so far?

3. METHODS

3.A.1 UPTAKE ANALYSIS

An uptake analysis was conducted by the ACI Evidence team who were not involved in the implementation of HOPE PRMs.

3.A.2 ELIGIBLE DATA AND SCOPE

For this uptake analysis, the focus was on the tranche 1 LBVC cohorts (Figure 1; except for falls in hospital), which have the highest numbers of locations and surveys completed. There were relatively few live locations and completed surveys for Integrated Care (IC) and for some LBVC cohorts (falls, hip fracture, chronic wound, bronchiolitis). HOPE PRMs roll out in these cohorts has been slower than the other cohorts.

Figure 1 Leading Better Value Care Programs Tranche 1

The period covered for this uptake analysis was 01 February 2021 to 31 December 2021. Admitted and non-admitted patient data in ROVE was used to estimate the number of eligible LBVC patients in the LBVC clinics.

3.A.3 ANALYTIC STRATEGY

The methods used to conduct the uptake analysis are provided in full within a discrete report on the uptake analysis component (Appendix 1).

3.A.4 CLINICIAN SURVEY

3.A.5 SURVEY INSTRUMENT

An online clinician survey was devised drawing upon existing scales, items, and the evaluation questions to determine clinician experiences of using HOPE PRMs. Specifically, the survey sought to evaluate how clinicians have interacted with the HOPE platform and the extent to which accessing and using PRMs via HOPE has led to changes in patient care based on the expected outcomes sought from HOPE PRMs at the clinician level (Table 1).

Table 1 Clinician level outcomes expected from HOPE PRMs

Expected clinician-level outcome	Target for survey item
PRMs increase clinician understanding of patients' needs and preferences.	Measure perceived impacts of PRMs on knowledge about patient-needs and preferences
PRMs enhance patient/clinician interactions and discussions, facilitate shared decision making	Measures perceived impacts of PRMs on use and quality of shared decision-making approaches.
PRMs lead to more holistic care aligned with needs and preferences of patients	Measure perceived impacts of PRMs on ability to provide interprofessional and patient-centric care.
PRMs elevate the experience of patients and clinicians	Measure perceived impacts of PRMs clinician experience of care.

The resulting survey comprised 24 items across five domains: 1) demographic data, 2) extent and nature of use of HOPE and PRMs, 3) HOPE platform usability, 4) experience of the HOPE platform and impacts of using HOPE PRMs on clinical practice, and 5) experience of HOPE PRMs implementation, focusing on the barriers and enablers to implementation. The survey domains, scope of data capture and instrument is shown in full in Appendix 2.

3.A.6 SURVEY ADMINISTRATION

The clinician survey was created in an online format using MQ Qualtrics software. A survey link with brief information was provided by the MQ team to the ACI for distribution to 1293 clinicians registered in the HOPE platform. This process preserved the confidentiality of potential respondents by mitigating the need to share their personal contact details with the MQ team. Clinicians who received the survey link were able to complete the survey anonymously between Tuesday 6th September and Friday 23rd September 2022.

3.A.7 ANALYTIC STRATEGY

Upon close of the survey, the MQ team downloaded the data directly from Qualtrics and stored this securely in the Macquarie University OneDrive for analysis. SAS software was used for data preparation and analysis. Following minor revisions, the data analysis plan was finalised (Appendix 4), and analysis commenced through three stages: data preparation and preliminary analysis, and analysis of closed survey items, analysis of free text survey items.

3.A.8 STAKEHOLDER CONSULTATIONS

3.A.9 SAMPLING

Based on the levels and breadth of stakeholders in the HOPE PRMs Program, the Social Research Centre recommended that 15 group stakeholder focus groups were held. At a system level, focus groups included the NSW Ministry of Health, eHealth and ServiceNow; and Agency for Clinical Innovation (ACI) PRMs team. At a service level, 12 groups were sought to provide perspectives from regional and metropolitan LHDs/SHNs. Six groups were sought to provide perspectives from: LHD Executive Sponsors, LHD PRM program leads, and clinicians and managers from hospital departments/clinics that were approached to participate in the HOPE PRMs program but declined. Six further groups were sought to provide clinician experiences from those using

HOPE PRMs in the following Leading Better Value Care (LBVC) and Integrated Care (IC) grouped cohorts: Chronic Heart Failure (CHF); Chronic Obstructive Pulmonary Disease (COPD); Osteoporotic Refracture Prevention (ORP); Osteoarthritis Chronic Care Program (OACCP); High Risk Foot Services (HRFS); Inpatient Management of Diabetes Mellitus (IMDM); Renal Supportive Care (RSC); Planned Care for Better Health (PCBH) and Specialist Care in Primary Care (SCPC). Groups convened at a clinical level were based around four clusters to seek to obtain as much coverage as possible across the combinations of the following characteristics:: High completers, high number of patient surveys issued - hospital departments/clinics with a high proportion (>=50%) of patients who completed the surveys issued to them, where there were a larger number of registered patients (>=25) to whom surveys were issued:; High completers, low number of patient surveys issued; Low completers, earlier commencement; Low completers, later commencement.

3.A.10 PROCEDURE

Four topic guides were developed for 1) system-level participants, 2) LHD executive sponsors and LHD PRM leads, 3) clinicians that were invited but chose not to use HOPE PRMs and 4) the clinicians from the LBVC and IC clinics and locations that were registered in HOPE to collect PRMs. ACI worked with the LHD PRM leads to identify, contact and invite potential participants from each of these levels. A researcher from the Social Research Centre conducted each of the focus groups, and in some cases individual and group interviews with 1-2 participants were undertaken. Email communications from those who could and could not attend the focus groups and interviews was also included in the analysis.

3.A.11 ANALYTIC STRATEGY

The MQ team received the qualitative data collected by the Social Research Centre and were responsible for the development and execution of an analytic framework with these data. Framework Analysis (4) was selected as a structured approach to thematic analysis that enabled data to be extracted in relation to the evaluation questions. The analytic process was conducted by researchers with extensive experience in the use of the Framework approach. A five-step approach was employed: 1) familiarisation with data through repeated reading of transcripts; 2) independent coding of two transcripts to identify key codes for inclusion in the thematic framework, 3) discussion of initial coding framework with the ACI team for refinement, 4) applying framework across a small number of transcripts and 5) finalisation of the coding framework (Appendix 5) and application across the transcripts. Preliminary themes were discussed and refined by the MQ team and finalised.

3.A.12 EVIDENCE SYNTHESIS

Framework Synthesis (5) was employed to synthesis data from the uptake analysis, qualitative and survey research in relation to the evaluation questions, which were used as the analytic framework. Data was indexed to synthesis key information relevant to each evaluation question, considering the groups and settings from which evidence was drawn at each stage.

4. RESULTS

4.A.1 SAMPLE CHARACTERISTICS

4.A.2 UPTAKE ANALYSIS

Between February 2021 and December 2021, 233 clinics went live in HOPE with staggered implementation. Of these clinics, 174 were LBVC clinics for COPD (31), RSC (31), CHF (30), OACCP (25), ORP (23), HRFS (22), and IMDM (12). These clinics are the focus of the subsequent analysis. It was noted that COVID-19 had a significant impact on the roll-out of HOPE, which delayed the go live of 50 clinics during this period.

4.A.3 CLINICIAN SURVEY

The descriptive summary of clinician respondents who used HOPE PRMs is detailed in Table 2. Respondents were predominantly from Northern NSW LHD (8.63 %) followed by South Western Sydney (6.71 %), Sydney (6.39 %) and Western NSW (6.39 %). Nurses and midwives were most highly represented in the sample (43.77 %) followed by allied health professionals (29.39 %). Many of the respondents had used HOPE within the last three months (30.67 %) and had reported using HOPE weekly (46.65 %), for 75 – 100 % of their eligible patients (39.30 %) and had previous experience with PROMs/PREMs prior to using the HOPE platform (57.83 %). HOPE was also reported to be predominantly used in Non-Admitted LBVC (32.91 %). Majority of clinicians also reported to have used more than one PRM measure within the HOPE platform (57.51 %).

Table 2 Descriptive summary of respondent who have used HOPE platform (N =313)

Characteristic	**n (%)**
Local Health District	
Central coast	14 (4.47)
Far west	8 (2.56)
Hunter New England	10 (3.19)
Illawarra Shoalhaven	17 (5.43)
Justice Health	0 (0.00)
Mid North Coast	19 (6.07)
Murrumbidgee	12 (3.83)
Nepean blue mountains	11 (3.51)
Northern NSW	27 (8.63)
Northern Sydney	9 (2.88)
South Eastern Sydney	15 (4.79)
South Western Sydney	21 (6.71)
Southern NSW	7 (2.24)
St Vincent's	10 (3.19)
Sydney	20 (6.39)
Sydney Children's Hospital Network	0 (0.00)
Western NSW	20 (6.39)
Western Sydney	15 (4.79)
Missing	78 (24.92)
Professional group	
Allied health professional	92 (29.39)
Doctors	7 (2.24)
Nurses and midwives	137 (43.77)

Characteristic	n (%)
Missing	77 (24.60)
First use of HOPE platform	
Within the last 3 months	96 (30.67)
Within the last 6 months	70 (22.36)
Within the last 12 months	71 (22.68)
More than 12 months ago	76 (24.28)
Frequency of HOPE use	
Daily	55 (17.57)
Weekly	146 (46.65)
Monthly	37 (11.82)
Occasionally (every 2-3 months)	41 (13.10)
Rarely (every 6 – 12 months)	33 (10.54)
Missing	1 (0.32)
Clinical Initiatives for which HOPE PRMs have been collected	
Admitted LBVC	65 (20.77)
Chronic heart failure	*19 (6.07)*
Chronic obstructive pulmonary disease	*30 (9.58)*
Inpatient management of diabetes mellitus	*11 (3.51)*
Falls	*4 (1.28)*
Hip fracture care	*1 (0.32)*
Non admitted LBVC	103 (32.91)
Osteoarthritis chronic care program	*36 (11.50)*
Osteoporosis refracture prevention	*15 (4.79)*
High risk foot services	*23 (7.35)*
Renal supportive care	*29 (9.27)*
Integrated Care	31 (9.90)
Planned care for better health	*23 (7.35)*
Emergency department to community	*0 (0.00)*
Residential aged care	*0 (0.00)*
Vulnerable families	*0 (0.00)*
Specialist outreach to primary care	*3 (0.96)*
Paediatric network	*5 (1.59)*
Others	47 (18.8)
Multiple patient cohorts	63 (20.13)
Missing	4 (1.28)
% of eligible patients for whom HOPE PRMs are collected	
0 – 24 %	89 (28.43)
25 – 49 %	35 (11.18)
50 – 74 %	40 (12.78)
75 – 100 %	123 (39.30)
Missing	26 (8.31)
Types of PRMs patients have completed	
Generic Quality of life patient reported outcome measures	54 (17.25)
Condition specific patient reported outcome measures	19 (6.07)
Patient reported experience measures	33 (10.54)
More than one PRM	180 (57.51)

Characteristic	n (%)
Missing	27 (8.63)
Use of PROMs/PREMs prior to the introduction of the HOPE platform	
Yes	181 (57.83)
No	101 (32.27)
Missing	31 (9.90)

Sample characteristics of the respondents who have not used HOPE are shown in Table 3 (n=57) Inferential analysis did not reveal any significant differences between the make-up of the respondents who did and did not use HOPE in terms of their LHDs and Professional groups.

Table 3 Summary table of sample who did and did not use HOPE Platform

Characteristic	HOPE user (n %) N=313	HOPE non-user (n %) N = 57	χ^2 (p value)
Local Health District			0.16 (0.694)
Central coast	14 (4.47)	1 (1.75)	
Far west	8 (2.56)	0 (0.00)	
Hunter New England	10 (3.19)	5 (8.77)	
Illawarra Shoalhaven	17 (5.43)	7 (12.28)	
Justice health	0 (0.00)	0 (0.00)	
Mid North Coast	19 (6.07)	4 (7.02)	
Murrumbidge	12 (3.83)	1 (1.75)	
Nepean blue mountains	11 (3.51)	1 (1.75)	
Northern NSW	27 (8.63)	1 (1.75)	
Northern Sydney	9 (2.88)	1 (1.75)	
South Eastern Sydney	15 (4.79)	5 (8.77)	
South Western Sydney	21 (6.71)	4 (7.02)	
Southern NSW	7 (2.24)	0 (0.00)	
St Vincent's	10 (3.19)	0 (0.00)	
Sydney	20 (6.39)	2 (3.51)	
Sydney Children's Hospital networks	0 (0.00)	(0.00)	
Western NSW	20 (6.39)	4 (7.02)	
Western Sydney	15 (4.79)	4 (7.02)	
Missing	78 (24.92)	17 (29.82)	
Professional group			0.87 (0.335)
Allied health professional	92 (29.39)	14 (24.56)	
Doctors	7 (2.24)	1 (1.75)	

Nurses and midwives	137 (43.77)	26 (45.61)	
Missing	77 (24.60)	16 (28.07)	

The most common means of collecting PROMs/PREMs prior to the introduction of HOPE were paper (n=153), the online platform REDCap (n=25) and electronic medical records (EMR, n=10). Table 4 provides a list of the PRMs most frequently identified as collected prior to the introduction of the HOPE platform.

Table 4 PRMs collected prior to HOPE

PROM/PREM	N
Patient-Reported Outcomes Measurement Information System (PROMIS)-various iterations	64
COPD Assessment Task (CAT)	27
EG-5D-5L	23
St George Respiratory Questionnaire (SGRQ)	23
Oxford Hip or Knee Score	22
IPOS-Renal	22
Kansas City Cardiomyopathy Questionnaire (KCCQ)/KCCQ-12	16
Falls Efficacy Scale (FES)/FES-International	14
Knee disability and Osteoarthritis Score (KOOS)	13
Depression Anxiety Stress Scale (DASS) 21	11
Hip disability and Osteoarthritis Score (HOOS)	11
Hospital Anxiety and Depression Scale (HADS)	10
Patient Health Questionnaire (PHQ) 9	7

4.A.4 PHASE 3: QUALITATIVE EXPLORATION

Transcriptions from 14 group discussions, 9 individual interviews and text from 12 emails were analysed using the coding framework. There were 90 unique respondents and 99 responses in total. The dataset comprised of 12.25 hours of audio data and 18 pages of text. Appendix 3 provides a summary of data sources by role and a detailed breakdown of participants by LHD.

Through the analytic process, 21 themes were created, which were grouped under four categories as shown in Table 5. These categories and themes are further detailed in relation to the relevant evaluation question/s.

Table 5 Resulting categories and themes

Categories	Themes
1. Using HOPE	1. Value to change care 2. Relative advantage 3. Resourcing practice 4. Flexibility for adaptation 5. HOPE vs PRMs
2. Supportive Systems	6. A systems asset 7. Aligning Objectives 8. Reporting for change 9. Connecting Primary Care 10. Resourcing the PRMs system
3. Locally responsive	11. Receptive districts 12. Managing the process 13. Localising strategies 14. Engaged clinicians 15. Skilled leaders
4. Transitioning into HOPE	16. Resourcing adoption 17. Aligning goals 18. Prioritising PRMs 19. Volume and value in engagement 20. Setting the pace 21. Visions of success

4.A.5 SYNTHESISED FINDINGS RELATIVE TO THE EVALUATION QUESTIONS

Findings are presented with reference to each evaluation question in scope for this process evaluation. No targets for the change and adoption process were set; a staggered approach was established based on district readiness. Limitations of the project scope and available data to address this one.

4.A.6 KEQ1: IS THE HOPE PRMS PROGRAM BEING IMPLEMENTED AS INTENDED?

Synthesis across the data provides evidence used to determine whether the HOPE PRMs Program is being implemented as intended. The following sub-questions relate to this evaluation question, with only sub-questions a and b in scope for the present evaluation:

a) Given the stage of implementation, is the change and adoption strategy on track?
b) To what extent is the change and adoption process adapted to local contexts?

4.A.7 GIVEN THE STAGE OF IMPLEMENTATION, IS THE CHANGE AND ADOPTION STRATEGY ON TRACK?

Implementation as intended constitutes both the extent to which planned implementation activities, such as education, training and preparedness activities, were executed as planned, but also whether the intended outcomes of the HOPE PRMs program at this stage within the roll-out. In the absence of target outcomes for each stage of the roll-out, this evaluation focused on what was achieved in terms of the clinician-level outcomes.

In determining whether the Program has been implemented as intended, we first considered data of the training and preparedness sessions planned as compared to those delivered, and evidence

of the degree to which clinicians reported feeling sufficiently prepared for collecting and using HOPE PRMs. From the report of training and preparation activities (Appendix 6), it is notable that many training sessions occurred ahead of each go-live, with less engagement in the eLearning modules. Of the 784 enrolled individuals, 45% completed the initial module, with drop off to less than 200 individuals enrolled in the later modules, with only 57% of these individuals completing the fourth module about how to use PRMs to create positive change, suggesting a focus of interest was on the new HOPE PRMs program and system. Survey evidence reflected this, suggesting that most clinicians felt that they had received sufficient education and training to collect HOPE PRMs and use the platform. Qualitative data further confirms that, among those included in the qualitative component, there was a high volume of training and preparedness activities that were valued by many. Lack of flexibility in the structure and approach to training activities, such that teams were required to attend as a group and at a set point in time rather than through mutual agreement, was identified as a limitation by several respondents.

4.A.8 TO WHAT EXTENT IS THE CHANGE AND ADOPTION PROCESS ADAPTED TO LOCAL CONTEXTS?

We considered evidence from the clinician survey, including qualitative comments and the qualitative data collection to determine whether implementation was achieved as intended from a clinician and LHD perspective. These data provided evidence of how the change and adoption process had been undertaken in local contexts. Clinician-level outcomes expected were both in the adoption of HOPE PRMs in their service, but also in changing their understanding and thinking about clinical practice to be more patient-centric.

The survey data demonstrated that, at this stage in the implementation, clinicians' experiences vary widely in whether HOPE PRMs have been implemented effectively in their service/s, and for their local communities. Perceived lack of sufficient engagement about the use of HOPE PRMs and opportunities for how it is used in their service was notable. There was substantial variation between LHDs in these experiences, with respondents from Central Coast and Far West LHD both reporting high levels of clinician engagement about the use of HOPE PRMs and how it would be implemented. Further to this, Western NSW, South-Eastern Sydney, Nepean Blue Mountains and Illawarra Shoalhaven LHDs reported neutral mean responses on the matter of clinician engagement.

In terms of whether HOPE PRMs are starting to have the intended outcomes at a clinician level in terms of their practice, clinicians overall did not attribute the use of HOPE PRMs to improving their ability to engage with patients in a more holistic way, understand and consider their needs. In more than 60% of survey respondents, HOPE PRMs were not considered to have a positive change in influencing understanding of patient needs and practice to respond to this. Variation amongst respondent groups must again be considered. A sub-set of users who used HOPE PRMs frequently, with most of their patients and who are working with LBVC cohorts were positive about changes occurring in patient care due to use of HOPE PRMs. Most of the positive change resulting from HOPE PRMs relates to use of PROMs rather than PREMs. These findings indicate that HOPE PRMs and the associated change and adoption process has been implemented more successfully with the sub-sets of clinicians and patient cohorts identified, and that further refinement and adaptation may be required.

4.A.9 KEQ2: WHAT IS THE UPTAKE OF PRMS?

Full findings from the uptake are analysis are reported in Appendix 1. The sub questions for this evaluation question were:

a) Are baseline and follow-up surveys being routinely completed?

b) How has uptake varied across patient cohorts, CALD and Aboriginal populations, LHDs, and services?

We note that the data to enable analysis of uptake for CALD and Aboriginal populations were not available and this aspect of the evaluation was therefore out of scope.

In summary, the uptake analysis provided evidence of the cumulative number of clinics that went live across the study period (Figure 2). The monthly rate of HOPE go-live varied considerably across this period. Although, on average, 12 clinics per month went live with HOPE, the number of clinics that went live per month ranged from 37 clinics and 23 clinics in March and April respectively down to 1 clinic in December. Variation in uptake across patient cohorts, LHDs, and services was explored, but data were not available to delineate variations for the priority populations of CALD and Aboriginal and Torres Strait Islander communities.

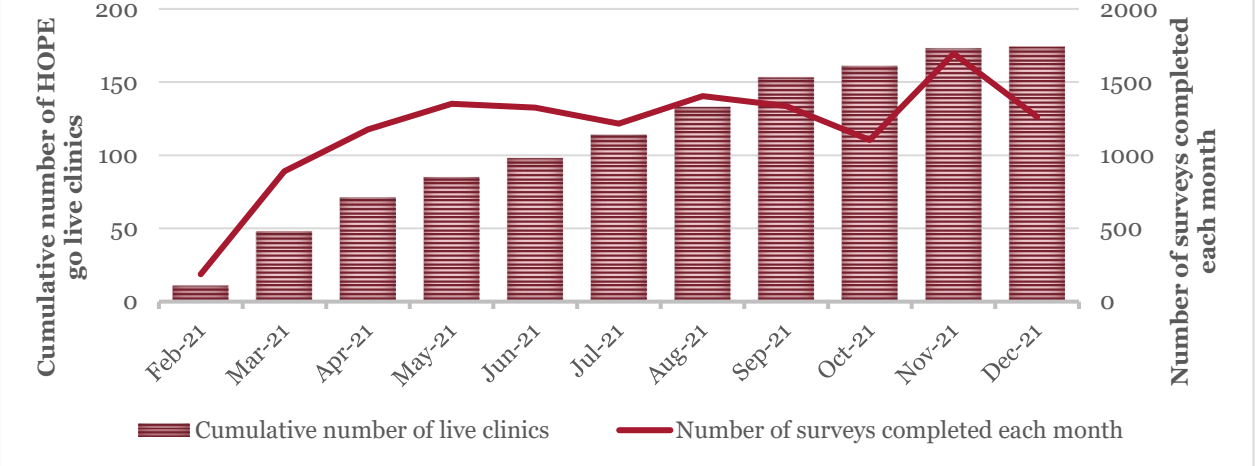


Figure 2 Cumulative rate of HOPE clinics go-live and number of surveys completed

Analysis was conducted to evaluate the percentage of eligible clinics who had implemented HOPE between February to Dec 2021 (Figure 3). At December 2021, 28% of eligible LBVC only clinics had gone live in HOPE, ranging from 14% to 71% across initiatives. For the initiatives in which there was greater certainty regarding the number of eligible clinics (HRFS, OACCP, ORP, RSC), 60% of eligible clinics had gone live in HOPE during this period. The proportion of eligible clinics that went live varied between LHDs, from 0% in Sydney LHD to 100% in Mid-North Coast and Far West. See uptake analysis (Appendix 1) for further details of the onboarding process.

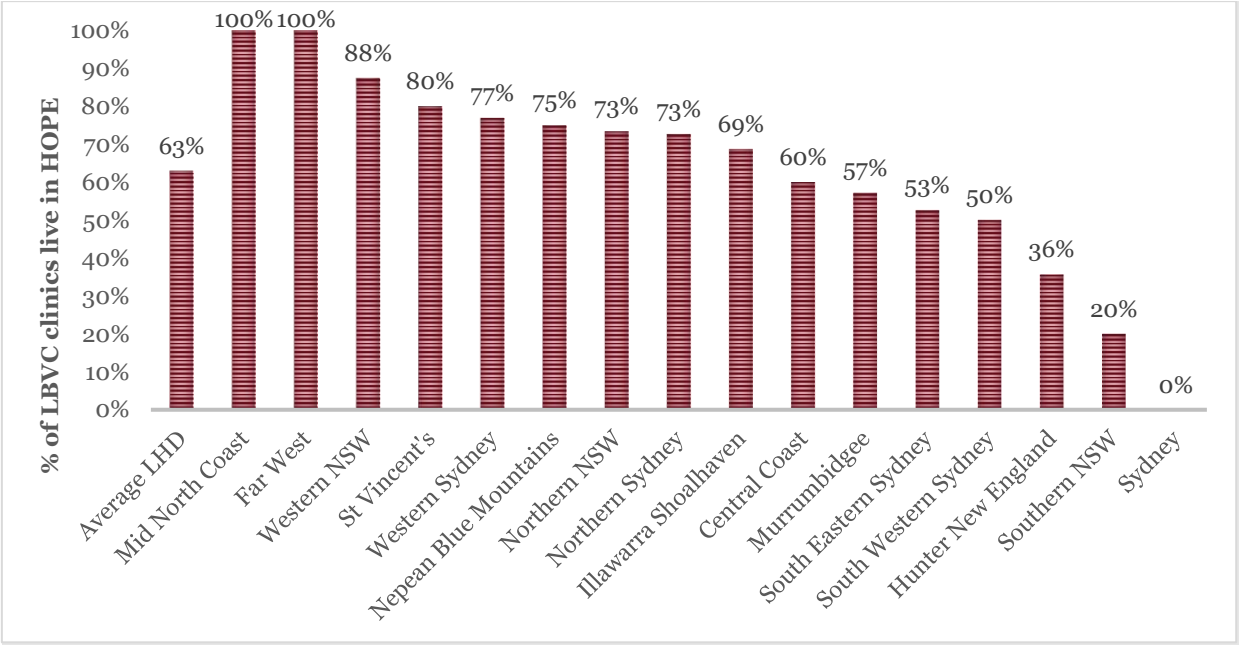
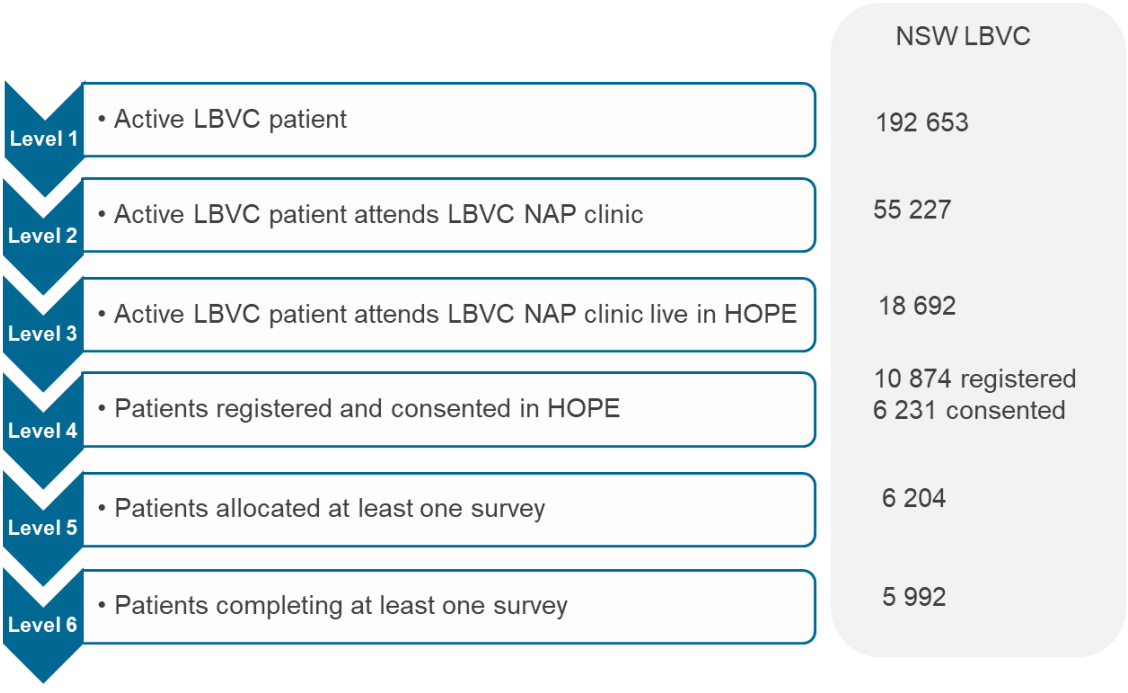


Figure 3 Percentage of LBVC clinics live with HOPE by LHD

The uptake analysis characterised HOPE PRMs uptake in a cascade (Figure 4) from level 1, in which patients who had at least one LBVC-related interaction with the NSW public healthcare system between 01 February 2021 to 31 December 2021, through to level 6, which is the completion of at least one PRMs survey in HOPE. Appendix 7 provides definitions for each stage of the cascade.



Source: ROVE, HOPE and Onboarding, Inputs and Tracking file, Feb 21-Dec 21

Figure 4 HOPE PRMs Cascade Levels

A review of the data for Levels 3 to 6 indicates the following with regard to the way in which patients and clinicians who were able to interact with HOPE PRMs engaged with the Program.

<u>Level 3.</u> Active LBVC patients in clinics after HOPE go live. Between February 2021 and December 2021, 18,692 patients visited a LBVC NAP clinic after it went live in HOPE. The focus of the uptake analysis narrowed to LBVC NAP clinics at this stage because few patients were registered in other locations.

<u>Level 4.</u> Patient registration and consent into HOPE. Of these 18,692 patients, 58% (n = 10,874) were registered in HOPE. Although registered with HOPE, only 57% of registered patients consented to using the HOPE platform. Consent may have been declined by the patient or left pending. This may relate to factors identified in the survey and qualitative analysis such as lack of time and resources to support informed consent, digital and health literacy among patients, and perceptions of the perceived value of PRMs surveys.

<u>Level 5.</u> Survey allocation by staff. In total, there were 18,638 PRM surveys allocated in HOPE, over half of these (52%; 9659) were allocated from one LBVC initiative – OACCP as shown in Figure 5. Overall, there are higher rates of survey allocation for generic (46%) and condition-specific (44%) PROMs than PREMs (10%).

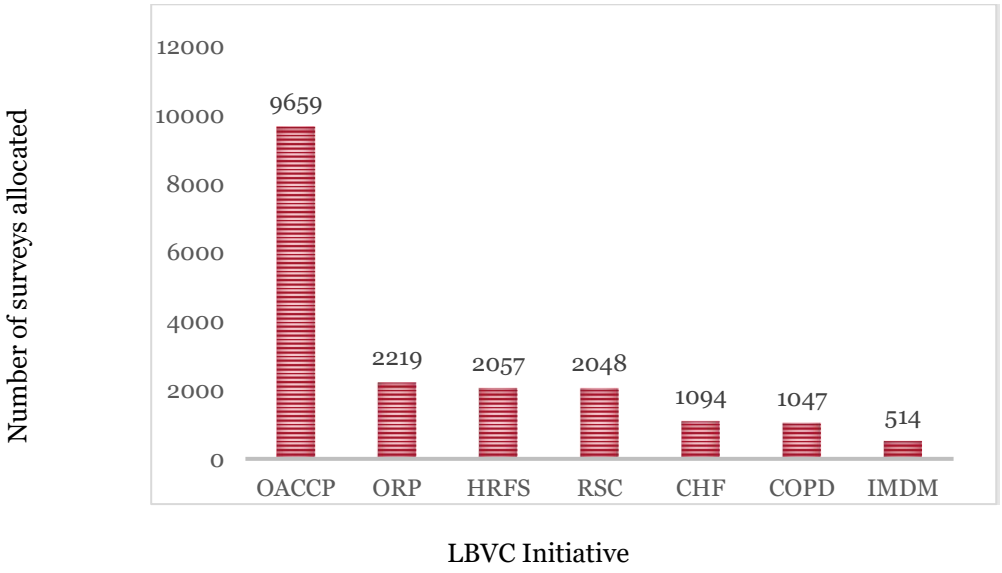


Figure 5 Number of HOPE PRMs surveys allocated by clinical initiative

<u>Level 6.</u> Patients completing at least one survey. 5992 patients completed at least one PRM survey in HOPE. This is 32% (5992/18692) of eligible patients (i.e. who visited a LBVC NAP clinic after it went live with HOPE).

In total, 69% of the allocated PRM surveys were completed (12944/18520), with higher completion rates for PROMs - condition specific (75%, 6731/8951) and generic PROMs (68%, 5454/7992) than PREMs (45%, 759/1577).

<u>Completion mode</u>: We note the mode of survey completion was introduced in Dec 2021. From Dec 2021 to June 2022, PRM surveys were most often completed face-to-face in the clinic setting (42% 4942/11,660) and transcribed (32%, 3786/11,660). The least used mode was online (25%, 2932/11660). On average, clinicians read the completed surveys 79% of the time (10,166/12,947). However, this ranges from 40% to 84% between LBVC initiatives, which suggests that survey results are being reviewed for potential use variably between initiatives. Overall, PRM survey completion rates decreased from the first allocation (79%, 9516/12073) through to the third allocation (49%, 728/1474), diminishing the ability of clinicians to review how results may have changed over time (Figure 6).

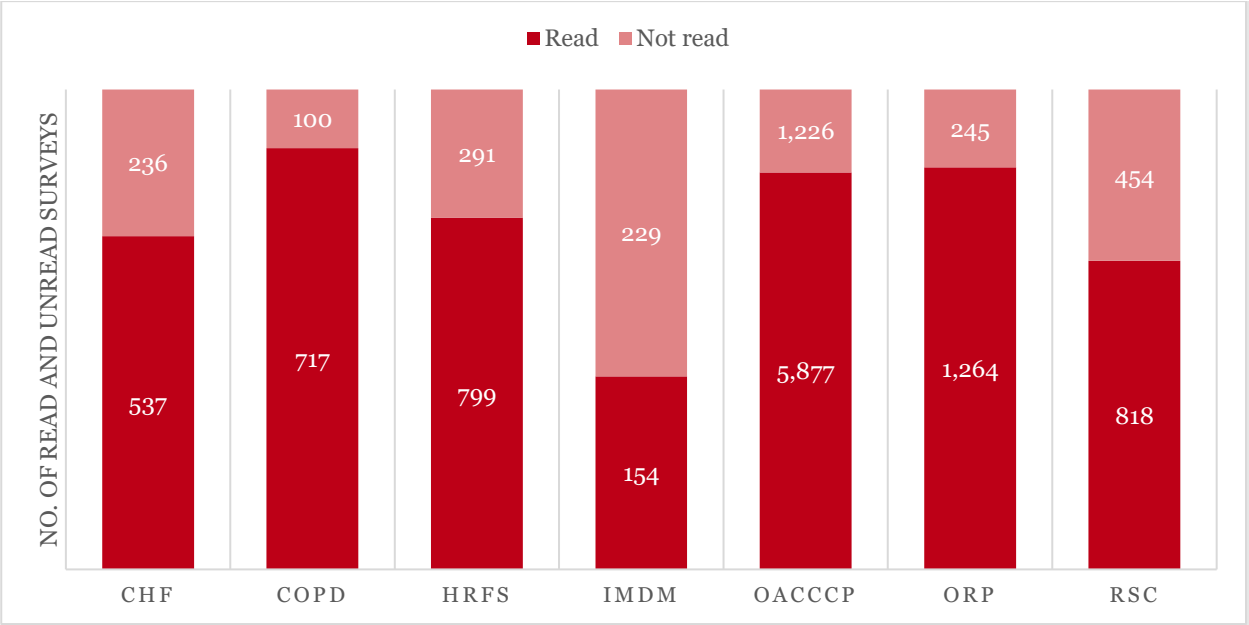


Figure 6 Read status of completed surveys

Free-text items within the clinician survey provided insight about why clinicians did and did not collect and use HOPE PRMs. Analysis of the survey free-text elements from the 38 clinicians who had never collected PRMs using HOPE demonstrated that this was predominantly because they either did not have access (n = 16) or the collection of PRMs was conducted by others in their organisation (n=12). Other reasons for not collecting PRMs using HOPE were concerns regarding the HOPE platform due to the lack of suitability of HOPE PRMs for the stage of treatment, ability or wellness of their patient/s (n=6), having an alternative such as paper-based approaches to collect PRMs (n=3), due to lack of resources (n=3) and due to hearing of others having difficulty with the platform (n=2). Five further participants, who indicated in their responses that they had used HOPE to collect PRMs previously but have ceased to use HOPE PRMs provided similar reasons for doing so and often more than one reason; four had concerns about the platform, two had concerns regarding resources and two cited patient factors. The comments made are exemplified in the below quotes.

"Far too many issues being reported by LHDs who are using it."

""I have collected patient `s email or mobile number and sent the survey as per their preference. However, most of my patients haven `t completed the survey and they find the conversation regarding doing it itself difficult."

"My patients use a different platform."

Many respondents (249) provided information about circumstances in which they had not collected PRMs for eligible patients. The range of reasons are shown in Table 6 with supporting quotes. The most common reasons given were based on the ability of patients to complete PRMs, the specific PRMs surveys available and/or in HOPE. There were some differences between the main reasons given for those in the admitted LBVC group, non-admitted LBVC group, integrated care, others, or in multiple cohorts, with those outside of LBVC groups more often citing lack of perceived suitability of HOPE PRMs surveys for their cohorts.

Table 6 Circumstances in which PRMs were not collected for eligible patients

Category	N (%)	Description	Example quote(s)
Patient preference	88 (35.3)	In some circumstances, patients declined or withdrew consent to fill in PRMs or be registered for HOPE, lacked interest in undertaking the surveys or simply did not complete them.	"When patients decline, or they do not attend the group in the first couple of weeks." "Majority of clients decline to participate and those that agree don't tend to complete the survey/s."
Patient ability	85 (34.1)	A range of factors affected patients' ability to complete PRMs via HOPE. This included lack of email/Service NSW access, poor digital literacy, cognitive decline, being from a non-English speaking background, or turning up too late to appointments.	"Stroke/brain injuries with cognitive and communication impairments. Patients with pre-morbid cognitive or low education (dementia, illiterate etc,) Aggressive or patient with behavioural issues post stroke, brain injury, dementia etc.. Patients who are technologically illiterate." "'- limited technical ability to figure out Service NSW and limited time for clinicians and admin staff to explain."
Time or resource issues	49 (19.7)	Constraints on the time or capacity available to complete PRMs due to service factors (e.g., lack of staff, computers), or patients arriving late to appointments.	"Due to staffing limitations, we only send out via email for responses. Due to this there is low participation rates." "Ward clerks register patients - but in 1 ward area no regular ward clerk so inconsistency in practice."
Inappropriate point in care for patient	39 (15.7)	Due to the nature of the appointment (e.g., intake), the point in care, or the condition of the patient (e.g., infectious, distressed, acutely unwell), it is not feasible to collect PRMs.	"When the patient has already been given a lot of infection in one session, so not to over burden them." "If patients are too unwell maybe."
Confirmed completion	18 (7.2)	Responses indicating PRMs are completed. In some instances, respondents misunderstood the question and highlighted in what circumstances they did collect PRMs via HOPE.	"Just collecting in our type 1 diabetes clinics."
Inappropriate for setting or mode of delivery	16 (6.4)	Unsuitability of settings for collecting PRMs, such as telehealth, home, and various	"Aim for all patients but due to telehealth and low ability of patients to complete this

Category	N (%)	Description	Example quote(s)
		outpatient clinics or inpatient wards.	by themselves not on an iPad in clinic having less uptake." ID282 "When Renal Supportive Care patients are inpatients." ID332
Paper completion	10 (4)	Mention of still collecting PRMs in paper form; some respondents noted these were then manually entered by staff into HOPE.	"We tend to give patient's a paper version and then manually enter the data due to our cohort being less technologically savvy."
Inappropriate type of patient	8 (3.2)	Only specific patient conditions require use of HOPE.	"Non-COPD and Non-Post covid respiratory patients as these cohorts are not on HOPE."
Technical difficulties	7 (2.8)	Issues with tablet, computer or internet access that affected ability to complete PRMs in HOPE.	"When in remote / hilly areas where mobile reception is poor."
Other	9 (3.6)	Reasons such as forgetting to administer PRMs, lack of leadership engagement, patients being discharged before collection point, or other broader organisational challenges.	"Service has put collecting PRMs on hold for all eligible patients due to service being continued relocated this year due to environmental circumstances."
No response	7 (2.8)	Responses of "nil" or "n/a".	

The uptake analysis focused on HOPE PRMs uptake in LBVC clinics for seven LBVC initiatives. Open-ended survey items provided evidence of key factors that clinicians described as impacting their uptake of HOPE PRMs. These factors were relevant to levels 4 to 6 of the uptake analysis as depicted in Figure 7.

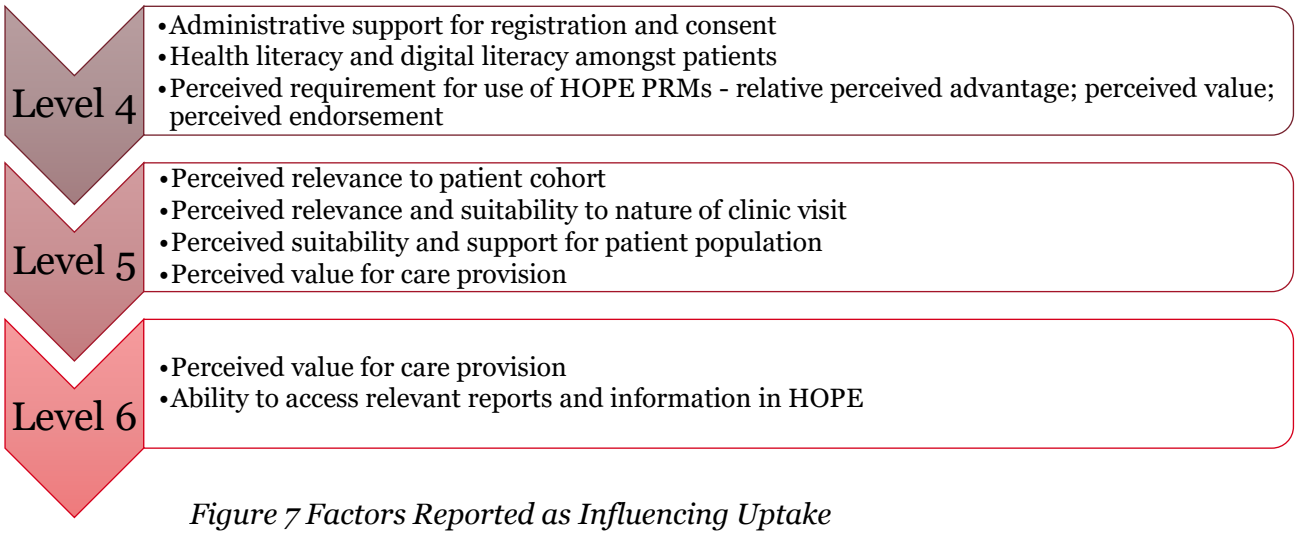


Figure 7 Factors Reported as Influencing Uptake

The uptake findings overall suggest that baseline surveys have been completed to a varying degree and that follow-up surveys are not routinely being completed, given the drop off number of surveys completed after baseline. Uptake has varied across patient cohorts, LHDs, and services, but critically, it was not possible to determine the uptake for priority populations including culturally and linguistically diverse and Indigenous Australian population due to the available data. Further evidence of uptake among these populations is required to address the second evaluation sub-question.

4.A.10 KEQ3: WHAT IS THE CLINICIAN EXPERIENCE OF USING HOPE AND PRMS?

A synthesis of quantitative and qualitative data gathered via the survey, focus groups and interviews characterised the clinician experience of using HOPE and PRMs. Survey data regarding experiences of using the HOPE platform and of using HOPE PRMs demonstrated evidence of platform usability, extent of usage and experiences of generic and condition specific PRMs. The sub-questions posed for this section are:

a) Is HOPE easy and convenient to use for clinicians?
b) What is the clinician experience of collecting and interpreting PRMs

4.A.11 IS HOPE EASY AND CONVENIENT TO USE FOR CLINICIANS?

Using the System Usability Scale (SUS), the HOPE platform achieved a mean usability score of 50.84 ± 19.59, which indicated usability is below the acceptable standard, but there was substantial variation across the sample. The median score was 52.5, with SUS scores ranged from 0 (n=2) to 100 (n=1), but 79% of respondents (204/256) rated HOPE below the cut off score of 68, which is considered acceptable usability. Just over half of the respondents (57 %; 146/256) reported feeling confident in using the HOPE platform. Key challenges when using the HOPE platform appear to be the platform being perceived as cumbersome to use (43% agree or strongly agree; 110/256 as compared to 30%; 77/256 who did not find it cumbersome) and/or being unnecessarily complex (41%; 105/256 agree or strongly agree as compared to 31%; 79/256 who did not find it unnecessarily complex). Most respondents (65%; 166/256) reported that they did not need the support of a technical person to use the HOPE platform. Mean SUS scores stratified by professional group, patient cohorts, HOPE PRM usage and use of PROMs/PREMs prior to the introduction of the HOPE platform are detailed in Table 7. Significant associations were identified between usability scores and professional group, patient cohort, frequency of HOPE use, % of eligible patients for which HOPE is used and previous experience with PROMs were observed. The nature of these relationships was that those who had significantly higher usability scores for the HOPE platform were allied health professionals ($p<0.001$) as compared to nurses and doctors, those who collected HOPE PRMs in admitted and non-admitted LBVC cohorts as compared to other patient cohorts ($p<0.01$), those who used HOPE frequently (i.e. daily, weekly, or monthly) as compared to those using HOPE occasionally or rarely ($p<0.05$), and those who used HOPE with more than 50% of eligible patients ($p<0.001$).

Table 7 SUS scores and sample characteristics

Characteristic	Usability score	
	(mean ± SD)	χ^2 (p value)
Professional groups		
Allied health professional	56.41 ± 17.23	17.02 (<0.001)
Doctors	35.36 ± 29.24	
Nurses and midwives	46.75 ± 19.19	
Patient cohorts for which HOPE has been collected		
Admitted LBVC	51.15 ±17.58	13.79 (0.008)
Non admitted LBVC	54.97 ± 19.10	
Integrated care	46.04 ± 19.47	
Others	40.13 ± 23.25	
More than one cohort	53.08 ± 17.56	
Frequency of HOPE use		
Daily	53.47± 22.71	9.31 (0.054)
Weekly	52.79 ± 18.75	
Monthly	50.78 ± 17.36	
Occasionally (every 2-3 months)	46.64 ± 19.19	
Rarely (every 6 – 12 months)	41.50 ± 19.09	
% of eligible patients for which HOPE was collected		
0 – 24 %	38.81 ± 18.77	58.12 (<0.001)
25 – 49 %	46.00 ± 18.60	
50 – 74 %	60.36 ± 14.58	
75 – 100 %	58.44 ± 16.74	
Use of PROMs/PREMs prior to the introduction of the HOPE platform		
Yes	52.31 ± 19.37	2.81 (0.094)
No	48.23 ± 19.81	

Clinicians reported that both types of PROMs required patients to be supported to access the HOPE platform and complete the survey/s, with most respondents agreeing or strongly agreeing with these statements as shown in Table 8. Respondents for both PROMs types predominantly reported limited value of PROMs for decision-making, with a larger standard deviation in the generic PROMs group. The generic PROMs were also commonly considered time consuming as compared to the condition-specific PROMs that were on average not considered to be time consuming.

Table 8 Clinician experiences with generic and condition-specific PROMs

Survey item (scale ranging 1-5)	Generic QoL PROMs (Mean score ± SD)	Condition specific PROMs (Mean score ±SD)
Patients completing PRMs require support to access the platform	3.51 ± 1.03	3.53 ± 0.72
Patients completing PRMs require support to complete the survey	3.35 ± 1.06	3.24 ± 0.83
PROM type is relevant for decision making	2.73 ± 1.48	2.73 ± 0.80
Completing PROM type is time consuming	3.37 ± 1.39	2.88 ± 1.15

Usage of HOPE was explored by professional group, patient cohort, previous experience of using PRMs, the usability score and perceived impacts on patient care gathered via the clinician survey. Univariate logistic regression models demonstrated a significantly higher frequency of HOPE use among clinicians working in the Integrated Care cohort (OR 4.74, 95 % CI 1.02 – 22.09), those with no previous experience of using PRMs (OR 0.49 95 % CI 0.27 – 0.86), those who reported higher usability scores (OR 1.02, 95 % CI 1.01 – 1.04) and those who perceived using HOPE PRMs had impacts of PRMs on patient care (OR 1.06 95 % CI 1.01 – 1.11). No significant differences in frequency of use were identified between professional groups. Univariate logistic regression models demonstrated HOPE PRMs were used with a significantly higher proportion of eligible patients among clinicians who did not have previous experience of using PRMs, (OR 0.55, 95 % CI 0.21 – 1.42), for those with higher usability scores (OR 1.03 95 % CI 1.00 – 1.06) and for those who perceived there to be an impact on patient care (OR 1.12 95 % CI 1.02 – 1.22).

Several survey respondents (n= 159) commented on the ease of use of HOPE as compared to other methods they had used previously. These responses were classified according to eight content categories, with some categories reflect both advantages and disadvantages. Table 9 summarises perceived advantages of collecting PROMs/PREMs in HOPE, which predominantly were reported by those in LBVC clinics. Table 10 contains a summary of the disadvantages.

Table 9 Relative advantages of using HOPE to collect and use PRMs

Category	N (%)	Description	Example quote(s)
Usability of results	49 (30.8)	Results of surveys are interpretable, provided efficiently and clinically actionable.	"easy pre/post comparison/evaluation of progress over time." " collation of patient's results with an immediate "score" - assists with discussion during time with patient; points clinician to the areas that may require more in-depth assessment."
Staff ease of use	23 (14.5)	Some comments indicated the platform was easy and user-friendly for staff administering PRMs.	"New platform is easy to use once familiar with program." "Less time-consuming registering patients Easy to assign/delete surveys Much better reporting options and graphs."
Patient ease of completion	18 (11.3)	Patients experienced with technology find it easy and straightforward to complete surveys in HOPE and can do so in their own time prior to appointment.	"HOPE can be convenient for patients and carers who are confident using online tools."
Relevance of surveys	4 (2.5)	Perception that HOPE surveys are applicable to patient cohort and setting.	"Clear morbidity specific surveys."

Table 10 Relative disadvantages of using HOPE to collect and use PRMs

Category	N (%)	Description	Example quote(s)
Patient ease of completion	70 (44)	Some patients find it very challenging to complete surveys within the HOPE platform compared to paper surveys. This may be particularly difficult for patients who are older, lack digital access (i.e. to computer/smart phone/email), have poor vision, or have difficulties with literacy or language barriers.	"Most of our patients are elderly and cannot cope with technology." "We collect iPos on paper because the iPad is very slow and clunky, no matter what anyone says the patients in our elderly cohort can't use it, the screens don't align properly and there's LOTS of scrolling to submit, people often get it wrong along the way and require a lot of help, it's so time consuming it takes up much of our consult and generally a large waste of time."
Staff ease of use	46 (28.9)	The platform or aspects of it were by some reported as clunky, time-consuming and difficult to use.	"Disadvantages - needing to assign surveys to patients, not having this done automatically as with CMS Service." "HOPE is very involved and has a lot of unnecessary log in/registration steps. the past ones I did were quick and simple."

Category	N (%)	Description	Example quote(s)
HOPE platform and process issues	45 (28.3)	Numerous issues related way HOPE platform works, including the requirements of a Services NSW login, which respondents suggested was off putting to patients, and the fact HOPE does not currently integrate with EMR.	"We now have to access EMR put the email in, set up the surveys in HOPE and submit with all the other information required to access the client. Then if the client can't access through Engage/Service NSW they call us but usually nothing we can do because they don't know their login details. Then we have to do it face to face anyway, then have to manually put it in HOPE ourselves after they have filled out the paper document we previously used. The PREMS we have to also get Access Code and ID and put that in which causes confusion getting into platform all the time with new staff. Very very time consuming. And if the surveys expire have to do it all again."
Needing to incorporate paper surveys	22 (13.8)	For a number of reasons (e.g., technology, patient factors) paper surveys were mentioned as being used, then requiring manual entry into HOPE.	"If we choose to get someone to complete paper copy we then need to manually input to HOPE AND eMR."
Usability of results	20 (12.6)	Perception that the results of PRM surveys are not helpful or not presented in a way that is actionable.	"Extraction of data to create meaningful comparisons seems limited compared to Redcap."
Relevance of surveys	18 (11.3)	Perception that HOPE surveys are not applicable to patient cohort or setting.	"Very repetitive data- not sure the patients answer accurately as they are saturated with these questions."
Technological issues	10 (6.3)	Concerns about failing technology, internet access or the storage of data on the internet.	"Difficult when computer has issues, if unable to use HOPE platform, need to do on paper and then enter later."
Patient engagement	4 (2.5)	Comments regarding a lack of patient engagement with PRMs and completing them online.	"Patients don't usually fill survey when sent via email."

4.A.12 WHAT IS THE CLINICIAN EXPERIENCE OF COLLECTING AND USING HOPE AND PRMS?

The first category of themes developed from the qualitative data '*Using HOPE*' provides further expansion on clinician experiences of using HOPE and PRMs, both the HOPE platform and how it supports or inhibits PRMs to be collected and used. This category links most directly to the domain of *intervention characteristics* in the CFIR framework. Themes are outlined below with illustrative quotes.

1. *Value to change care*

Collecting PRMs and utilising them to improve person-centricity in care was highly valued across all stakeholder cohorts. Yet respondents had reservations about being able to achieve the proposed value of PRMs by collecting them via HOPE surveys and reviewing those results in the HOPE platform. The perceived value of HOPE was influenced by patient cohort, which impacted their ability to collect and use PRMs via HOPE. The below quotes depict a range of instances in which certain patient cohorts, such as those who regularly access health services and priority populations were considered to have little to gain from completing HOPE PRMs and/or faced substantial barriers to completion.

> *'For programs like ours, these people are engaging in health services constantly. And if they're asked to fill out these surveys every time, it's not going to take long before they start refusing, particularly if nothing is coming of it' (*Clinician)

> *'The concept is brilliant, but it doesn't work with our patients. It's not bringing them any benefit, if I put it that way, perhaps.' (Clinician)*

> *'I just think changing our clinical practice. And that should be a big reason of what it's designed to do is to change our clinical practice. And I don't reckon it's impacted ours.' (Clinician)*

'We prioritised vulnerable populations within our cohort. And using a technology-based service is a big barrier for a lot of our clients and took up a disproportionate amount of our clinical time that didn't actually help with the outcome of what we were confronted with.' (Clinician)

2. *Relative Advantage*

The second theme extended the survey free-text data about the relative advantage of HOPE when compared to other PRMs methods or approaches via paper, Redcap or EMR. Clinicians often referred to their current systems as advantageous because they were locally derived and relevant to their needs. The extent to which there was perceived to be a relative advantage in using HOPE was a frequently identified factor in a clinician's decision to engage with HOPE PRMs. Some groups described established business processes around other methods to collect PRMs and have tailored these approaches to their patient or population cohorts. Some respondents also commented on the issue of survey fatigue, with some participants indicating that the centralised nature of HOPE was a solution to the burden of multiple surveys for patients and staff, while others raised concern that HOPE PRMs added to this burden.

> *'The reason we didn't take it is because as part of our department we have our own patient surveys that we trying to work out, couple of them, and also in the process of doing another one. But most of them have got the parts of these surveys, and plus, it's specific to our area and our department, so we've worked out pretty much a good survey I would say but haven't directly used the surveys or the platforms yet.' (Clinician)*

> *'But the way we absolutely bombard our patients in New South Wales Health with surveys, from every level, not just PREMs and PROMs, it's like in EMR; too many alerts, we're*

alert fatigued, we don't bother..... we need to really consolidate what we're asking of our patients.' (Clinician)

'My experience has been very positive, the program is user friendly as well as consumer friendly to engage with, it has been an efficient tool for measuring our clients health journey and implementing the services and support they may require or benefit from.' (Clinician)

'It [HOPE] does become that high burden for potentially not a lot of value for the clinician to provide appropriate and adequate care.' (Clinician)

'Having multiple tools to do and those conversations with our clients that sometimes it is hard to make that connection with them. And when you mention something about a survey, they get their prickles up as well. So that's quite hard and quite delicate. But just having that one tool would be far superior.' (Clinician)

3. Resourcing Practice

Resourcing practice was clearly pivotal in the decision to take up and use HOPE PRMs. The discussions regarding resourcing were focused on two aspects i) the role of local PRM leads and ii) the data management support needs to register, consent, and input the PRMs survey data. Day-to-day challenges were raised across numerous LHDs related to the availability and support with technology, appointment timing and administrative support to complete surveys. Some clinical teams have administrators that collect the survey data, but this administrative support also had wider implications for workload. Where administrative support was used for survey completion, this was not then available to support other clinical work. Administration staff s may have assisted in more surveys being completed but was considered by some to have implications for whether and how the information is then used by clinicians towards patient care. The ability of administrators to provide appropriate support to patients for completion if they have specific needs was also raised as a challenge, such as those from culturally and linguistically diverse backgrounds or with additional support needs.

'the teething problems with connectivity and being able to store the data on the iPad and then download it later, when you're out of range, I think they're really important things. And they've been promised, but I think it's a bit like, 'I'm from the government. I'm here to help you.' They never happen.' (Clinician)

'I think it works. I think it works great. It's just that we collectively, as a team, don't have the time or capacity to be able to do that. But as I said before, in an ideal world, if HOPE was able to send someone down here to sit with patients and do it.' (Clinician)

'We were offered some of the volunteers to come and maybe assist us, or other allied health assistants, but we had to actually ... if it was a different staff member, it was at my own cost as well. And I thought, well hang on a minute, you're wanting us to do this program ... so we didn't continue and haven't. And I can't see us integrating it until there's some significant change.' (Clinician)

'For us, we don't have the iPads to take out into the community to start with. There's only going to be one between three clinicians per hub. So that makes it a bit complicated as well.' (Clinician)

4. Flexibility for adaptation

Clinicians' decisions to use HOPE PRMs were influenced by the nature of the surveys within the system. PRMs can be readily completed by some cohorts of patients (e.g. those with high health

literacy, those who do not require support for completion). There was a perceived lack of flexibility in the content and method of collection of PRMs, such that certain patient groups cannot readily complete the information or need to complete irrelevant surveys or survey items for their point in the care process. For example, higher health literacy was perceived as necessary to complete PRMs surveys. Respondents reported the need to ensure appropriate methods and tools for PRMs capture among population cohorts for whom the surveys may not be well-suited and/or with lower health literacy.

So, if you're giving them to a group of people, of … like, some of our clinics are predominantly Pacific Islander and South Indian, if you use the Promis 29, many of the questions don't seem relevant so you have to go over it again and again until you find a culturally relevant segue, or just ask them to fill it out in a meaningless way. So, it's a challenge, which is part of the reason why we developed our own. (Clinician)

'And that's one of the biggest problems we have. We can't partly complete and then hand it round to the next clinician, so time saving. And also frustrating for patients, because they have to repeat their answers as well. So that's an issue for us with the way the survey has rolled out, that you can't skip a symptom and the whole thing has to be done in an order.' (Clinician)

'the language that's used is not as transparent, unless you're quite educated and have good health literacy' (Clinician)

'You should be able to skip if you don't want to … and that's what the patients do themselves. If they haven't got enough attention span to fill it all out, whatever they can do is great' (Clinician)

5. HOPE vs PRMs

The final theme in this category characterised the distinction between beliefs about PRMs, the use of the surveys, and the use of the HOPE platform itself. The notion of patient reported information was to improve care was valued, but the specific surveys in HOPE and use of surveys via a digital system to collect patient-reported measures may not be sufficiently nuanced for all patients and/or healthcare settings. The focus group, interview and email communications overall indicated that clinicians' experiences of HOPE PRMs were determined by whether they felt they could find out what they need to know to respond to patients' individual needs and improve care, whether the PRMs survey content was relevant to their patient, whether they could access this information more easily through another means, and whether they had the capacity to manage the process of collecting HOPE PRMs.

4.A.13 KEQ5: TO WHAT EXTENT IS THE HOPE PRMS PROGRAM ACHIEVING THE CHANGES AND OUTCOMES EXPECTED AT THE CLINICIAN LEVEL?

The following outcomes were expected of the HOPE PRMs program at clinician level: that PRMs increase clinician understanding of patients' needs and preferences; that PRMs enhance patient/clinician interactions and discussions, facilitate shared decision making; that PRMs lead to more holistic care aligned with needs and preferences of patients and that PRMs elevate the experience of patients and clinicians. The sub-questions for the evaluation were:

a) *Are clinicians and patients/ carers better informed about patient needs and preferences?*
b) *Are PRMs contributing to shared decision making between clinicians and patients?*
c) *Are patients receiving care more aligned with their needs?*

In evaluating clinicians' perspectives as to whether these outcomes for patient care have been achieved so far, the survey data indicated a broad range of experiences (Figure 8). Clinicians' perspectives about the value of HOPE and PRMs were divided. An almost equal proportion of 35-

40% of 248 respondents agreed with each of the five statements regarding HOPE PRMs creating the changes and outcomes expected as those who did not agree that these changes have resulted. For each statement, 21-28% of respondents provided a neutral response, which also suggests the absence of perceived gain from using HOPE PRMs to change patient care. Significant differences among those who agreed or strongly agreed that the intended changes were occurring in their practice were identified by frequency of use of HOPE PRMs, proportion of eligible patients HOPE PRMs were used with and by LHD. Those who agreed or strongly agreed that the intended changes were occurring were also those who used HOPE PRMs daily, weekly or monthly ($p<.005$), with more than 75% of their patients ($p<.001$), and those in the following LHDs ($p<.001$): Western Sydney, Western NSW, Sydney, Southern NSW, South-Eastern Sydney, Nepean Blue Mountains, Mid North Coast, Illawarra Shoalhaven, Central Coast and Far West. Also notable were the higher mean scores on the intended outcomes in patient care being supported by using HOPE PRMs among allied health professionals and those in the Admitted LBVC, Non-admitted LBVC cohorts as compared to doctors, nurses and those outside the LBVC cohorts. Further analysis comparing outcomes between clinicians in at least one LBVC cohort, demonstrated significantly higher scores (that indicate the intended practice changes were perceived as occurring) as compared to clinicians in non-LBVC cohorts ($p<.05$).

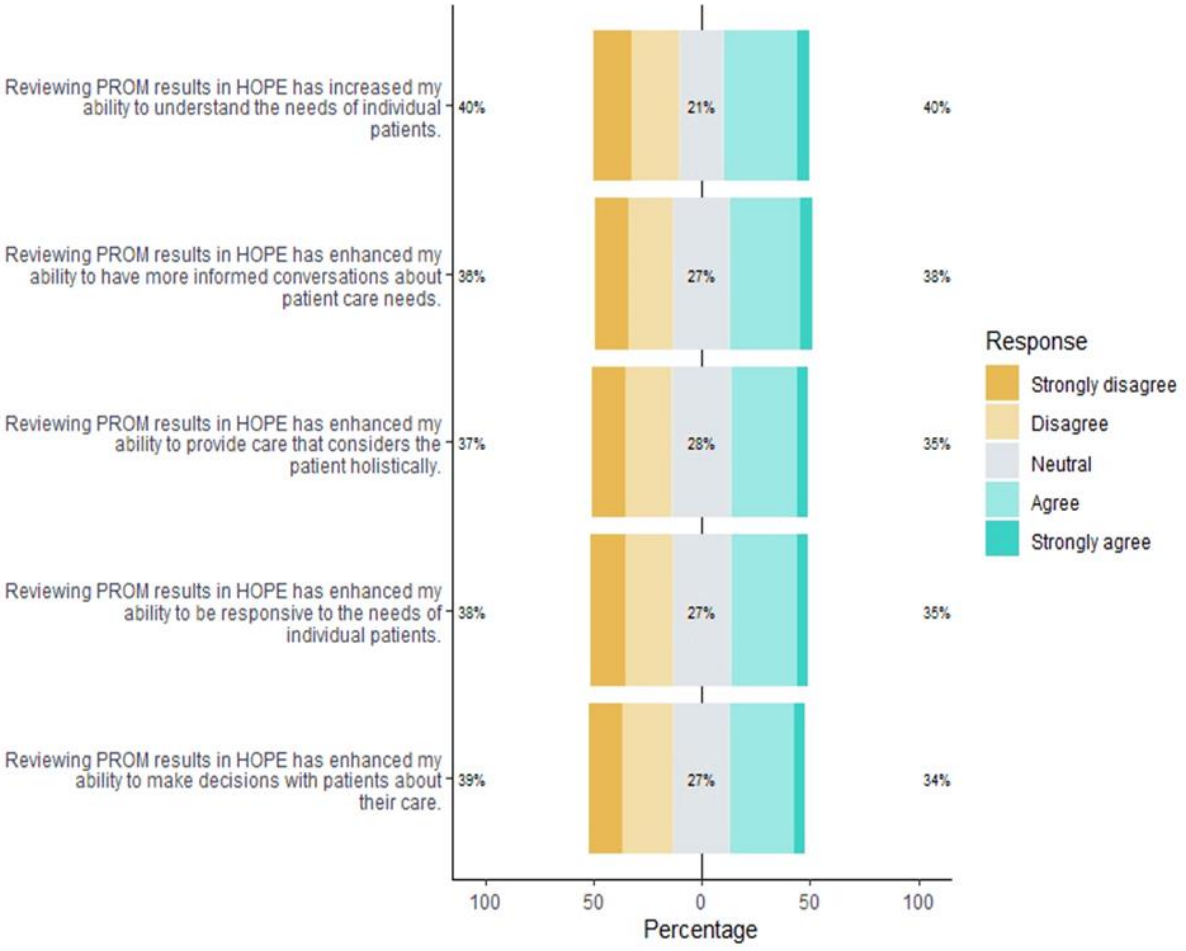


Figure 8 Proportion of respondents that agreed with each statement regarding intended outcomes of HOPE PRMs

Qualitative survey elements provided specific examples of the ways in which care had changed due to the use of PROMs in HOPE (Table 11). 95 respondents described positive change from HOPE, primarily due to increased understanding about individual needs and preferences (n=31), enhanced interactions with patients (n=25) and making referrals to address patient needs (n=19).

Of the 95 comments, 16 (11%) respondents described that HOPE had a negative impact on their practice, e.g. increasing their workload without perceived gain. Overall, the value and importance of PRMs was recognised yet there was less clarity on whether the HOPE platform provides a mechanism to capture and action PRMs data. Several comments (n=11) were made about clinicians existing use of PROMs prior to HOPE and the lack of change in practice resulting for these individuals from the HOPE Program.

Table 11 Examples of using PROMs in HOPE to change patient care

Category	N (%)	Description	Example quote(s)
Increased understanding of patients' individual needs and preferences, ability to align care accordingly	31 (22.8)	Better understanding of the patient holistically, their experiences of their condition, needs, what needs should be prioritised first and how to educate them about their condition.	"Am able to be aware of the needs of my patients more quickly enabling referrals to actioned quicker and to be able to fully understand and respond to specific education needs for the patient." "Disease-specific PROMs have helped to identify focus areas in a client's care. Results can help identify clients who may benefit from referring to other services."
Making a referral to address patient's needs	19 (14)	Comments specifically about referring patients to other providers, programs, or services based on their PROMs data.	"Physical function for example, if it's flagged as a concern, a physio or OT referral can always be considered." "referring patients to relevant multidisciplinary team members."
Enhanced interactions and discussions with patients	25 (18.4)	Improved dialogue because providers are empowered to address issues identified, domains measured might not otherwise be considered in consultations, and patients may be more honest in completing a PROM.	"starts the conversation about sensitive discussion re mental health." "It has changes patient care because you discuss topics that would not normally be covered."
Negative comments about HOPE PROMs	16 (11.8)	Responses suggesting that use of HOPE had increased workload or was not useful or relevant in their setting.	"This was hugely ineffective in my active care setting with patients on non-invasive ventilation and other treatments. But I can see the value for less acute patients. Rehab and outpatient settings. Also to be further effective medical staff need training I frequently completed a survey and would

Category	N (%)	Description	Example quote(s)
			discuss results with medical teams to address patient needs and they didn't care because they didn't know what HOPE/PROMs was."
Already collecting PROMs	11 (8.1)	Responses mentioning that PROMs were already collected prior to HOPE such that any changes in practice were not attributable to the platform.	"Have not changed as was using PROMS before but in paper form. Do find it helps change pt care in both HOPE and paper form. PROMS in general help with providing objective feedback re: change in function, guide whether pt should have joint replacement surgery and if they should see an ortho surgeon."
Specific HOPE features highlighted	9 (6.6)	Some responses highlighted specific HOPE features that respondents appreciated (e.g., graphical display) or found lacking (e.g., lack of integration with EMR).	"With the automatic stratification of the raw results into 'within normal limits', 'mild', 'moderate' etc I use these results to discuss with the client at the time. Previously I had to do this analysis after the client had left so it needed follow up later."
Monitor and respond to change in patient condition	6 (4.4)	Ability to monitor patient over time and respond to any changes in their condition.	"In conditions where pain can change from day to day, the disease specific questionnaires, over time, provide a tangible measure of change in that condition. Such that assessment, and thus treatment decisions, can be based over that longer time not just how it is on the single day that a clinical review occurs."
Evaluate interventions/service efficacy	5 (3.7)	Evaluate the effectiveness of treatments at an individual or organisational level.	"We are in rehab, so generally pts score poorly, there conditions are why they are referred to us in the first place. We use them to see if there has been improvement in pts condition over the course of our rehab program."

There were 92 responses to the question regarding examples of using PREMs to change patient care. However, the largest category of these indicated that PREMs were not used to change patient care or were negative in nature about the capacity for change using HOPE PREMs (see Table 12).

Table 12 Examples of using HOPE PREMs to change patient care

Category	N (%)	Description	Example quote(s)
No change and n/a responses	42 (45.7)	Responses that state either no change has occurred, or responded the question is not applicable.	"No change."
Increased understanding of patients' individual needs and preferences, ability to align care accordingly	12 (13)	Reports of focusing more holistically on patients, being aware of how treatment impacts them and responding to needs by either changing approach to educating a patient or linking them in with other services.	"if scores are moderate for certain domains, offer various treatment options or resources confirms if patient is stable or changing in combination with subjective assessment."
Negative comments about HOPE PREMs	10 (10.9)	Responses that are sceptical of the value of PREMs data, such as seeing the information as too generic, reports that it is difficult to collect PREMs, and that collection has increased workload	"Can't get enough responses completed to even receive the data and the questions asked in PREMs are not likely to inform things that are within my ability to control in the service anyway."
Service improvements	6 (6.5)	Changes that are planned or made across the service/organisation to improve experience.	"Provide feedback on program and adapt model of care."
Provides feedback on performance	5 (5.4)	Allows the provider and the service to get (positive) feedback on how they are perceived by their patients.	"Positive feedback on our clinic has reinforced our processes and resources."
Difficulty getting responses to PREMs	5 (5.4)	Some comments noted it is difficult to engage patients to complete PREMs, and confidentiality means clinical staff cannot assist patients to complete them.	"Difficult to collect. Patients who require assistance to complete, may not be able to due to technical disadvantages. Clinicians are not able to assist due to PREMs being confidential."
Enhanced interactions and discussions with patients	4 (4.3)	Collection of PREMs described as creating a space for dialogue with the patient.	"I have had more discussions with patients regarding low mood that I would not otherwise have had."
Already using PREMs	4 (4.3)	Responses mentioning that PREMs were already collected prior to HOPE.	"Not really since we have done our own PROMs and PREMs before HOPE so entering it on the system has just increased/doubled up our workload."

Category	N (%)	Description	Example quote(s)
Change due to PROMs	3 (3.3)	Some respondents focused on practice changes due to PROMs.	"Patients sent user fill Proms meant they were more likely to be honest and alert their concerns instead of face to face or over the phone."

The overall clinician experience of HOPE PRMs was articulated through the additional comments provided by 152 of the survey respondents (Table 13). These were categorised demonstrating the main areas in which clinician experience was compromised as the impacts of using HOPE PRMs on staff and resource pressures, the utility of surveys and results for their patient populations and the process and platform issues experienced with HOPE. Negative comments in this section were more commonly from those working outside the LBVC clinics and indicate variable experiences of HOPE PRMs between cohorts of clinicians.

Table 13 Additional feedback regarding experiences of HOPE PRMs

Category	N (%)	Description	Example quote(s)
Impacts on staff	48 (31.6)	Mostly negative comments about the ability of staff to collect PRMs due to resources, time and workload.	"I am a very busy clinician at maximum capacity with clinical work. I have NO admin support and NO allied health assistant. My service requires admin support to implement HOPE/PRMS/PROMs etc." "I come from a service with NO administrative support. PRMs and HOPE have been a huge burden on our service which is further supported by it's poor integration within our service. This is not acknowledged by Managers and staff at all levels of the project. The attitude is that this has to become "standard practice". There is simply not enough time or support for this to be properly integrated and is another great example of a poorly though out idea." "staff find platform easy to use."
HOPE platform and process issues	46 (30.3)	Mostly negative comments about the usability of the platform (e.g., lack of na or skip question), the process (e.g., registering patients, filling in PRMs) and the lack of integration with other systems.	"HOPE is cumbersome on the clinician and it is not user friendly for the client who receives them. I find HOPE to be an absolute waste of everybody's time." "HOPE also needs to communicate with eMR and results should be automatically uploaded into eMR without the nursing staff having to do it again. Also some questions are difficult to answer for patients due to difficulty to interpret in their language. Option should be that results can still be saved if a patient can't answer a question."

Category	N (%)	Description	Example quote(s)
			"It's a great concept. Logging in is easy."
Utility of surveys and results	44 (28.9)	Mostly negative comments about value of completing PRMs in terms of applicability of surveys and value of the data.	"I think the system is smart, but the questions need to capture what is trying to be improved otherwise the information is useless to clinician's in order to make change." "Questions are irrelevant to patient No free text." "I have enjoyed using the HOPE platform and find it has enhanced the level of care I am able to provide my cohort of patients. The reports I am able to generate and interpret are valuable for identification of trends in care for individual patients and patient cohorts, and are an important tool for identifying a need to increase service levels and resources."
Issues with patients using PRMs	28 (18.4)	Responses highlighting patient factors that affected ability (e.g., cognitive impairment) and desire (e.g., scepticism about Engage/Services NSW process) to complete PRMs in HOPE.	"Clients with poor literacy and health literacy." "Questions too difficult to read for clients with poor eyesight." "Clients too unwell to complete." "Survey fatigue." "I think the theory of HOPE is great and when it works is very beneficial, the trouble is that the patients do not have the ability or family to help them fill out the surveys. This adds more pressure on clinicians to do further tasks and also skews the outcomes and then renders them questionable."

4.A.14 KEQ6: WHAT ARE THE BARRIERS AND FACILITATORS TO THE HOPE PRMS PROGRAM ACHIEVING ITS EXPECTED OUTCOMES SO FAR?

Implementation barriers and facilitators were explored through 11 survey items based on the CFIR to consider the range of factors at individual, service and system levels that may influence the HOPE PRMs program achieving its expected outcomes so far. These data were enriched by the qualitative focus group, interview and email communications in the resultant categories and themes. The sub-question for this evaluation question was:

a) What are the facilitators and barriers to implementing, collecting, and using PRMs?

Through the responses of 254 clinicians to the survey items regarding implementation, key facets of HOPE PRMs implementation emerged as facilitators at an individual level (Figure 9). Most respondents (75%; 191/254) agreed that they received sufficient education and training on how to collect PRMs via HOPE, with a slightly lesser proportion (68%; 173/254) reporting sufficient education and training on how to use HOPE PRMs in clinical care. Beyond preparation for using HOPE PRMs, a range of views were presented about the perceived importance (56%; 142/254) agreed its important) and visible management endorsement of the HOPE PRMs program (59%

150/254 visibly seen to endorse). For most respondents, issues occurring at service-level that inhibited implementation. Just under half of respondents believed the platform was effectively implemented in their service (44% 112/254), equal proportions of respondents did, and did not, have sufficient administrative support to administer HOPE PRMs (43%; 109/254), and ultimately, only 30% (76/254) of respondents did not feel that HOPE PRMs created additional unnecessary burden. Notable barriers to implementation were the substantial number of respondents who perceived lack of opportunity to engage in decision-making about how to collect and use PRMs (41% 104/254 believed they did not have opportunities as compared to 38% 97/254 who did) or how the HOPE platform would be implemented in their service (44%; 112/254 as compared to 33%;84/254who did).

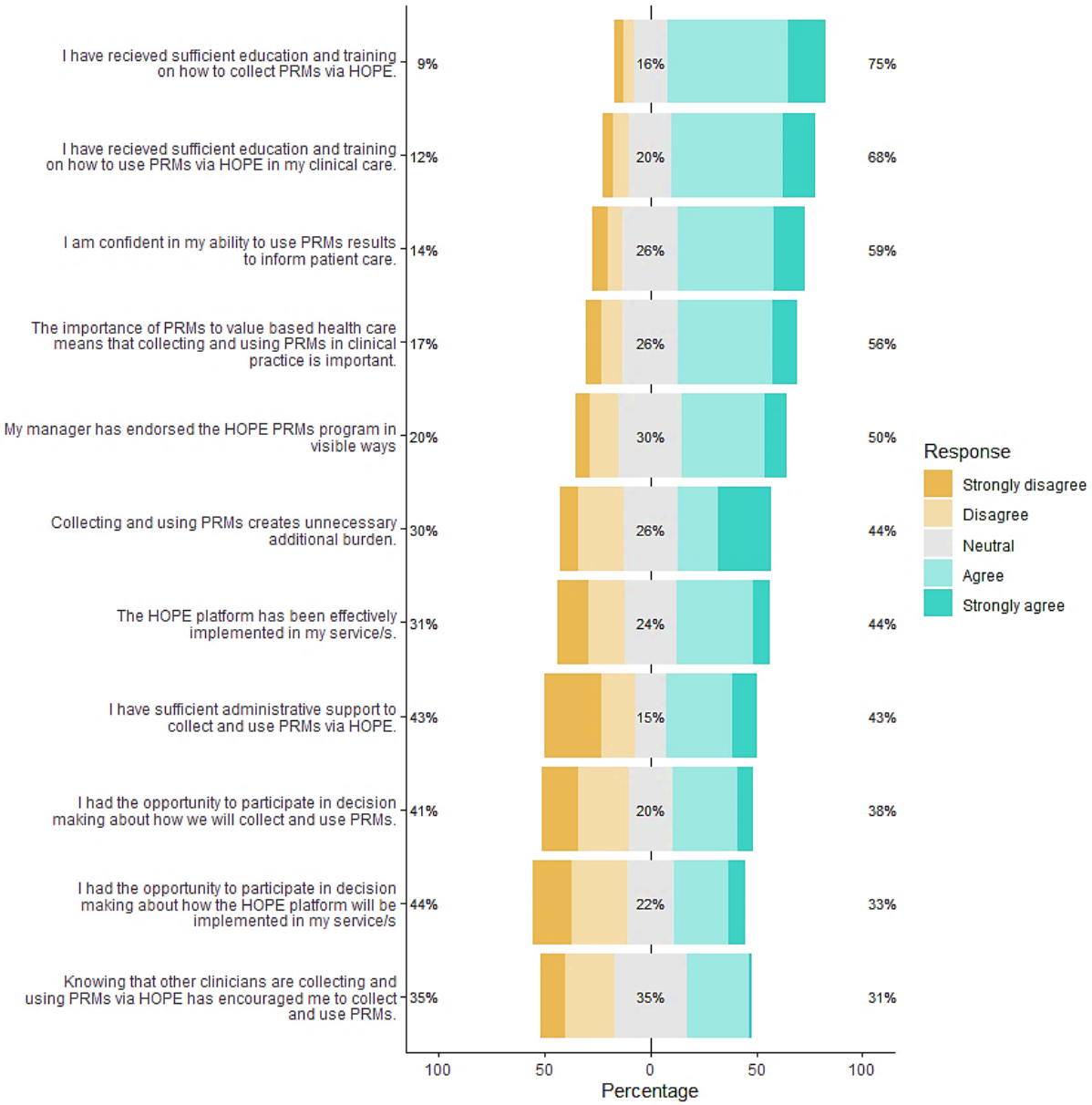


Figure 9 Factors influencing HOPE PRMs implementation

Qualitative evidence from the four categories and 21 themes enriched the survey data. In addition to category 1 'Using HOPE' that demonstrated the factors influencing use of HOPE and PRMs, the further three categories characterised the individual, service and system factors that influenced

HOPE PRMs implementation and have acted as barriers and/or facilitators in this process towards the desired outcomes.

Overall, diverse understandings of the purpose and intended outcomes of HOPE PRMs and in the supports required for HOPE PRMs to be used in practice based on population, service and patient characteristics were key factors in its implementation and ability to create the intended outcomes. The qualitative categories 2-4 work through these issues from an outer system level into the specific implementation experiences within services.

Category 2, 'Supportive Systems' relates primarily to the *Outer setting* CIFR domain, describing the structures, processes and infrastructure that enable HOPE PRMs to achieve its expected outcomes. The outer setting includes NSW Health structures and processes outside the LHD that influenced the implementation of HOPE PRMs. Features of the health system were identified as barriers and enablers to the program's success as described through five themes, represented strongly in clinician, LHD and system-level data.

Category 2, theme 1: A systems asset

Shared value of PRMs for improving care across the health system as a whole was confirmed in the qualitative data. HOPE was envisioned as a whole of Health asset with many benefits or uses. Participants perceived HOPE as a digital system to capture data, a way to capture evidence of progress towards value-based care and representative of a significant lens shift in patient centredness. HOPE was perceived by many as a system-wide source of information with potential to inform planning at state and local levels. Whilst HOPE PRMs was seen as signalling a substantial shift towards patient-centredness in the health system, the range of possible applications of HOPE PRMs also appeared to create lack of clarity among stakeholders as to the expected outcomes and purpose, and whether these could all be achieved via the HOPE PRMs program.

'it's [the move to HOPE] indicating that the health system is shifting into a space that actually values the person attached to the body. (Clinician)

'If you think about the size and complexity of this jurisdiction, this is a huge beast, NSW Health, on any level you look at it. To think that we'd have—perhaps it's a bit naïve to think that a single platform would actually meet that need.' (System-level stakeholder)

Category 2, theme 2: Aligning objectives

Perceptions of purpose of PRMs and the HOPE program varied between respondents. The perceived purpose of PRMs varied from being used to identify and respond to individual patient care needs and preferences, through to providing a system via which patient outcomes can be determined and compared between cohorts. Success of the HOPE PRMs program was described in terms of the number of surveys completed, through to the realisation of change in care at individual or system levels. Some clinicians expressed a commitment to completing HOPE PRMs because it was understood as mandatory process rather than identifying the value of HOPE for their practice. The quotes below are indicative of the diverse perceptions evident in the data.

'I've got the message that we had to do it; it was mandatory. We didn't have a choice. So, that's where I nearly felt it came down to the tick and flick process of, well, if this is going to be enforced, yeah, it was just a numbers game in the end.' (Clinician)

'I think the intent was always to improve patient experiences and outcomes, and I don't think we've even hit that mark yet at all.' (LHD Executive Sponsor)

'there's a strong theme in the data that we've got from people that we felt that HOPE was going to be the system that would provide us the answer to collecting patient experience measures and outcomes for all patient cohorts, eventually, starting with leading better value care. And that isn't what has happened.' (System-level stakeholder)

Category 2, theme 3: Reporting for change

Several respondents indicated that for HOPE PRMs to realise their expected outcomes, LHDs must be able to capture and use data from HOPE PRMs to inform change in their services. Respondents specifically suggested that a) HOPE use should be linked to KPIs or service agreements, and b) that LHDs should be able to access and use of HOPE reports for LHD planning. Clinicians further suggested that HOPE PRMs would be more readily used to change clinical practice if information was displayed in a different way in HOPE relevant to their needs, and if data could be shared more readily between practitioners towards patient care. A common sentiment was the great potential for PRMs data to inform change, but a lack of clarity around how to access and use reports in HOPE.

'One thing we take pride in, in [our LHD], is that we share information. And the thing is, the system is annoying us because we can't share it and access it!' (Clinician)

'It's a tricky question to come across; I think particularly without having that state-wide KPI or written into any of the service agreements, it's hard to say "well, yes; you do have to do it.'(PRM Lead)

'KPIs are important, but I don't think KPIs should take over patient care. And sadly when you work as a public servant, red tape definitely can do that. But I think for us, we've got other things we need to be putting more effort and time into than continuing trying to make this work, when it does a little bit, but it doesn't completely, for patients. (Clinician)

At the moment, I get nothing back [from HOPE data collected], so I don't know what's going on, what the feedback is, it's [HOPE data] going to management or executive somewhere; it's not hitting the ground at the moment.' (Clinician)

'Yeah, it's not linked to funding, but there is a KPI that the ministry wants us to do. But yeah, there's nothing … no loss if we don't do it, basically. We just keep getting rapped over the knuckles.' (Clinician)

'Until those KPIs are in the service-level agreements, it may be challenging to go above and beyond the implementation that is currently scoped.' (LHD Executive Sponsor)

'So, just, there needs to be some caution about how to implement a KPI-based approach. Not that it shouldn't happen, it's just got to be thought through quite carefully' (LHD Executive Sponsor).

Category 2, theme 4: Integrating and resourcing the PRMs system

The final theme in this category represented resourcing for HOPE across the health system and the need to consider integration with primary care as a critical partner given the frequency with which PRM results may lead to primary care referral. This category also highlights the importance and value of specific skills and expertise of PRM leads in the implementation process, with challenges around workforce availability and retention with covid impacts noted.

'even though we engaged primary are early, in the early days, it's still considered a NSW Health program, framework, platform, and all the documents. So cos they haven't been

developed from scratch, jointly, that's the challenge with, you know, now we're trying to sort of retrofit key stuff for them. And that's how I think it's perceived.' (System-level stakeholder)

'my PREMs and PROMs manager was almost one of the first people to be pulled off and re-set into COVID work' (LHD Executive Sponsor)

Category 3 *Locally responsive* included five themes that relate to the inner setting & individual characteristics domains of the CFIR. Together, these themes demonstrate the degree to which HOPE PRMs had been locally contextualized, and the local level structures and individuals that have influenced its implementation so far.

Category 3, theme 1: Receptive districts

Participants reported that the extent to which districts and networks were receptive to both the concept of PRMs but also the process of getting HOPE into the district and its use contributed to the success of the implementation process. Varied reception was noted, with some LHDs promoting the program and highlighting its value compared with other LHDs in which HOPE PRMs received less executive support. LHD executive sponsors who felt that the HOPE PRMs implementation occurred with reference to their organisational maturity reported better experiences in terms of achieving the program outcomes. For LHDs, being able to use the data for local level monitoring and improvement was a factor in their support for the program and its perceived value. Limited access to relevant reports was discussed.

'Some LHDs are like, well, what happens in an LHD is our business. So, the change in adoption varied depending on what LHD you're working with and the level of executive support.' (System-level stakeholder)

Category 3, theme 2: *Managing the process*

A wide range of issues were raised in relation to managing the process of collecting and using HOPE PRMs, including technical and administrative matters. PRMs collection and reporting through HOPE was considered to require management and time that must be accounted for and was supported variably by LHD/SHNs.

'time for clinicians at the moment is incredibly precious. And we don't—we simply don't have a lot of it. So, I think that that's probably one of the … survey over-burden' (LHD Executive Sponsor)

Category 3, theme 3: Localising strategies

For clinicians and local teams, a high level of communication and support from the ACI through the roll out was widely reported, but at times it was not necessarily addressing the questions or concerns regarding HOPE PRMs relevant to them. Where the training model was considered a barrier to a successful implementation, this was generally described as a failure to localise strategies relevant to the needs of a local level team. The need for team training to occur, the different levels of readiness in each organisation and the presence of existing systems for PRMs were all noted as challenges for implementation. The absence of models of care relevant to each local area including referral pathways in response to information gathered through PRMs was also notable, with clinicians identifying incidental health concerns without pathways for action.

'they're all obviously at different points in terms of their readiness. I think that's also been key—a key success factor in how we have met them at their—where they are, at the point that they are, in terms of readiness' (System-level stakeholder)

'we're not all on the same trajectory. So, some of us started a long time ago, some are new—some were early adopters, some are brand new. So the support they might need in their district might be different. So I think they're supporting a ginormous amount of districts with a very small team that we can't probably drive ahead as fast as we would like to.' (LHD Executive Sponsor)

'For us, it ended up being quite clunky. It was thrown upon us to start, and it was, right, we're gonna start this week, nominated a week, kind of thing, when to start. So, we had a stop-start situation, cos then they wanted to come and train the whole team, and I went, I never have the whole team together; we work across six different sites'. (Clinician)

'It's just too hard. Patients couldn't understand—they needed the smile score, like the smiley-face score. They couldn't understand 'rarely', 'seldom'. The literacy level was probably too high for a lot of our patients.' (Clinician)

Category 3, theme 4: Engaged clinicians: Clinician engagement in PRMs and in the use of HOPE PRMs was most commonly reported by PRM leads as a factor in implementation success. Whether clinicians were engaged often differed by profession; their PRMs activities prior to the introduction of HOPE, patient cohort; belief in PRMs methods and perceived value of HOPE PRMs.

'And all the ones that were nursing-led we've had no problems with, either. But we have certainly—I still don't think we've cracked medical engagement' (LHD Executive Sponsor)

'you need the right credible clinical leaders for the different areas of focus, for every profession. You can't simply rely on one profession.' (LHD Executive Sponsor)

Category 3, theme 5: Skilled leaders

The role of key individuals in enabling the HOPE program to be implemented and supporting its success was discussed. The ability of LHD Executives and PRM leads in being able to communicate the value of HOPE PRMs was considered critical by many to support the desired outcomes to be achieved. For PRMs leads, the level of influence they could have in an LHD was important to enable HOPE PRMs implementation as intended. Their influence was considered to be a product of the skill of the PRM lead but also of a receptive LHD context and clinical leadership. The broad range of activities in which PRM Leads were utilised beyond PRMs was also recognised by many as a factor influencing their ability to implement HOPE PRMs.

'whilst the PRM leads should be only doing patient-reported measures across their districts and networks, we do know that a lot of our districts and networks get their patient-reported meta-leads, that's their local teams, to do a whole range of activities that sit outside the scope of our program and the HOPE platform.' (System-level stakeholder)

'where we've had really good clinical leadership which has been interprofessional, you know, there's been excellent engagement there. Renal supportive care, osteoarthritis, again, we've had strong medical leadership there who've pushed this. So it hasn't been an issue. But other areas where we haven't had that, then it's really uphill.' (System-level stakeholder)

Category 4, Transitioning into HOPE depicted the specific factors influencing the implementation process and its success as perceived by respondents.

Category 4, theme 1: Resourcing adoption

The reliance on PRM leads as the foundation for successful implementation was notable. The impacts of covid-19 demonstrated this and were frequently referenced as a factor during implementation. That those in roles related to PRMs were the first to be redistributed to provide clinical care and services, was a substantial barrier to resourcing adoption consistently and having individuals with the right skills in place. Recruiting PRM leads with the necessary interpersonal skills and the knowledge was considered a challenge more broadly, and their ability to engage effectively with districts in the role was seen as pivotal by other stakeholders.

'the PRM leads, are—it's quite a unique role, and they're not really easy to replace. So, sustainability around that is something that's challenging to me.' (System-level stakeholder)

Category 4, theme 2: Aligning goals

Disconnect between the goals of LBVC as a program and the wider use of PRMs as a general shift in NSW Health's approach to care created some confusion around the intentions for HOPE PRMs, especially for those not predominantly working within the LBVC clinics. Several comments were made about a lack of clarity whether the PRMs in HOPE are only for LBVC programs or for wider use and whether the ultimate goal was to use HOPE PRMs systemwide in all areas of care.

'I think when the program first rolled out, we were very much focussing on the leading better value care initiatives, which obviously is a nice contained group. But I think the question continues to be asked as to how we make it more broadly available across the health system' (LHD Executive Sponsor)

'other competing priorities in the program and perhaps the misalignment, at times, of communications. So there is definitely an opportunity to align communication, but also coordination of broader data capture and use of perceived outcome and experience measures. That is a piece of work that the Ministry of Health is working on now. But the unintended consequence or risk to that is that our patient-reported measures program gets slowed down or delayed whilst we wait for other program areas to catch up' (System-level stakeholder)

'we mapped 32 different processes to collect patient feedback. That's 32 different ways that, to be honest, when it very first came out, I thought HOPE would end up being the platform that would be our tool, I guess. And it's not. And I know it won't be. And so now we have to develop something to the side.' (LHD Executive Sponsor)

Category 4, theme 3: Prioritising PRMs

In the context of multiple programs and commitments, the degree to which PRMs are prioritised by local leaders, in an organisation and wider system was identified as central to successful implementation. Where there was a prioritisation of PRMs and perceived value of their use in the context of competing priorities, this supported the initial roll out, and was also considered important for sustainment.

Category 4, theme 4: Volume and value in engagement

Stakeholders described the many meetings and groups that they were required to engage in for the HOPE Program. Varying views of the value of these activities towards achieving the successful implementation of HOPE PRMs were provided. The volume of activity was by some not perceived to be proportionate to the value, with duplicated reporting being a key concern.

'we spend a lot of time revisiting with those PRM leads in the districts to try and—well, we are supporting the implementation, and in some cases, we're leading that implementation from the ACI point of view.' (System-level stakeholder)

'The problem is that we've sat in quite a few meetings feeding exactly this back over the last 18 months. So none of this is new. And none of it ever got changed. So if you saw some reluctance from us to attend {the evaluation workshop], is that I don't think we've been heard.' (Clinician)

Category 4, theme 5: Setting the pace

Related to theme 4, specific timelines for the roll out process and stages were described by some as not aligned with the work of the districts. The lack of nuance in the pace of roll out was a key issue, identified by clinicians, with some seeking to progress and reported being held back, whilst others were not ready to progress at points and felt a lack of flexibility in the process.

'it is a phased approach and it is readiness between the patient-reported measures lead from ACI and the local patient-reported measures leads who then work up the approaches across districts and networks.' (System-level stakeholder)

So, whereas we've been ready to run, and ready to fly, we have to submit implementation schedules, and this is feedback that I've provided them, as well. So, we have to submit implementation schedules. We've gotta wait for the entire state to put theirs in, and then we will finally be told if that's okay, with the date that we had. And if not, we need to switch and change if a lot of people put in the same. (LHD Executive Sponsor)

Category 4, theme 6: Visions of success

For implementation to be designated a success (or not) it is important to identify measures of success to evaluate against. Yet, connected with theme 2 around aligning goals, the vision and measures of success for HOPE PRMs was lacking in clarity and consistency across the stakeholders. Generally, the notion of improving patient centredness and the collection of their feedback via HOPE surveys was understood, but often the volume and rate of survey completion was described as an end goal.

'from a data perspective, that we have increased volume of users in the platform, increase of patient, therefore increased collection of PROMs and PREMs within the system. To me, that is a continued success.' (System-level stakeholder)

'I suppose, the successful implementation would like clinicians or service teams that are well-informed and confident and capable at embedding and using their PROMs and PREMs at the point of care, for providing care to patients. And then that would be enabled by HOPE.' (System-level stakeholder)

'The whole intent of the program was to measure patient experiences and patient outcomes, so that we can actually improve the safety of the service that we deliver as an organisation.' (LHD Executive Sponsor)

5. CONCLUSIONS AND OPPORTUNITIES FOR ATTENTION

5.A.1 SUMMARY CONCLUSIONS

HOPE PRMs intend to improve patient care by increasing knowledge of individual needs and enabling clinicians to be equipped with the information they need to know to provide person-centric care This process evaluation highlighted that patient reported information is highly valued by clinicians. HOPE PRMs have been predominantly used in LBVC clinics for OACCP, but patients have been registered, consented and completed surveys across multiple LBVC clinics. When considering the proportion of patients registered and eligible, there are clear opportunities to increase the number of patients registering and consenting to complete surveys. A range of factors appear to be influential in whether patients are registered and consented, but also complete baseline and subsequent surveys. These factors feature heavily in the clinician experience of collecting and using HOPE PRMs, including: perceived utility of the HOPE PRMs patient surveys and of the HOPE platform for the patient cohort, resourcing the collection of HOPE PRMs surveys, being able to access the relevant information from HOPE reports and whether other existing approaches are well-established for collection and use of PRMs locally. At this stage in the implementation**,** HOPE PRMs are having the intended impacts on practice for some subsets of clinicians, but this is specifically among clinicians in LBVC clinics for whom the HOPE PRMs surveys are suitable to the nature of clinical service, relevant to the patient cohort, where other PRMs systems are not in use and only in the use of PROMs. The evaluation has focused on exploring experiences of HOPE PRMs among those who use the platform and surveys. Data from the clinician focus groups and survey of those who have chosen not to use HOPE PRMs indicates the potential for differing experiences among these clinicians. Therefore, we suggest a need for caution in interpreting the information gathered in this process evaluation towards action.

5.A.2 OPPORTUNITIES FOR ATTENTION

Several opportunities for attention emerge from the process evaluation that may be considered in the further roll-out of HOPE PRMs to enhance the achievement of the intended outcomes at a clinician level.

- ***Target the implementation of HOPE and PRMs:*** *Models of care (MOC) relevant to the use of HOPE PRMs for patient cohorts and by condition may contribute to improved experiences of the program. Critical elements within a MoC may include, but not be limited to: a) creating a referral pathway for patients in which PRMs identify additional health needs beyond the scope of current service, b) alternative surveys or PRMs data capture methods relevant to population and patient cohorts for whom HOPE PRMs have limited suitability, and c) guidelines to support the resourcing of the collection of HOPE PRMs.*
- ***Explore targeted and tailored methods for PRMs data capture:*** *PRMs collected via survey may not suit all patient cohorts and populations. HOPE is designed to gather PRMs via surveys. The use of a digitised system may limit some patients in completing the measures, some technical support and support for completion may be needed for key patient groups. Several other strategies are being used by clinician in NSW Health that may provide complimentary or alternative tools and methods for gathering PRMs to support the intended changes and outcomes of HOPE PRMs to be realised. Exploration of the potential for clinicians to have flexibility in survey selection and whether items may be marked as not applicable may be valuable.*
- ***Optimise reporting of information from HOPE:*** *Optimising the reporting of information in HOPE through engagement with stakeholders may support greater use of PRMs results for patient care. User engagement to determine the types of reports and suitable formats required may be valuable.*

- ***Establish evidence for value and use of HOPE PREMs:*** *The process evaluation indicates that HOPE PREMs are being under-utilised due to several existing well-used PREMs. Given the collection of PREMs at service and system level in NSW Health, it may be pertinent to explore the contribution of HOPE PREMs to the intended changes and outcomes intended of the HOPE PRMs program in the context of existing PREMs data collection and use through other mechanisms in NSW.*
- ***Clarify and align intended scope of HOPE PRMs:*** *Lack of clarity regarding whether HOPE PRMs are to be limited to LBVC clinics or may ultimately be used system-wide was apparent among stakeholders. Given that experiences outside of LBVC clinics were less favourable in the use of HOPE PRMs, clarity regarding the scope of this program may be pertinent to consider and articulate to stakeholders. In clarifying the program scope, it is necessary to consider for who HOPE PRMs have demonstrated value.*
- ***Resource implementation and ongoing practice:*** *HOPE PRMs Leads and administrative staff to support completion are critical. The scope of PRM Leads extends beyond the implementation of the HOPE platform to engage services in collecting and using PRMs via HOPE. Consideration of the resourcing of PRM Leads and administrative staff to support the program is required.*

6. APPENDICES

Appendix 1 – HOPE PRMs Uptake Analysis Report

Appendix 2 – Clinician Survey Instrument

Appendix 3 – Sample break-down data

Appendix 4 – Data Analysis Plan

Appendix 5 - Qualitative Coding Framework

Appendix 6 - Training and Preparation Activities Report

Appendix 7 – HOPE PRMs Cascade Definitions

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The HOPE PRMs Program process evaluation

Uptake analysis

October 2022

ACI Patient Reported Measures

NSW GOVERNMENT

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Phone: +61 2 9464 4666 | Email: aci-info@health.nsw.gov.au | Web: aci.health.nsw.gov.au

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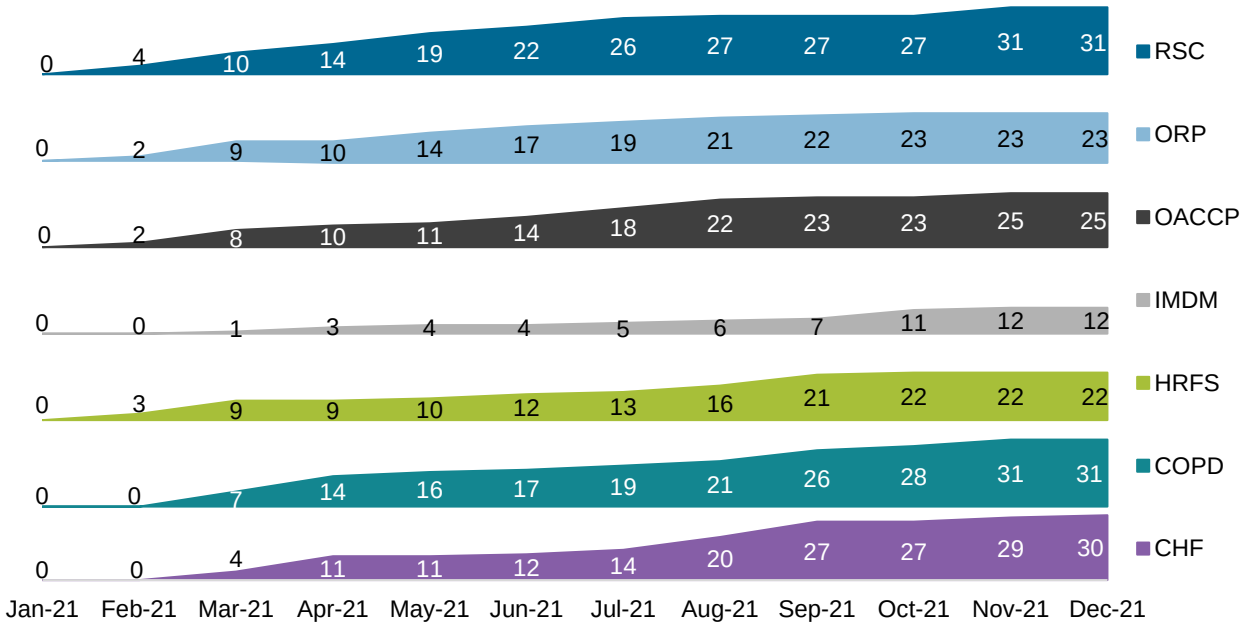
Contents

Key findings

This report presents the uptake of Patient Reported Measures (PRMs) within the Health Outcomes Patient Experience (HOPE) Platform between 1 February and 31 December 2021. It includes both clinic and patient-level uptake across NSW for the initiatives expected to go live in this period. It is one part of a broader process evaluation which includes stakeholder interviews and a clinician survey.

Clinics implemented in HOPE



Key: RSC – renal supportive care, ORP – osteoporotic refracture prevention, OACCP – osteoarthritis chronic care program, IMDM – inpatient management of diabetes mellitus, HRFS – high risk foot services, COPD – chronic obstructive pulmonary disease, CHF – chronic heart failure.

- 174 (28%) of eligible LBVC clinics have progressively gone live to 31 December 2021. For HRFS, OACCP, ORP and RSC 60% of eligible clinics have gone live.
- The percentage of eligible clinics live in HOPE across initiatives ranges from 14% to 71%.
- The proportion of eligible clinics that have gone live by local health district (LHD) ranged from 0% to 92%.
- The COVID-19 pandemic delayed 50 clinics to go live.

LBVC patients completing PRMs

Across initiatives, 10% (between 1% and 36%) of active LBVC patients visited a clinic after going live in HOPE and were eligible for PRM surveys.

For patients who visit clinics live in HOPE, there are opportunities to improve registration and consent uptake. LHD consent rate ranges from 31% to 86%.

About one third of patients attending clinics live in HOPE complete at least one PRMs survey. This declines to 3% when compared with all active LBVC patients.

Of patients who have consented, 87%, 81% and 22% are allocated condition-specific, generic and experience surveys respectively.

Use of PRMs

Between 40% and 88% of surveys are read by clinicians by initiative suggesting survey results are being reviewed for potential use in most cases.

Across LBVC initiatives, survey completion rates decreased from 79% to 56% to 49% from the first to the third allocation. This impacts the ability to review how PRM results are changing over time.

Introduction

NSW Health's vision is for a sustainable health system that delivers outcomes that matter most to patients and the community, is personalised, invests in wellness, and is digitally enabled.

To support this vision, NSW Health is shifting from volume-based healthcare to value-based healthcare. Key to this shift is understanding and delivering what matters to patients, through the collection of patient reported measures (PRMs). NSW Health has co-designed a purpose-built digital platform called Health Outcomes and Patient Experience (HOPE) to routinely collect, analyse and report on PRMs at the point of care across NSW Health.

The outcomes of the HOPE PRMs Program are expected to be progressively realised at the clinical, service and system levels over time. The PRM data available from the HOPE platform is intended to enable service and system level comparative analysis, benchmarking, cohort monitoring and evaluation of value.

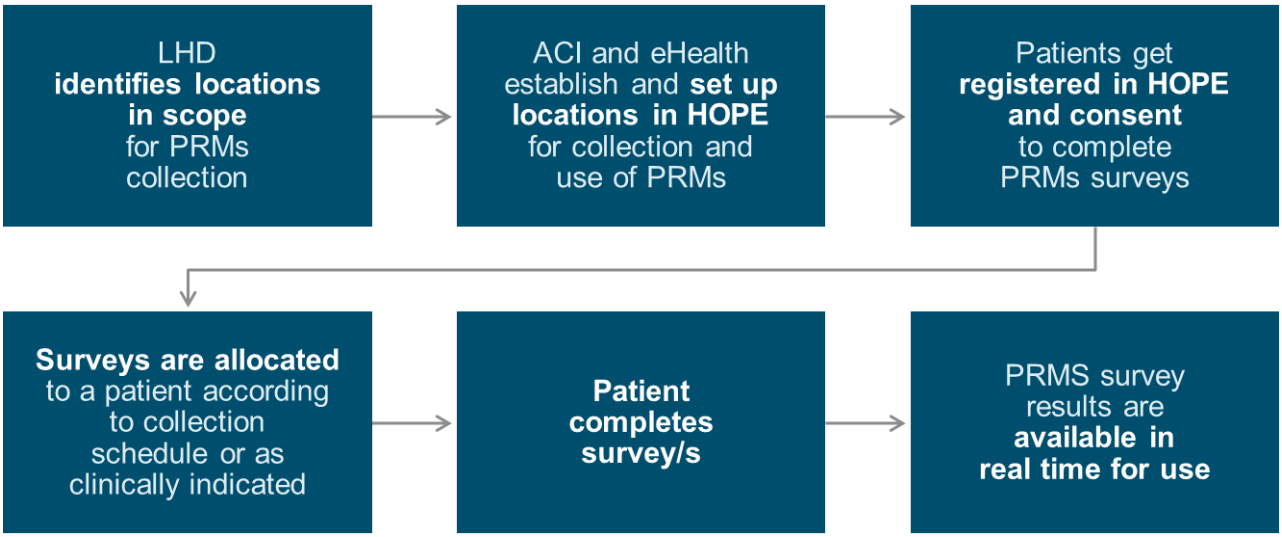
The Leading Better Value Care (LBVC) and Integrated Care (IC) programs were in scope for the initial implementation of PRMs in HOPE. Over time, it is expected that other clinically appropriate cohorts will also be implemented in HOPE.

Health Outcomes and Patient Experience (HOPE) platform

HOPE is a secure web-based platform used to collect and use PRMs surveys. HOPE enables the collection and use of PRMs data at the point of care via personal computers, tablet devices or smartphones. The data collected is reported in real time with clinicians, to support shared decision making about care, treatment, and health interventions.

Implementation of the HOPE platform commenced in February 2021. The endorsed programs included the Leading Better Value Care (LBVC) and Integrated Care (IC) programs. Admitted and non-admitted patient (NAP) locations delivering care to patients in these programs are being progressively scoped and implemented to collect and use PRMs through the HOPE platform. The process outlined in Figure 1 shows the technical steps required in the HOPE platform for PRMs collection which are the focus of this uptake analysis.

Figure 1: HOPE platform PRMs collection process



Leading Better Value Care

The LBVC program was launched in the 2017-18 financial year and is based on the quadruple aim of better outcomes and experiences for patients and providers, and more efficient and effective healthcare. The LBVC program focuses on evidence-based clinical initiatives in specific clinical cohorts, implemented over two tranches. The following LBVC initiatives are in scope for the initial implementation of HOPE.

Tranche 1 initiatives:

- Osteoarthritis chronic care program (OACCP)
- Osteoporosis re-fracture prevention (ORP)
- Chronic heart failure (CHF)
- Chronic obstructive pulmonary disease (COPD)
- Inpatient management of diabetes mellitus (IMDM)
- Diabetes high risk foot services (HRFS)
- Falls in hospital
- Renal supportive care (RSC)

Tranche 2 initiatives:

- Hip fracture care (HFC)
- Chronic wound management
- Bronchiolitis

Integrated Care

Integrated care (IC) aims to achieve seamless, effective, and efficient care that reflects a person's holistic health needs across settings. Integrated care is in scope for the initial implementation of HOPE. Towards the second half of 2021, the overarching integrated care initiative was delineated into the following clinical initiatives:

- **Planned Care for Better Health:** targeting patients at risk of hospitalisations early
- **Emergency department (ED) to community:** reducing ED attendance for frequent users.
- **Residential aged care:** targeted support for residential aged care facilities (RACFs)
- **Vulnerable families:** Community support for vulnerable parents and children.
- **Specialist outreach to primary care:** General practitioners with specialists to provide care in the community
- **Paediatric network:** reducing travel burden for regional paediatric patients.

Evaluation questions and purpose

The HOPE PRMs uptake analysis aims to answer the following evaluation questions:

Are baseline and follow up surveys being routinely completed?

How has uptake varied across patient cohorts, local health districts and services?

This uptake analysis is one component of a mixed methods process evaluation. Other components of the evaluation include semi-structured interviews with program stakeholder groups, and an online clinician survey. These results will be provided to the Australian Institute of Healthcare Innovation (Macquarie University) and synthesised with other analyses into an evaluation report. It is anticipated that the interview and survey findings will provide evidence to help with the interpretation and explanation of these uptake results.

No uptake targets were set for the HOPE PRMs program. Along with the impacts of the COVID pandemic, this makes it challenging to interpret the uptake achieved.

The purpose of this process evaluation is to inform future program improvements. It focuses on the implementation, changes, and outcomes achieved at the clinician level. It includes questions related to the implementation process, clinician experience of collecting and using PRMs, and the uptake of PRMs. It also aims to identify what needs to be considered to achieve the desired service and system level outcomes.

Scope

All LBVC and IC cohorts were in scope for this uptake analysis, however this report focuses on seven LBVC cohorts where there is sufficient data to conduct detailed uptake analyses.

The period covered for this uptake analysis is 1 February 2021 to 31 December 2021. Data to 31 December 2021 was analysed once it became available in July 2022 in the Register of Outcomes, Value and Experience (ROVE) dataset. Admitted and non-admitted patient data in ROVE was needed to estimate the number of eligible LBVC patients in the LBVC clinics.

Additional data from the HOPE platform for the period 1 February 2021 to 30 June 2022 is provided in Appendix 5.

Methods

This uptake analysis includes the following:

(1) The number of locations that have gone live and the number of surveys completed for all in-scope initiatives

(2) The number and proportion of eligible clinics that have been onboarded and gone live in the HOPE platform for seven LBVC initiatives during the period 1 February 2021 to 31 December 2021.

(3) The number and proportion of eligible patients providing consent, being allocated surveys, and completing these surveys for seven LBVC initiatives during the period 1 February 2021 to 31 December 2021.

Defining eligible clinics live in HOPE

The number of LBVC clinics that have gone live in HOPE and their go-live dates was sourced from the onboarding inputs and tracking file maintained by the HOPE implementation team. This number was compared with the number of LBVC eligible clinics in non-admitted patient (NAP) data accessed via the Register of Outcomes Value and Experience (ROVE) dataset. We focus on the LBVC NAP clinics because there are relatively few patients registered in other locations (Appendix 2 Table 2).

For the LBVC initiatives high risk foot services (HRFS), osteoarthritis chronic care program (OACCP), osteoporosis refracture prevention (ORP) and renal supportive care (RSC), there are specific LBVC clinics with dedicated establishment types listed in the ROVE Data Dictionary[1] (Appendix 1, Table 1).

For chronic heart failure (CHF), chronic obstructive pulmonary disease (COPD) and inpatient management diabetes mellitus (IMDM), a different approach was required as specific LBVC clinics do not exist for these initiatives. Relevant clinics were identified based on the clinic establishment types registered in HOPE for these initiatives. These establishment types were validated by analysing the clinics most frequently visited by CHF, COPD, and IMDM patients following discharge from an admitted patient episode (Appendix 1 Table 2).

An LBVC clinic was defined as eligible if it had one or more service events for LBVC patients during the period 1 February 2021 to 31 December 2021.

Cascade of active LBVC patients completing PRMs in HOPE

This section describes a ‘cascade’ for a stepwise approach to assess uptake from patients having an LBVC-related healthcare interaction to completing at least one survey. Technical definitions of the cascade levels are included in Appendix 2.

Level 1: Active LBVC patients

The HOPE PRMs program aims to collect PRMs from all LBVC patients. Active LBVC patients have had at least one LBVC-related interaction with the NSW public healthcare system. The interaction may be an LBVC-related admitted patient episode or a NAP service event in an LBVC clinic.

Level 2: Active LBVC patients in LBVC NAP clinics

The number of active LBVC patients who have visited an LBVC NAP clinic.

Level 3: Active LBVC patients in LBVC NAP clinics after HOPE go live

The number of active LBVC patients who have visited an LBVC NAP clinic since the clinic went live in HOPE.

Level 4: Active LBVC patients registered and consented in HOPE

The number of patients who have been registered in the HOPE platform and have consented. Patients who have only completed surveys via the Research Electronic Data Capture (REDCap) platform, used prior to HOPE platform development, have not consented nor been allocated HOPE surveys are not included.

Level 5: Active LBVC patients allocated at least one survey in HOPE

The number of consenting patients who have been allocated at least one survey in the HOPE platform. The total number of surveys allocated is also measured.

Level 6: Active LBVC patients completed at least one survey in HOPE

The number of consenting patients who have completed at least one survey in the HOPE platform. The total number of surveys completed is also measured.

Completion of specific survey types

As well as measuring the proportion of the eligible cohort that has completed at least one survey, the analysis also looks at completion by survey type. This includes condition-specific PROM, generic patient reported outcome measures (PROM) and patient reported experience measures (PREM). This analysis has been done both by LHD and by initiative.

Allocation of follow-up surveys according to collection points

For surveys that are designated for collection every three or six months according to the PRMs collection points (Appendix 6), the time between completion of the first survey and allocation of the second survey is measured for patients who have not been discharged. This time is compared to the recommended collection point.

Completion of follow-up surveys

The analysis also includes the number of patients eligible to complete follow up surveys, based on PRMs collection points (Appendix 6) (program commencement, every three months or six months or when clinically indicated, on program completion), and the number of patients who have completed follow up surveys for the period 1 February 2021 to 31 December 2021.

The number of patients eligible to complete one survey is the number of patients who have been allocated the survey in HOPE (i.e. cascade level 5). The number of patients eligible to complete two surveys is patients who have completed one survey and have been allocated a second survey or are due for their second survey based on the survey collection points. The number of patients eligible to complete three surveys is patients who have completed two surveys and have been allocated a third survey or are due for their third survey based on the survey collection points.

For surveys that are to be completed either every three months or six months, we assumed that patients who were active in the HOPE system for three or six months since completing their first or second survey between 1 February 2021 and 31 December 2021 were eligible to complete a second or third survey.

For surveys that are to be conducted at the completion of a program, we assumed that patients who were unassigned from a clinical program in the HOPE system since completing their first or second survey between 1 February 2021 and 31 December 2021 were eligible to have completed the program completion survey.

Uptake analysis findings

Uptake for all in-scope initiatives

Preliminary data (Table 1) show the number of locations and surveys completed for all in scope initiatives. There were relatively few live locations and completed surveys for IC and for some LBVC cohorts (falls, hip fracture, chronic wound, bronchiolitis). HOPE PRMs rollout in these cohorts has been slower than the other cohorts. Interview and survey findings may provide evidence to help understand why.

The remaining analysis in this report has a focus on seven LBVC initiatives with the highest numbers of locations and surveys completed.

Table 1: HOPE PRMs live locations and surveys completed for all initiatives, 1 February 2021 to 31 December 2021

Initiative		Live locations	Surveys completed
Further analyses	Osteoarthritis chronic care program	26	7,103
	Osteoporosis refracture prevention	24	1,509
	Renal supportive care	32	1,272
	High risk foot services	22	1,090
	Chronic obstructive pulmonary disease	36	817
	Chronic heart failure	38	773
	Inpatient management diabetes mellitus	16	383
No further analyses	Planned care for better health (IC)	23	138
	Specialist care in primary care (IC)	S	41
	Falls in Hospitals	S	7
	Hip fracture care	S	S
	Chronic wound management	S	S
	Integrated care	S	S
	Bronchiolitis	0	0
	Other	30	239

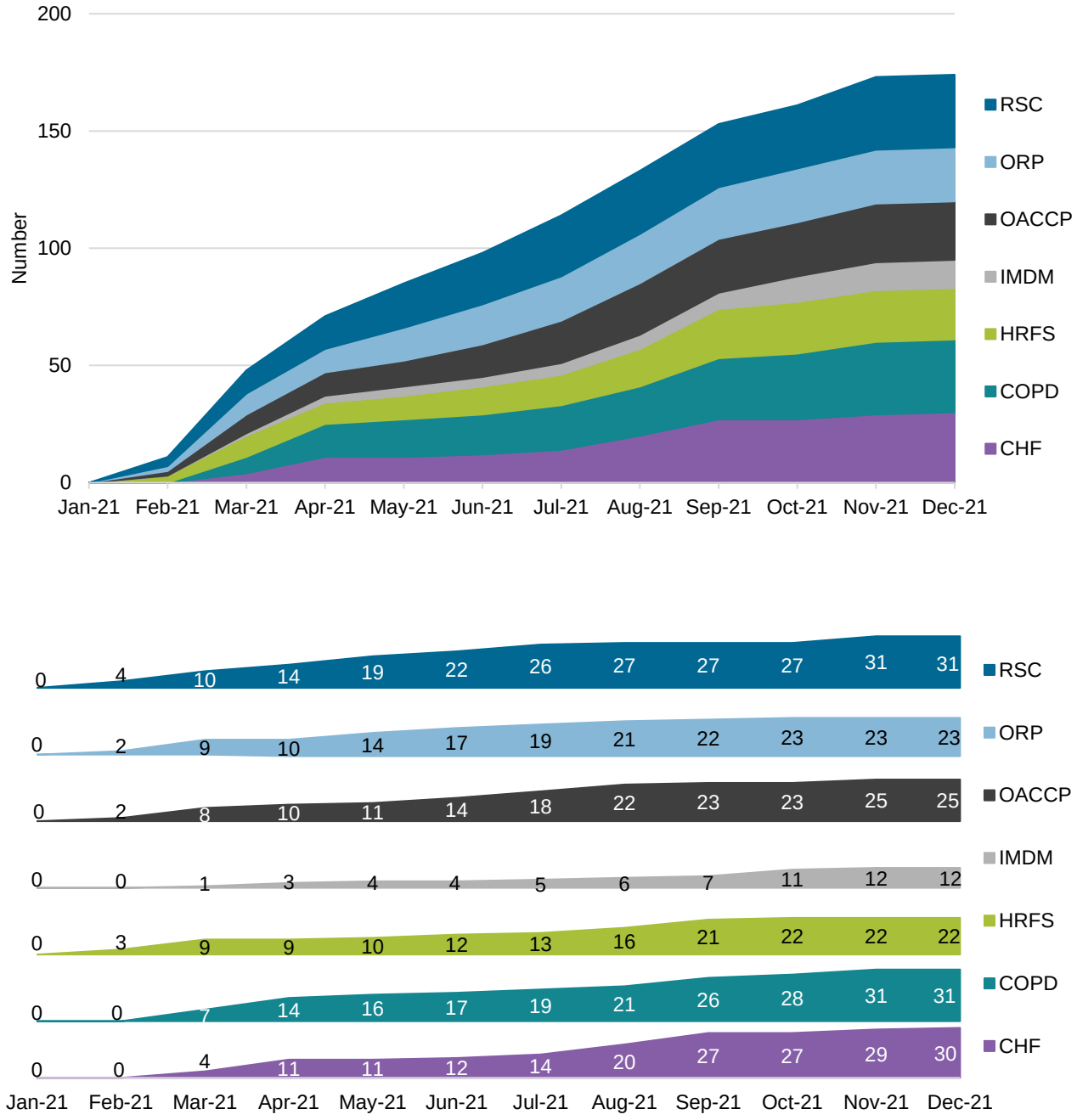
S – Suppressed due to small numbers (less than five)

Note: Live locations include any location live in HOPE including admitted or NAP locations. The next section focuses on LBVC NAP clinics, where the number of live clinics can be compared with the number of eligible clinics using HOPE and NAP data.

LBVC clinics live in HOPE by clinical initiative

Between 1 February 2021 and 31 December 2021, 233 clinics went live in HOPE. Of these clinics, 174 were LBVC clinics for CHF (30), COPD (31), HRFS (22), IMDM (12), OACCP (25), ORP (23), and RSC (31) (Figure 2). Among these 174 clinics, 155 (89%) had registered patients in HOPE by 31 December 2021. The number of LBVC clinics going live in HOPE increased steadily over the year, reflecting the planned progressive implementation of locations in HOPE that is expected to continue over the course of the program. The COVID-19 pandemic did affect implementation progress. There were 50 clinics where the go live date was delayed due to the pandemic. Of these clinics, 11 did go live later in 2021.

Figure 2: Number of LBVC clinics live in HOPE by clinical initiative, 2021

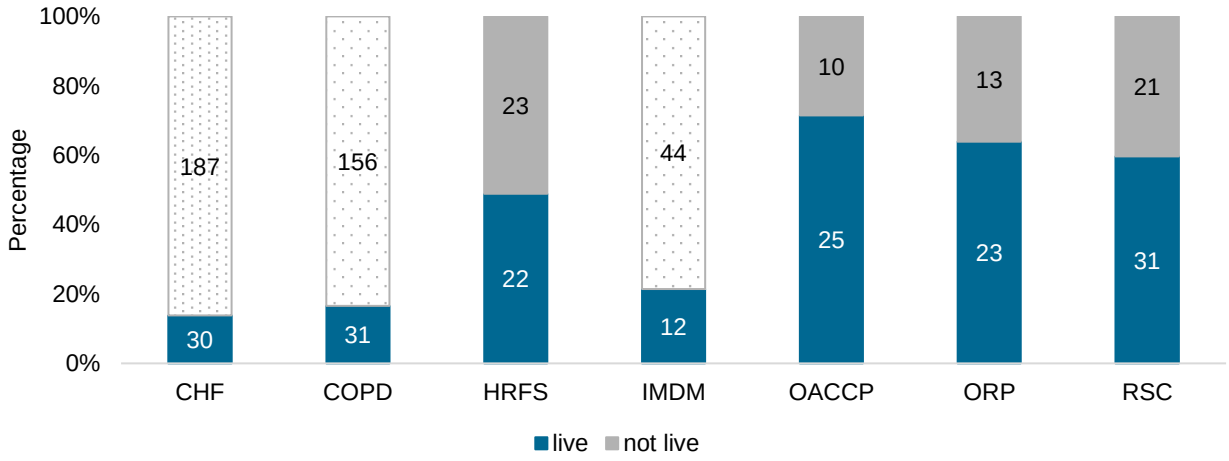


While the number of clinics that have gone live in HOPE is relatively similar across initiatives (except for IMDM), the percentage of eligible clinics that have gone live differs.

At 31 December 2021, the percentage of eligible clinics that had gone live in HOPE was 28% overall and ranged from 14% to 71% across initiatives (CHF – 14%, COPD - 17%, HRFS – 49%, IMDM – 21%, OACCP – 71%, ORP – 64%, RSC – 60%) (Figure 3). It is important to note that, for CHF, COPD, and IMDM, specific LBVC clinics do not exist. This report may be overestimating the number of eligible clinics for CHF, COPD, and IMDM as it includes any clinic with a CHF, COPD and IMDM related establishment type (Appendix 1) that has seen at least one LBVC patient during the period 1 February 2021 to 31 December 2021. To account for this uncertainty, we have conducted a sensitivity analysis, restricting to clinics that saw at least 20 LBVC patients (Figure 4).

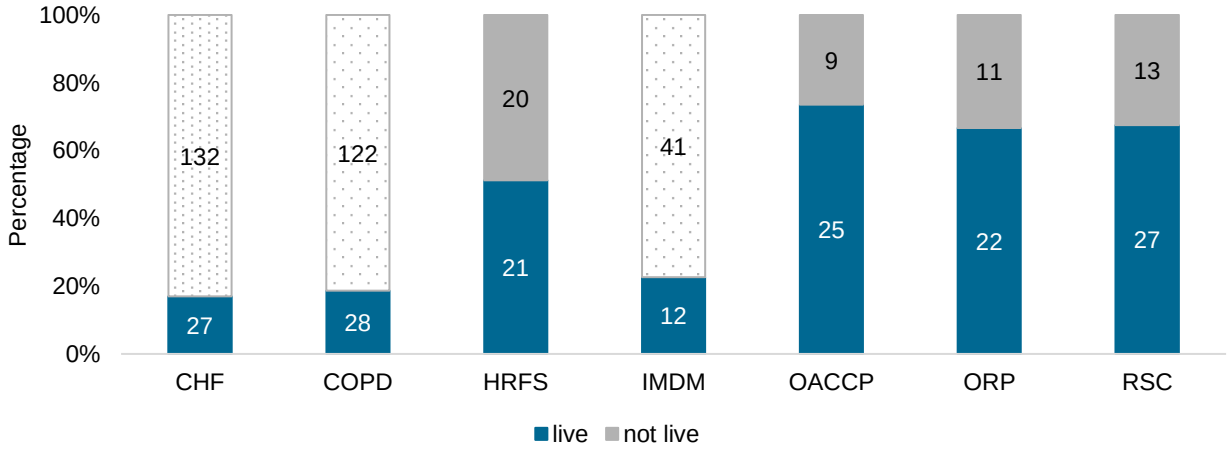
For the initiatives where there is more certainty in measuring the number of eligible clinics (HRFS, OACCP, ORP, RSC) 60% of eligible clinics had gone live in HOPE.

Figure 3: Number and proportion of eligible LBVC clinics live in HOPE at December 2021



Note: CHF, COPD, and IMDM not live clinics are presented as a dotted pattern in the figure to reflect uncertainty in the number of eligible clinics for these initiatives.

Figure 4: Number and proportion of eligible LBVC clinics live in HOPE at 31 December 2021 (at least 20 LBVC patients)



Note: CHF, COPD, and IMDM not live clinics are presented as a dotted pattern in the figure to reflect uncertainty in the number of eligible clinics for these initiatives.

LBVC clinics live in HOPE by LHD

The number of LBVC clinics that have gone live in HOPE by local health district (LHD) / specialty health network (SHN) ranged from zero in Sydney LHD to 35 in Northern NSW LHD (Figure 5). Locations are expected to go live in HOPE as a progressive process dependent on PRM strategic steering committee decisions, local executive sponsorship and readiness, as well as scheduling of ACI implementation support. This variation may also reflect differences in the distribution, activity, and number of patients attending clinics across LHDs. Only two LHDs have gone live for all seven LBVC initiatives suggesting implementation requires more time.

To better understand the implementation of HOPE across LHDs in 2021, the percentage of eligible LBVC clinics that have gone live in HOPE by LHD was also calculated. The percentage of clinics that have gone live ranged from 0% in Sydney LHD to 92% in Far West LHD (Figure 6). After excluding CHF, COPD, and IMDM clinics (where the number of eligible clinics may be overestimated), the percentage of clinics that have gone live ranged from 0% in Sydney LHD to 100% in both Far West LHD and Mid North Coast LHD (Figure 7). This reflects the staggered and variable implementation approach across LHDs. It will be valuable to understand the factors affecting LHD implementation from other evaluation data sources. Updated HOPE data shows that LBVC clinics have gone live in Sydney LHD in 2022 (Appendix 5).

Figure 5: Number of LBVC clinics live in HOPE by LHD at December 2021

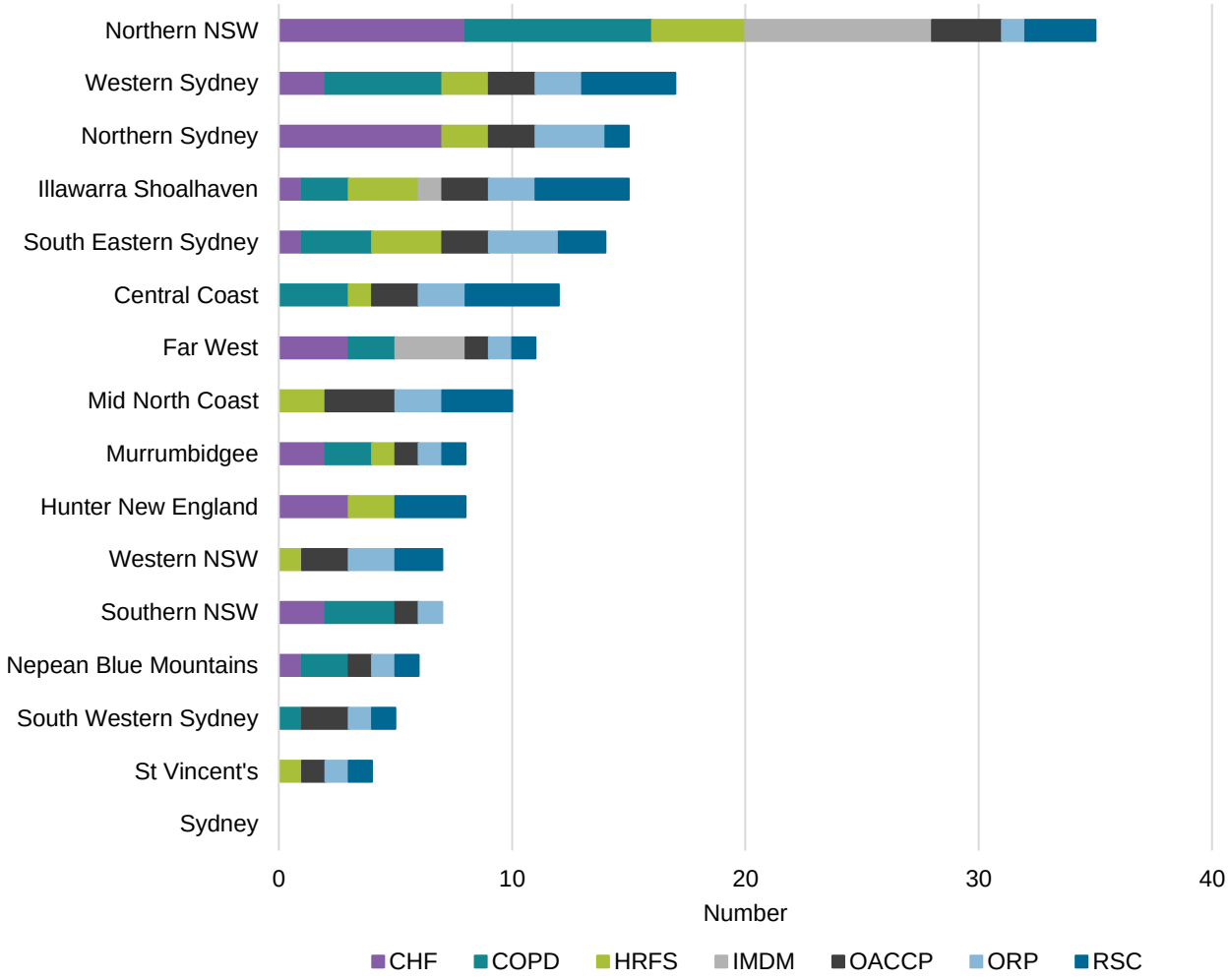
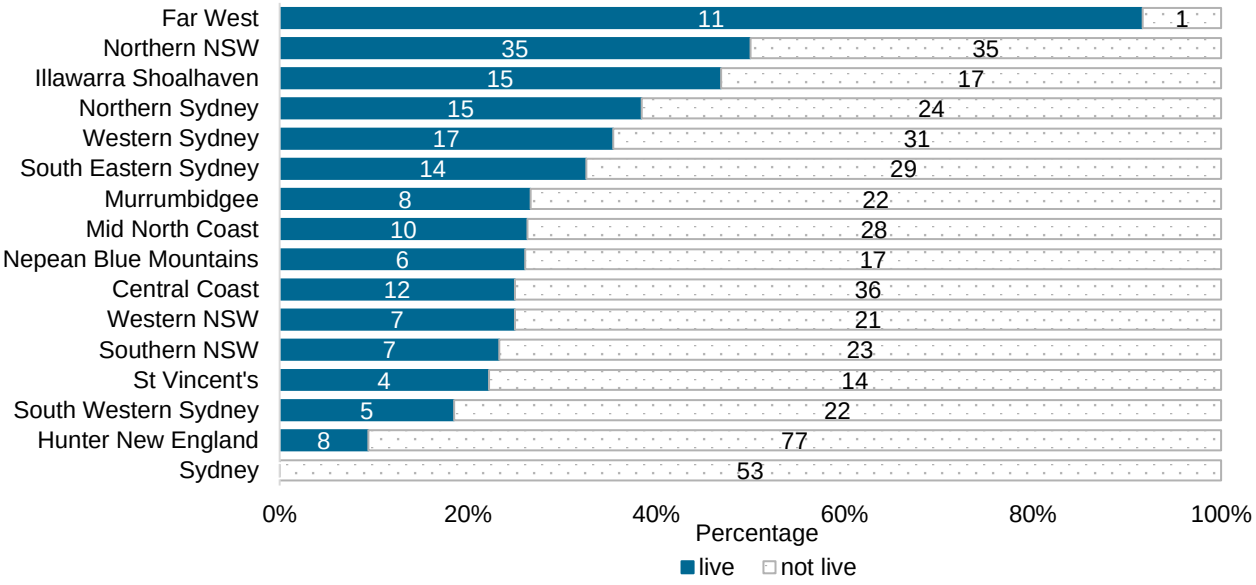
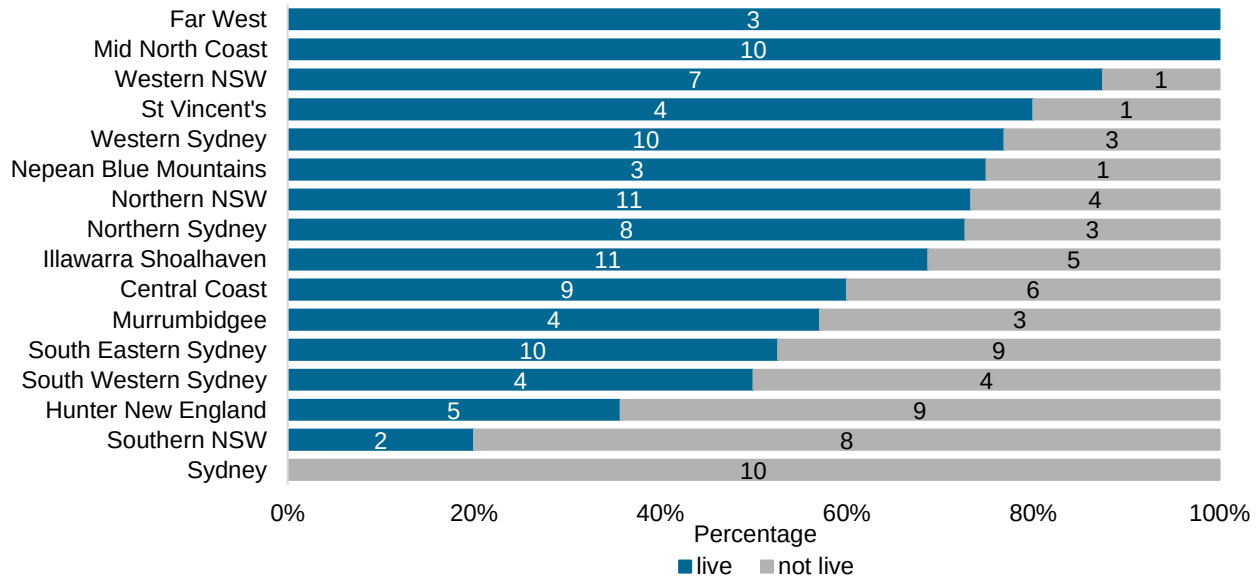


Figure 6: Number and proportion of eligible LBVC clinics live in HOPE by LHD at 31 December 2021 (seven initiatives)



Note: Not live clinics are presented as a dotted pattern in the figure to reflect uncertainty in the number of eligible clinics for CHF, COPD, and IMDM initiatives.

Figure 7: Number and proportion of eligible LBVC clinics live in HOPE by LHD at 31 December 2021 (OACCP, ORP, HRFS, RSC)



There appear to be features of LBVC initiatives that are associated with a greater number of LHDs and a greater proportion of LBVC eligible clinics going live. These features are:

- A clearly defined model of care that is primarily delivered in the non-admitted setting
- Specific clinics for patient follow-up to support longitudinal PRMs collection

These features are more common in HRFS, OACCP, ORP, and RSC than in CHF, COPD, and IMDM. The impact of COVID-19 on admitted services and clinical teams may have also played a role in these results and be adversely affecting some LBVC initiatives more than others.

It will be important to understand and act upon the facilitators and barriers to LHDs and locations going live in HOPE that will be ascertained through other evaluation data.

Proportion of eligible LBVC patients completing PRMs surveys in HOPE

HOPE PRMs cascade

The HOPE PRMs cascade assesses PRMs uptake in a stepwise manner that mirrors the HOPE PRMs collection process. The cascade has been produced for all active LBVC patients across seven initiatives and is presented for NSW and by LHD (Figure 8).

In NSW, there were 192,653 active LBVC patients between 1 February 2021 and 31 December 2021. Among these patients, 55,227 (29%) visited a LBVC NAP clinic, and 18,692 (10%) visited a LBVC NAP clinic after it went live in HOPE (Table 2 and Figure 9).

Since 1 February 2021, clinics have been progressively going live in HOPE based on readiness and resources. Not all patients who visited a LBVC NAP clinic since 1 February 2021 are eligible for a survey given the early stage of HOPE implementation. However, patients who visited a LBVC NAP clinic after it went live in HOPE are eligible to be registered in HOPE, to provide consent, and to be allocated surveys for completion. The cascade results for patients who visited LBVC NAP clinics live in HOPE provide important insights for where uptake is lost and where future strategies may be needed.

Between 1 February 2021 and 31 December 2021, 18,692 patients visited a LBVC NAP clinic after it went live in HOPE, and there were 10,874 LBVC patients registered in HOPE. Among these patients, 6,231 (57%) consented. Among the 4,643 patients who did not consent, 91 (2%) declined, 11 (<1%) withdrew, and 4,541 (98%) were pending consent. Almost all consenting patients were allocated at least one survey (6,204) and completed at least one survey (5,992) (Figure 8, Table 3).

Of the 192,653 active LBVC patients, 44,773 are in multiple LBVC cohorts. Of the 5,992 LBVC patients who have completed at least one survey, 23 have completed at least one survey for multiple LBVC programs.

Figure 8: HOPE PRMs cascade

		NSW LBVC
LEVEL 1	Active LBVC patient	192,653
LEVEL 2	Active LBVC patient attends LBVC NAP clinic	55,227 (29%)
LEVEL 3	Active LBVC patient attends LBVC NAP clinic live in HOPE	18,692 (10%)
LEVEL 4	Patients registered and consented in HOPE	10,874 6,231
LEVEL 5	Patients allocated at least one survey	6,204
LEVEL 6	Patients completing at least one survey	5,992

Table 2: Cascade levels one to three, 1 February 2021 to 31 December 2021

	HOPE PRMs cascade level		
LBVC initiative	One - Active LBVC patients	Two - Active LBVC patients in LBVC NAP clinics	Three - Active LBVC patients in LBVC NAP clinics after HOPE go live
CHF	29,921	10,190	1,681
COPD	23,108	8,501	1,078
HRFS	26,258	6,522	2,489
IMDM	123,829	11,885	1,801
OACCP	15,436	9,372	5,574
ORP	20,885	8,912	4,977
RSC	12,201	2,352	1,376
Total*	192,653	55,227	18,692

* Some people are in multiple LBVC initiatives. The sum of the people in individual LBVC initiatives is greater than the total number of people in LBVC.

Table 3: Cascade levels four to six, 1 February 2021 to 31 December 2021

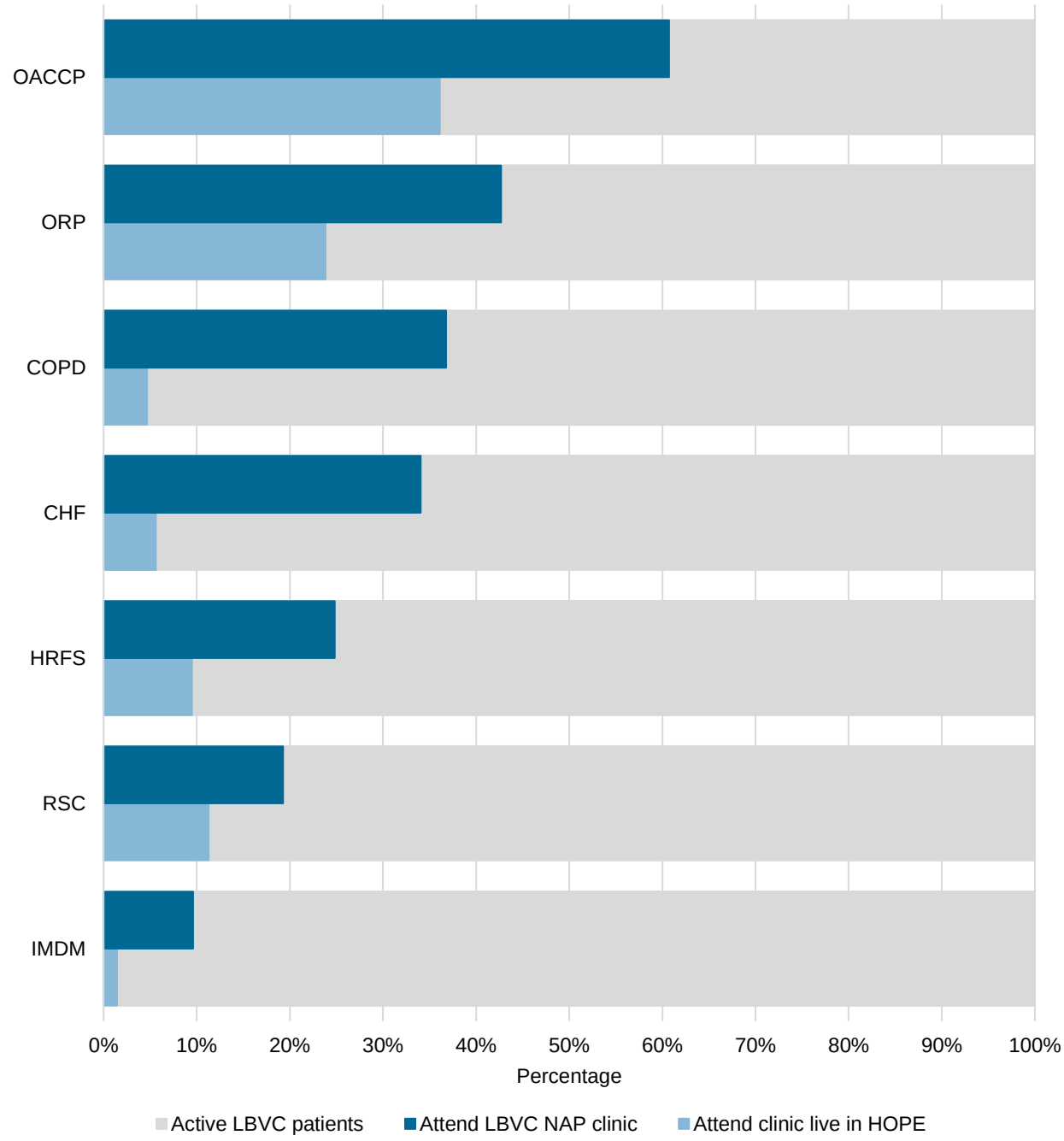
	HOPE PRMs cascade level					
	Four		Five		Six	
LBVC initiative	Patients registered in HOPE	Patients consented in HOPE	Allocated at least one survey	Total surveys allocated	Completed at least one survey	Total surveys completed
CHF	795	509	501	1,094	478	773
COPD	517	414	411	1,048	396	817
HRFS	1,379	718	713	2,058	679	1,090
IMDM	297	208	208	514	196	383
OACCP	4,845	2,987	2,966	9,662	2,891	7,103
ORP	2,260	932	917	2,219	866	1,509
RSC	875	533	531	2,048	509	1,272
Total*	10,874	6,231	6,204	18,643	5,992	12,947

* Some people are in multiple LBVC initiatives. The sum of the people in individual LBVC initiatives is greater than the total number of people in LBVC.

Across initiatives, 10% overall and between 1% and 36% of active LBVC patients visited a clinic after it went live in HOPE and were eligible to be allocated PRM surveys (Figure 9). This reflects the progressive clinic go live schedule and the early stage of implementation. As more clinics go live in HOPE it is expected that these percentages will increase.

The active LBVC patient population is largely admitted patients. A review of the setting for PRMs collection in HOPE may be needed if reach across this broader LBVC population is required for service and system level use given the low number of admitted locations in HOPE so far.

Figure 9: HOPE PRMs cascade of active LBVC patients attending clinics live in HOPE, 1 February 2021 to 31 December 2021

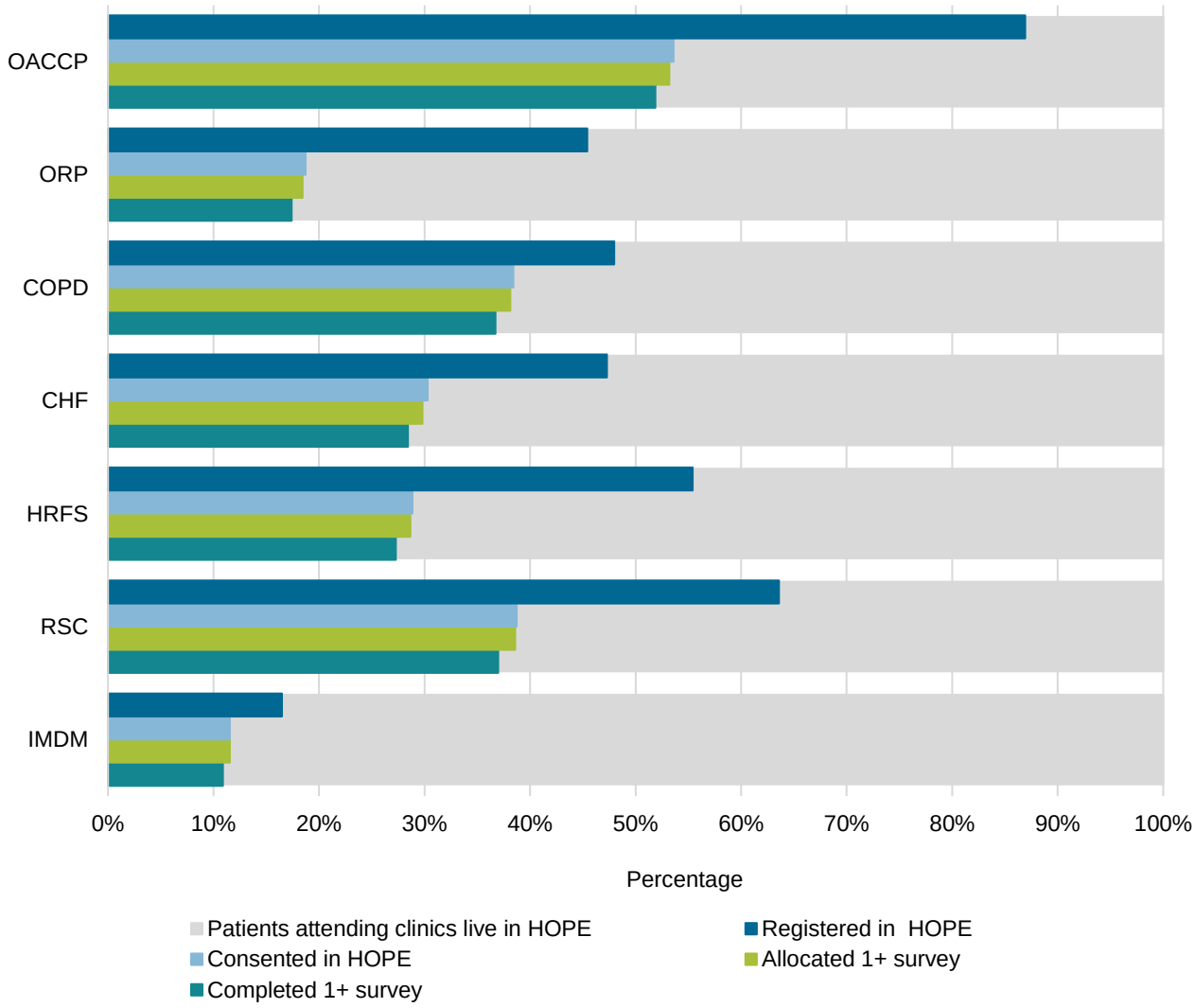


For patients who visit clinics live in HOPE, there are opportunities to improve uptake in the registration and consent stages. 43% of patients that are registered in the HOPE platform are not providing consent (Table 3 and Figure 10). This includes patients who have declined consent or where consent is pending. Of the patients who have consented greater than 99% were allocated at least one survey and 97% completed at least one survey (Figure 8, Table 3).

The PRMs interviews and clinician surveys may provide further evidence on the factors affecting PRMs uptake at the registration and consent stages. There may be service, clinician and patient factors, such as time and resources, the registration and consent process within the clinical workflow, clinician judgement on the value of PRMs for each patient, the impact of COVID-19 on clinic operations, and patient digital and health literacy and patient perceptions of PRM surveys.

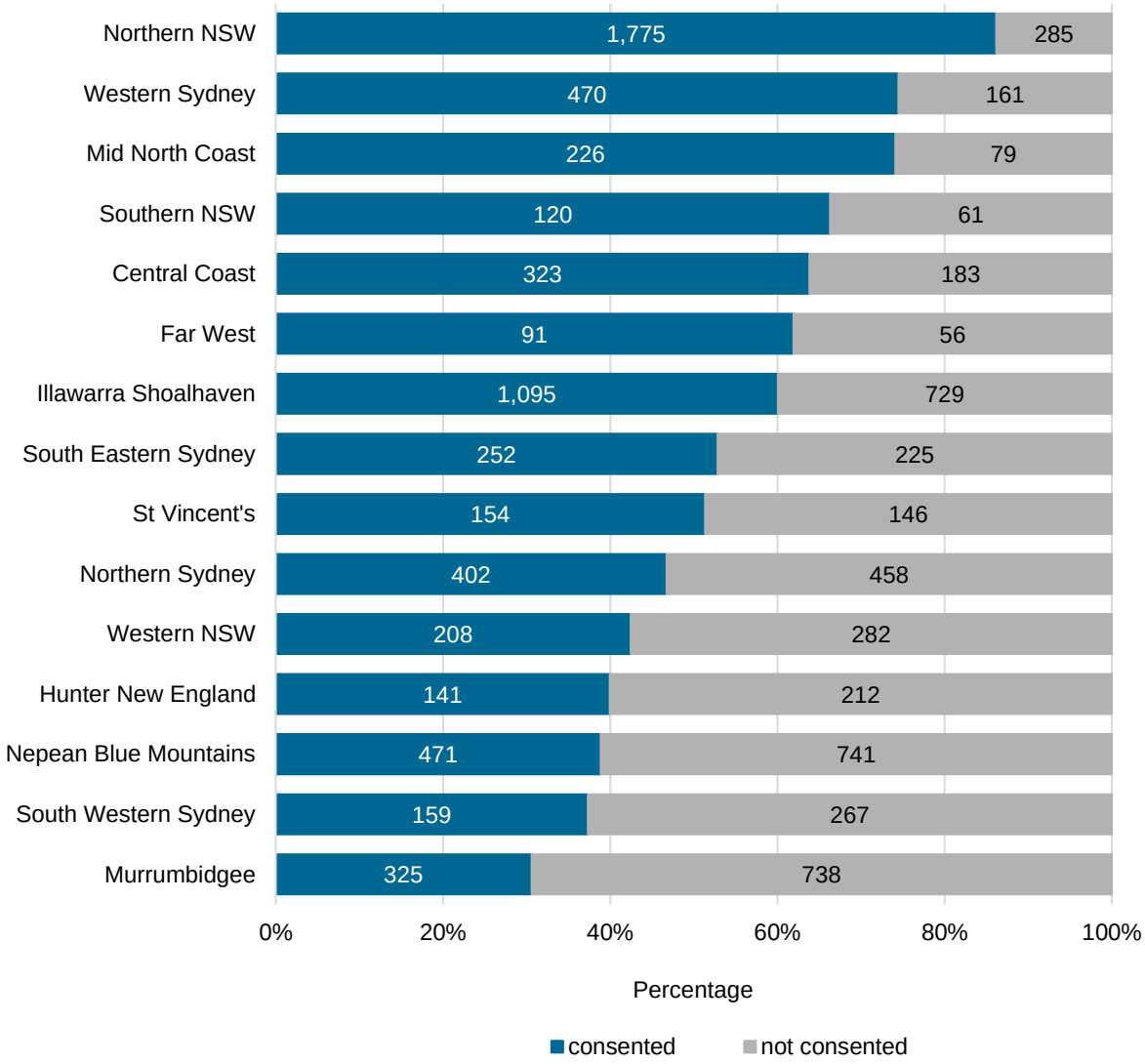
For LBVC patients who attended a clinic since it went live in HOPE, about one third have completed at least one survey. For all LBVC patients, about 3% have competed at least one survey in HOPE. This latter result reflects the relatively low number of admitted locations set up and collecting PRMs in HOPE so far, against the large number of admitted patients in LBVC initiatives. With only 10% of active LBVC patients attending eligible NAP clinics live in HOPE, a review of the setting for PRMs collection in HOPE may be needed if reach across this broader LBVC population is required for service and system level use.

Figure 10: HOPE PRMs cascade of LBVC patients visiting clinics live in HOPE who are registered, allocated, consenting, and completing surveys, 1 February 2021 to 31 December 2021



LHD appears to be an important factor in consent rates. Across LHDs and SHNs, consent rates ranged from 31% in Murrumbidgee LHD to 86% in Northern NSW LHD (Figure 11). These results suggest that consent rates may be influenced by clinician and clinic factors as well as patient factors. An understanding of what local practices and factors are working in LHDs to achieve high consent rates could inform future strategies.

Figure 11: Number and percentage of registered patients who consented by LHD, 1 February 2021 to 31 December 2021



Subgroup analysis was undertaken to determine whether patient characteristics are a factor in consent rates. Among patients registered in HOPE, consent rates were slightly higher in males (60%) compared with females (57%). For both males and females, the age group 65-74 years had the highest consent rate and consent rates were higher in rural and regional areas (63%) compared with metropolitan areas (53%) (Appendix 3, Figures 1 and 2).

LBVC survey allocation and completion by survey type

The HOPE PRMs cascade identifies the proportion of eligible patients that have completed at least one survey in HOPE. This section looks in more detail at survey allocation and completion rates by survey type including condition-specific, generic and experience PRMs.

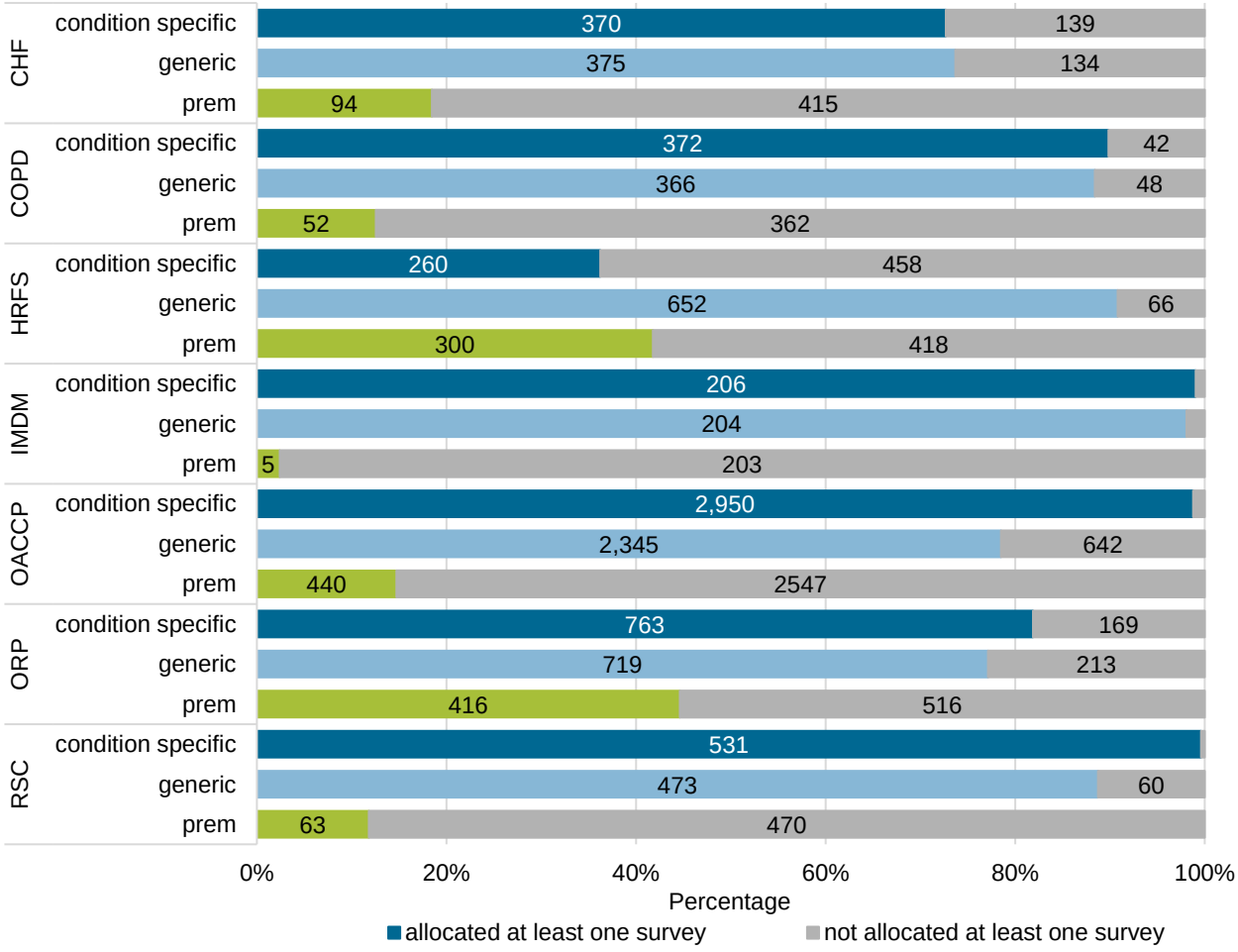
For almost all LBVC initiatives, there were higher rates of survey allocation for condition-specific and generic surveys compared with patient reported experience measure (PREM) surveys (Figure 12). Of patients who have consented, 87%, 81% and 22% are allocated condition-specific, generic and experience surveys respectively.

Evidence from interview and survey data may help understand the following results:

- The lower allocation rate for the HRFS condition-specific survey (35%).
- The lower allocation rate for PREM surveys
- Not all consenting patients are allocated at least one condition-specific and generic survey

Potential contributing factors could be time and resources, differences in the local approach to allocating surveys within the clinical workflow, clinician survey preferences, and clinic scheduling changes. Interpretation of these results will need to take these factors into account.

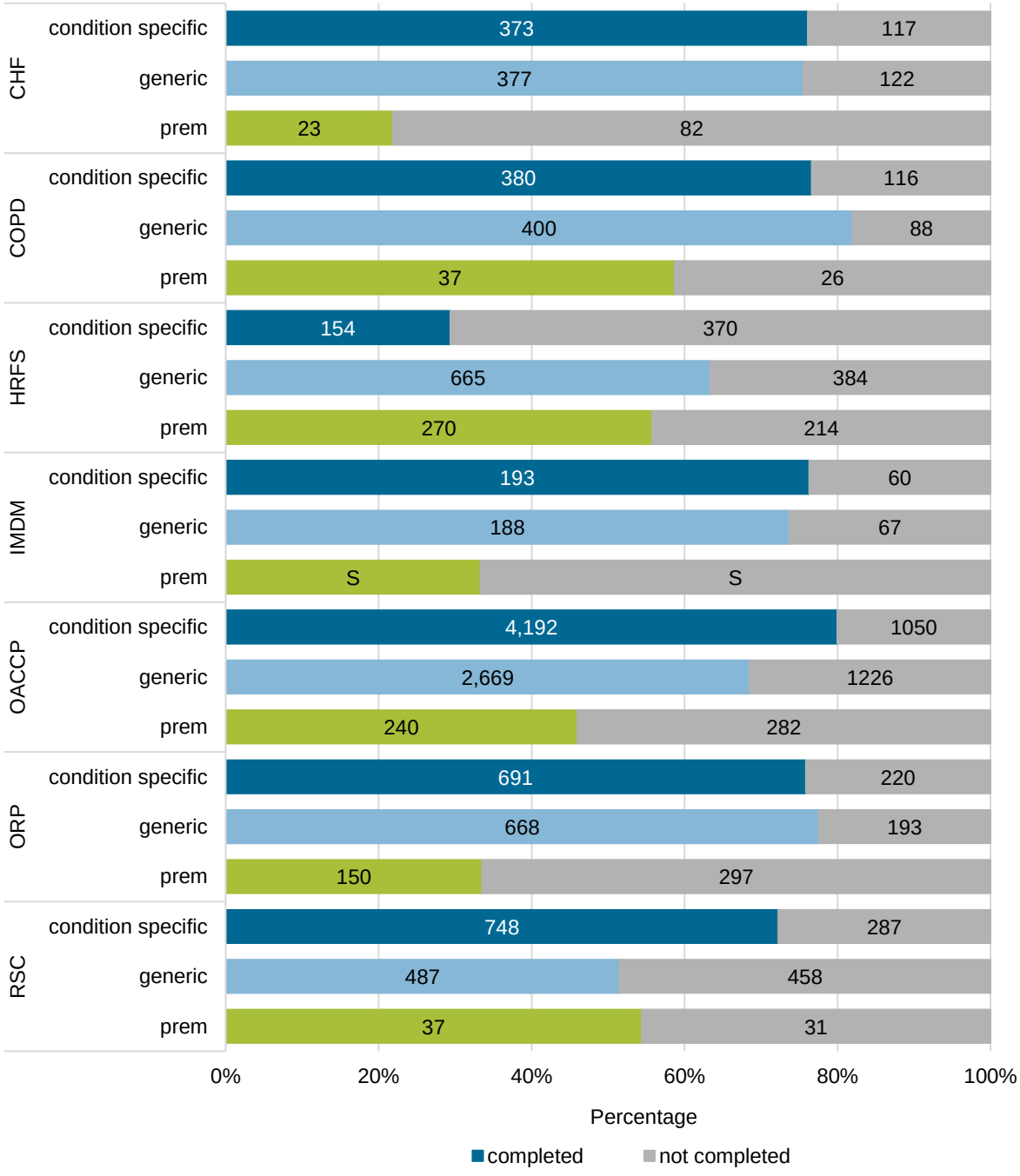
Figure 12: Number and percent of consenting patients allocated *at least one survey* by survey type, 1 February 2021 to 31 December 2021



For most LBVC initiatives, there were higher rates of survey completion for condition-specific and generic surveys compared with PREM surveys (Figure 13). The completion rates were 75%, 68% and 45% for condition-specific, generic and experience surveys respectively.

The completion rates for condition-specific and generic surveys range between 50% and 80%, except for HRFS. Although this is a good completion rate, understanding the barriers to patients completing surveys will be important to develop strategies to improve this rate further. Strategies may include education on PRM utility, support for digital literacy and factoring in the time required to complete surveys.

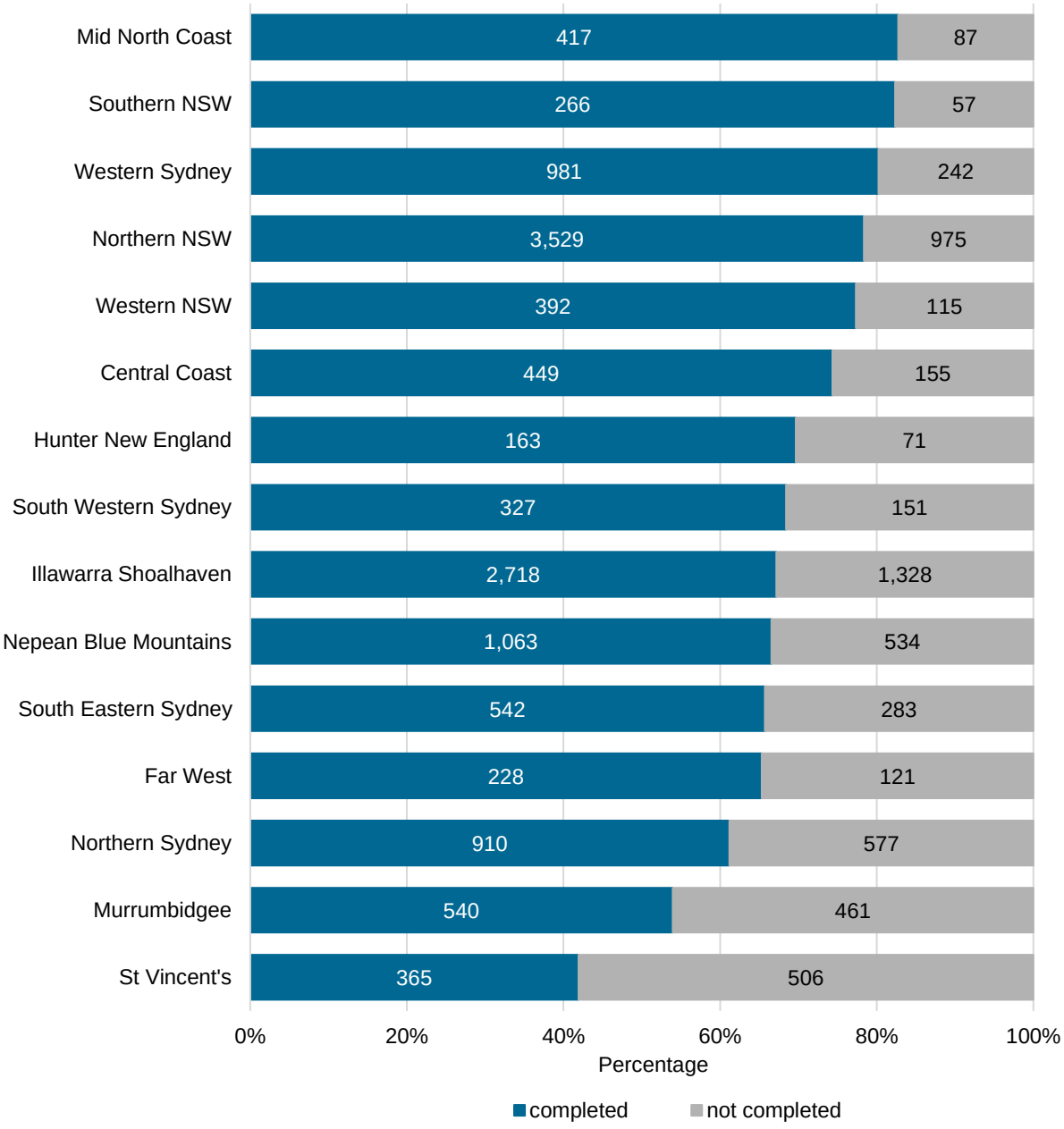
Figure 13: Number and percent of *total allocated surveys* that were completed by survey type, 1 February 2021 to 31 December 2021



S – Suppressed due to small numbers (less than five)

LHD appears to be an important factor in completion rates. Across LHDs/SHNs, completion rates ranged from 42% in St Vincent's Health Network to 83% in Mid North Coast LHD (Figure 14). These results suggest that completion rates may be influenced by clinician and clinic factors as well as patient factors. Four of the top five LHDs on both completion and consent rate (Figure 13) are consistent (Mid North Coast, Southern NSW, Western Sydney, Northern NSW), suggesting common LHD factors in achieving high rates of patient consent and survey completion.

Figure 14: Number and percent of total allocated surveys that were completed by LHD, 1 February 2021 to 31 December 2021



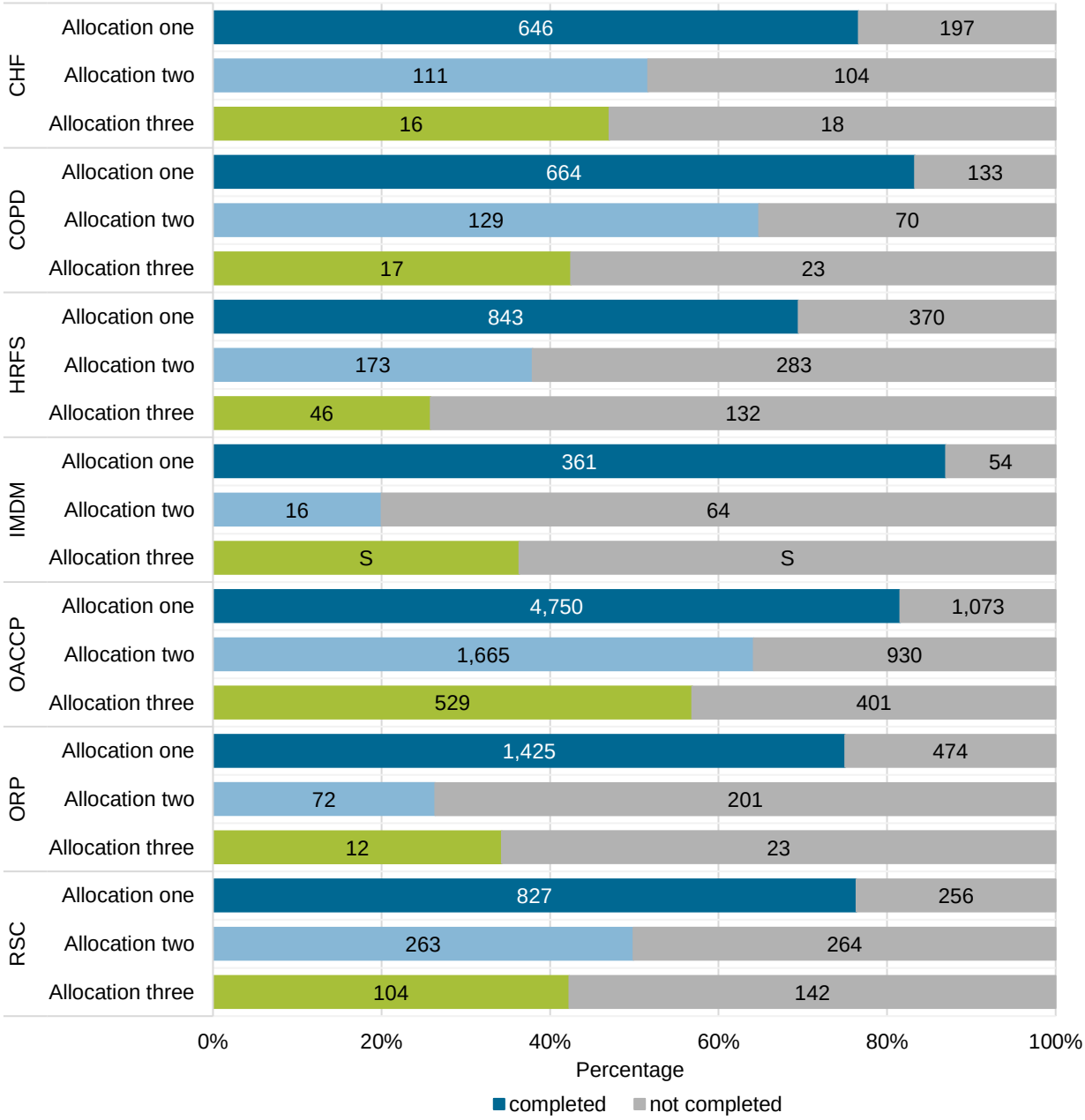
Subgroup analysis was undertaken to assess if patient characteristics are a factor in survey completion rates. Among patients who were allocated surveys, completion rates were generally similar across age and sex groups, but slightly lower for the younger age group,

and higher in rural/regional areas (75%) compared with metropolitan areas (66%) (Appendix 3 Figure 3 and 4).

LBVC survey completion by allocation occurrence

Collecting multiple PRM surveys is important to achieve the expected uses of PRMs, including the measurement of value at the clinician, service, and system levels. Across LBVC initiatives, survey completion rates decreased from 79% to 56% to 49% from the first to the third allocation (Figure 15). Addressing these decreasing rates of completion will be important for using PRMs to assess changes in patient reported health status over time at an individual, service and system level.

Figure 15: Number and percent of surveys that were completed by allocation, 1 February 2021 to 31 December 2021



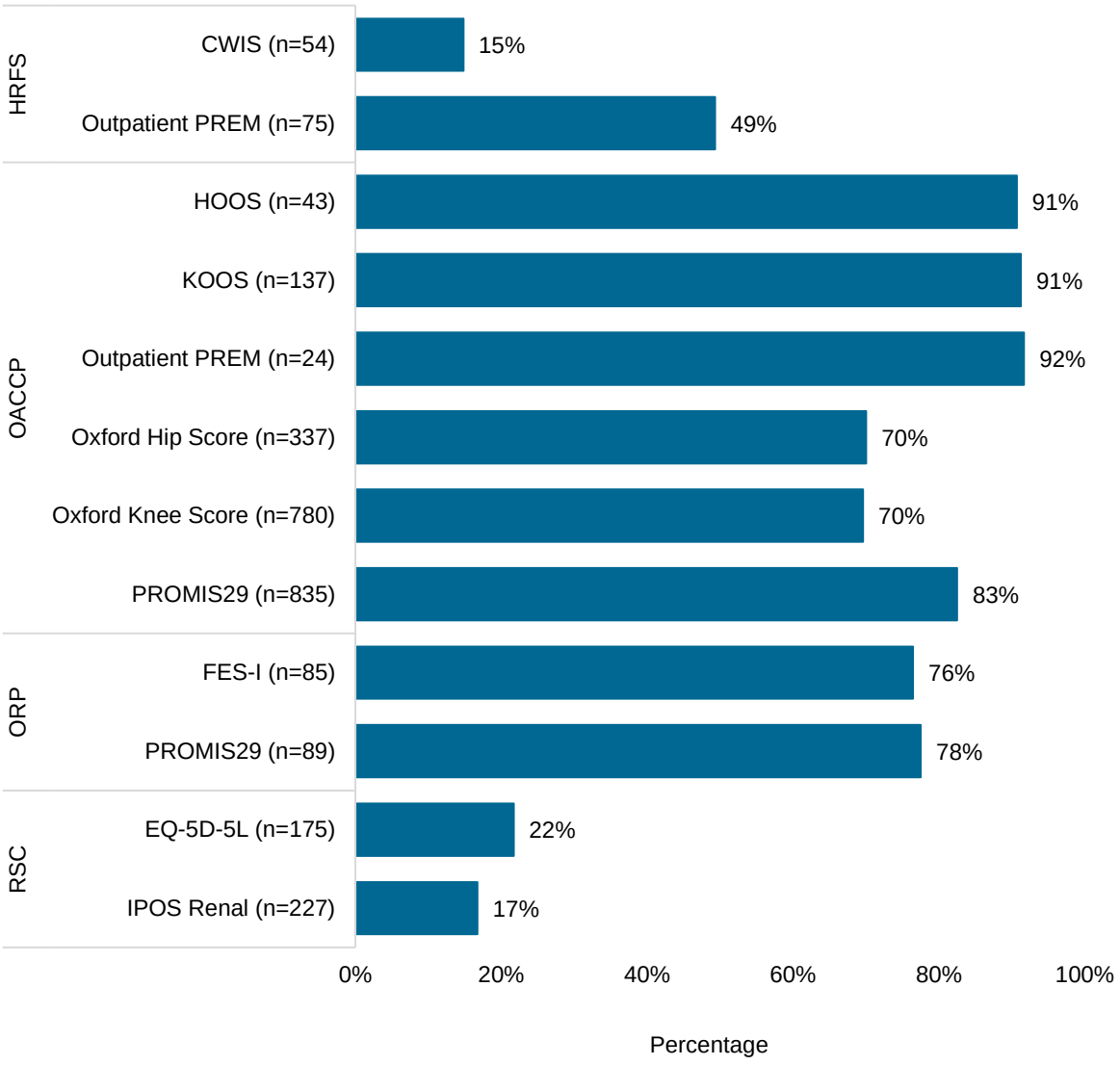
S – Suppressed due to small numbers (less than five)

LBVC allocation of follow up surveys according to collection points

Depending on the initiative, some surveys are designated to be collected every three months or six months, as well as at program commencement and program completion. The percentage of second surveys allocated within one month of the designated three month or six-month collection point ranged from 15% to 92% (for surveys where there was a sample of at least 20) (Figure 16).

OACCP and ORP initiatives show good adherence to the collection schedule for PROMs. The second PROM survey is allocated within a month of the expected collection point more than 70% of the time. HRFS and RSC have lower adherence to the collection schedule for allocation of the second survey.

Figure 16: Percentage of surveys allocated within one month of designated collection point, 1 February 2021 to 31 December 2021

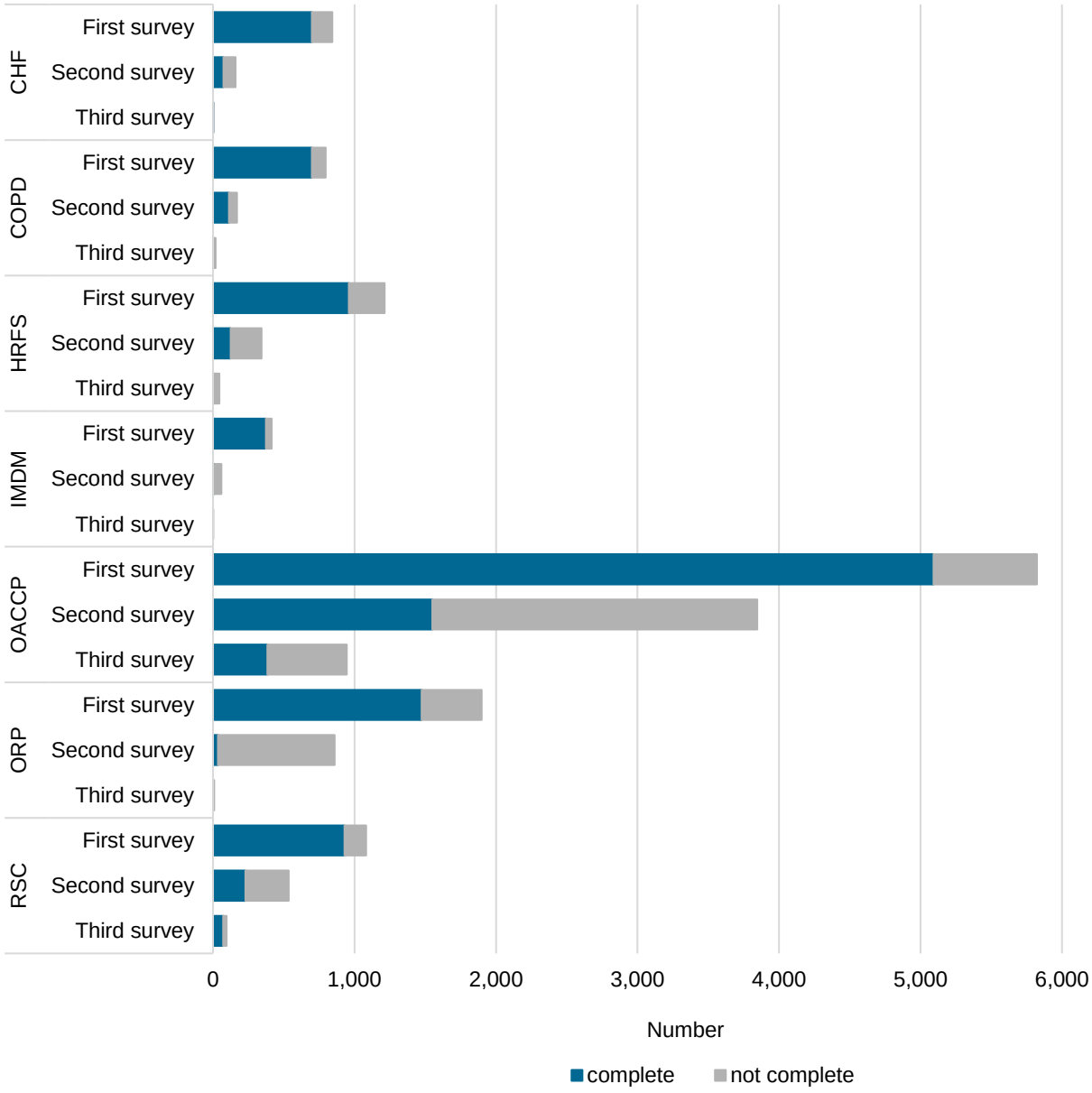


Note: COPD and CHF are not included as the collection schedule indicates PROM survey allocation expected on program completion (discharge) and only small numbers available for PREM collection (<5).

LBVC completion of follow up surveys

This uptake analysis focuses on the early stage of HOPE PRMs roll out between 1 February 2021 and 31 December 2021. Given the time available within the analysis period, many patients were not yet eligible for follow up surveys. For patients who were eligible, overall completion rates for second and third surveys were 36% and 42% respectively. Across initiatives and survey types, completion rates for second and third surveys ranged from 4% to 79% (for surveys where there was a sample of at least 20) (Figure 17).

Figure 17: Number of patients eligible to complete one or more surveys, and number of patients who have completed one or more surveys, 1 February 2021 to 31 December 2021

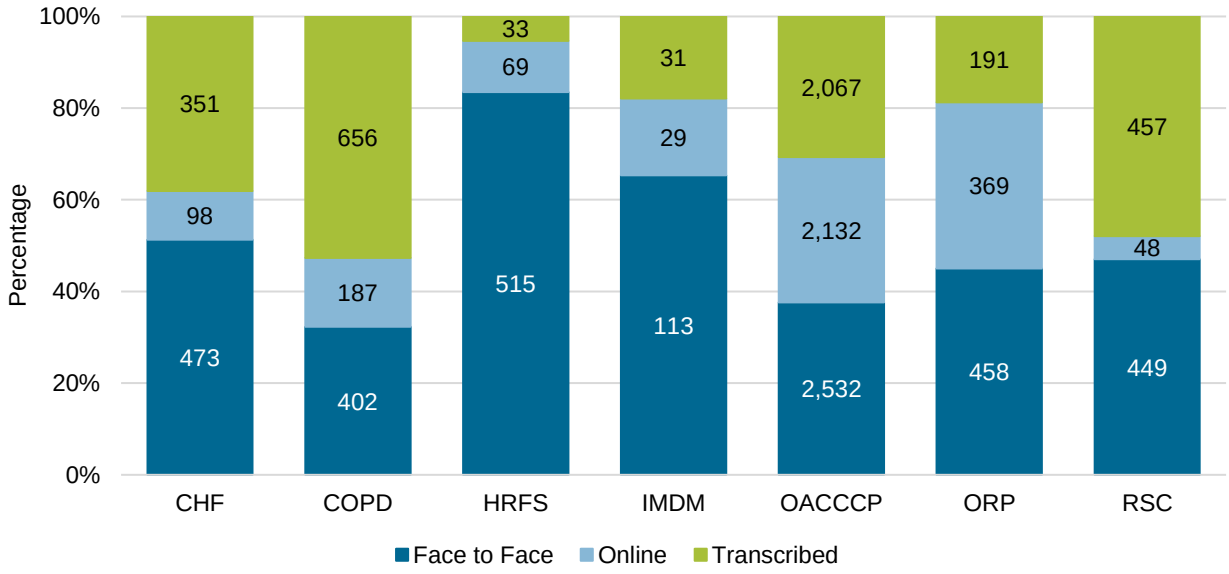


Note: For this figure, the number of patients has been summed across each survey type for each initiative.

LBVC survey completion mode

A high proportion of surveys are completed face to face in the clinic setting. For COPD and RSC, transcribing survey results is occurring about 50% of the time (Figure 18). Understanding the reasons for transcribing in COPD and RSC may be important to support efficiency and scale up in survey completion.

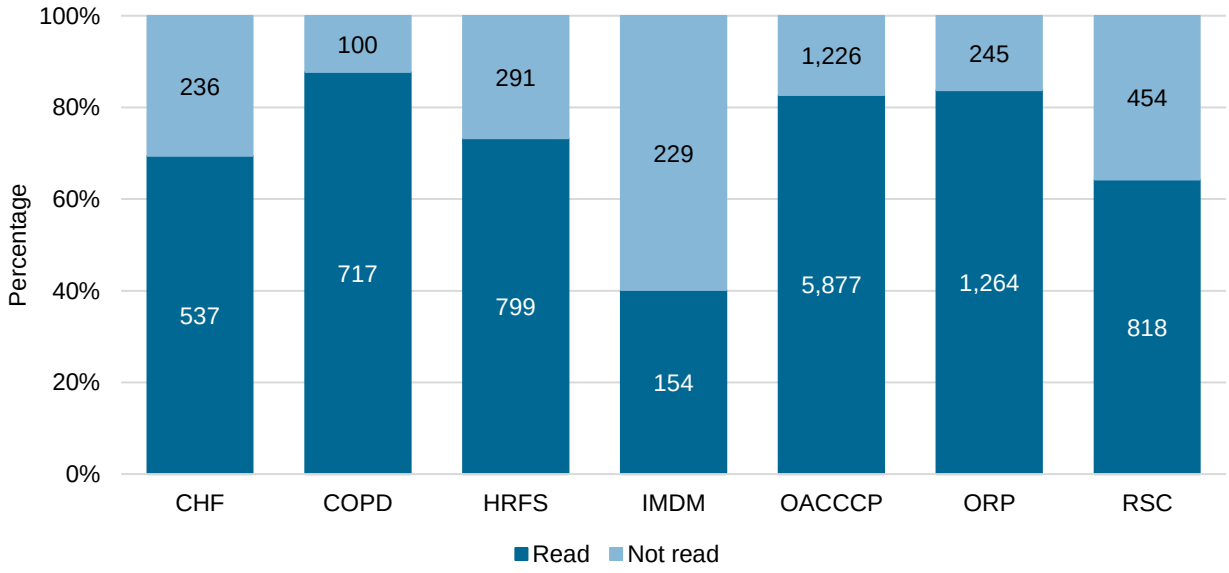
Figure 18: Mode of survey completion, 1 December 2021 to 30 June 2022 (mode of survey completion introduced in December 2021)



LBVC survey read status

Between 40% and 84% of surveys are read by initiative. This may be due to factors relating to IMDM such as survey collection and workflow, relatively high use of transcription, a less defined model of care and follow up patterns (Figure 19).

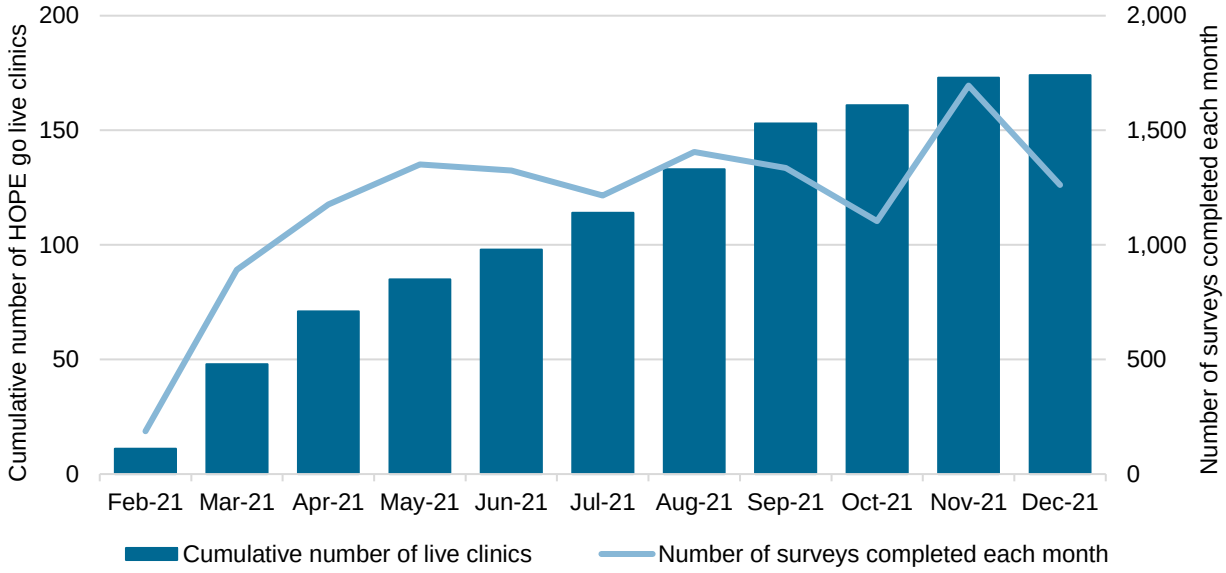
Figure 19: Read status of completed surveys, 1 February 2021 to 31 December 2021



LBVC survey completion over time

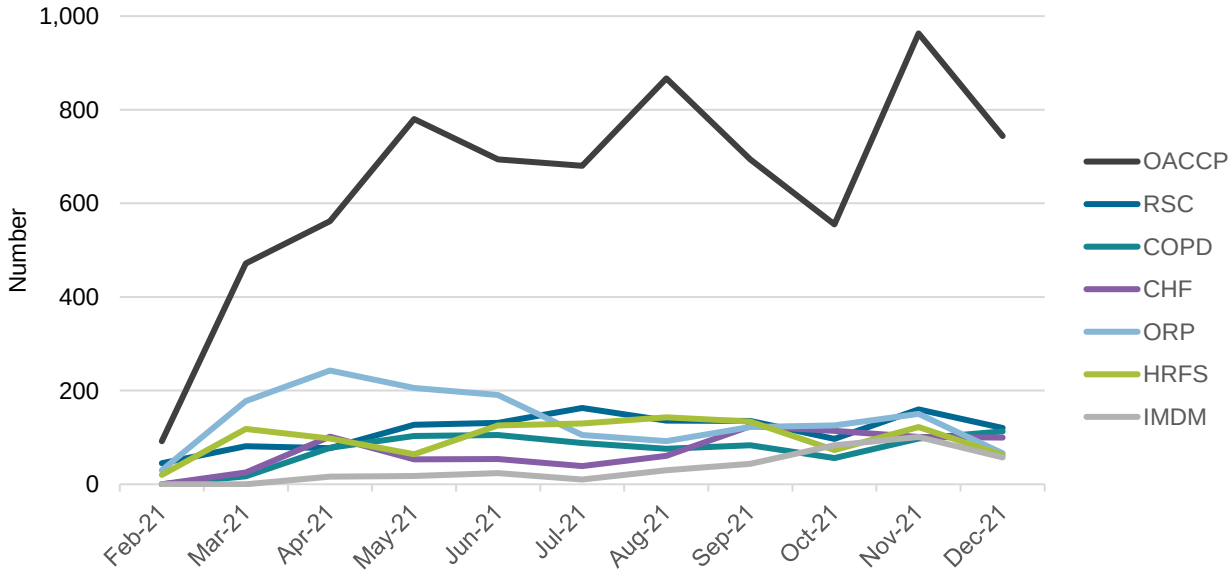
In general, the number of surveys completed each month is increasing in line with more clinics live in HOPE. Some of the fluctuations in the number of surveys completed each month may be explained by COVID-19 and the temporary closure of some clinics (Figure 20).

Figure 20: Cumulative number of HOPE go live clinics and number of surveys completed, 1 February 2021 to 31 December 2021



For most LBVC initiatives, the number of surveys completed each month is increasing over time as more clinics go live in HOPE (Figure 21).

Figure 21: Number of surveys completed by LBVC initiative and month, 1 February 2021 to 31 December 2021



Appendices

Appendix 1: LBVC Non-Admitted Patient Clinics

Table 1: LBVC NAP clinics

LBVC initiative	LBVC clinics (establishment type)
CHF	16.01 Cardiology Medical Consultation Unit
	16.02 Cardiac Rehabilitation Allied Health / Nursing Unit
	16.11 Circulatory Allied Health / Nursing Unit
COPD	36.01 Respiratory Medical Consultation Unit
	36.05 Respiratory Pulmonary Rehabilitation Medical Consultation Unit
	36.11 Chronic Obstructive Pulmonary Disease Medical Consultation Unit
	36.13 Respiratory General Allied Health/Nursing Unit
	36.16 Respiratory Pulmonary Rehabilitation Allied Health / Nursing Unit
	36.22 Chronic Obstructive Pulmonary Disease Allied Health / Nursing Unit
HRFS	12.25 High Risk Foot Service Allied Health / Nursing Unit
	39.30 High Risk Foot Service Medical Consultation Unit
IMDM	19.05 Diabetes Allied Health / Nursing Unit
OACCP	29.09 Osteoarthritis Chronic Care Program Medical Consultation Unit
	29.10 Osteoarthritis Chronic Care Program Allied Health / Nursing Unit
ORP	29.11 Osteoporosis Refracture Prevention Program Medical Consultation Unit
	29.12 Osteoporosis Refracture Prevention Program Allied Health / Nursing Unit
RSC	34.12 Renal Supportive Care Medical Consultation Unit
	34.13 Renal Supportive Care Allied Health / Nursing Unit

HRFS, OACCP, ORP, and RSC have specific clinics with dedicated establishment types.

For CHF, COPD, and IMDM, we identified relevant clinics based on the establishment types registered in HOPE for these conditions. We validated these establishment types by analysing the clinics most frequently visited by CHF, COPD, and IMDM patients up to 90 days following discharge from an admitted patient episode between 2017-18 (the start of LBVC tranche one) and 2020-21 (latest available data with up to 90 days follow up). We used the LBVC admitted patient cohort definitions in the ROVE Data Dictionary[1] to identify CHF, COPD, and IMDM patients. The establishment types registered in HOPE are among the most common clinics visited by these patients and are clinically related (Table 2).

Table 2: NAP clinics visited by CHF, COPD, and IMDM patients up to 90 days following admitted patient discharge, 2017-18 to 2020-21 (including the 10 most common clinic types as well as clinic types registered in HOPE)

LBVC initiative	Clinic (establishment type)	Number of visits	Rank	Included in HOPE
CHF	32.28 Wound Management Allied Health / Nursing Unit	88,840	1	
	10.07 Transitional Aged Care Allied Health / Nursing Unit	86,946	2	
	32.06 Post Acute Care Allied Health / Nursing Unit	86,565	3	
	32.07 Community Nursing Allied Health / Nursing Unit	75,736	4	
	31.03 Palliative Care Allied Health / Nursing Unit	53,151	5	
	16.02 Cardiac Rehabilitation Allied Health / Nursing Unit	50,322	6	Yes
	32.53 Integrated Care	38,996	7	
	16.01 Cardiology Medical Consultation Unit	26,570	8	Yes
	16.11 Circulatory Allied Health / Nursing Unit	25,105	9	Yes
	36.23 Ventilation - Home Delivered Procedure Unit	21,978	10	
COPD	32.06 Post Acute Care Allied Health / Nursing Unit	75,581	1	
	31.03 Palliative Care Allied Health / Nursing Unit	70,477	2	
	10.07 Transitional Aged Care Allied Health / Nursing Unit	63,627	3	
	32.07 Community Nursing Allied Health / Nursing Unit	55,433	4	
	32.28 Wound Management Allied Health / Nursing Unit	54,500	5	
	36.13 Respiratory General Allied Health / Nursing Unit	49,120	6	Yes
	32.53 Integrated Care	47,838	7	
	21.05 Enteral Nutrition - Home Delivered - Procedure Unit	36,591	8	
	36.23 Ventilation - Home Delivered Procedure Unit	32,143	9	
	36.16 Respiratory Pulmonary Rehabilitation Allied Health / Nursing Unit	29,440	10	Yes
	36.01 Respiratory Medical Consultation Unit	22,526	12	Yes
	36.11 Chronic Obstructive Pulmonary Disease Medical Consultation Unit	9,506	26	Yes
	36.22 Chronic Obstructive Pulmonary Disease Allied Health / Nursing Unit	6,990	30	Yes
	36.05 Respiratory Pulmonary Rehabilitation Medical Consultation Unit	2,373	56	Yes
IMDM	32.28 Wound Management Allied Health / Nursing Unit	493,939	1	
	32.06 Post Acute Care Allied Health / Nursing Unit	414,727	2	
	32.07 Community Nursing Allied Health / Nursing Unit	410,336	3	
	10.07 Transitional Aged Care Allied Health / Nursing Unit	317,755	4	
	34.10 Peritoneal Dialysis - Home Delivered Procedure Unit	307,192	5	

	31.03 Palliative Care Allied Health / Nursing Unit	227,155	6	
	15.24 Cancer - Radiation Oncology Treatment Procedure Unit	159,274	7	
	15.03 Cancer - Chemotherapy/ Other Cancer Facility-based Treatment	152,459	8	
	12.17 Midwifery and Maternity Allied Health/ Nursing Unit	147,548	9	
	12.07 Physiotherapy Allied Health / Nursing Unit	120,658	10	
	19.05 Diabetes Allied Health / Nursing Unit	70,266	20	Yes

Appendix 2: HOPE PRMs cascade definitions

Table 1: HOPE PRMs cascade definitions

Cascade level	Definition
One	**Active LBVC patients** An active LBVC patient is defined as an LBVC patient who had at least one LBVC-related interaction with the NSW public healthcare system during the period of interest, currently 1 February 2021 to 31 December 2021. An LBVC patient is anyone who meets an LBVC cohort definition, as included in the ROVE Data Dictionary[1]. An LBVC-related interaction may be either an: i. LBVC-related admitted patient episode; or ii. NAP service event in an LBVC clinic). **1. LBVC-related admitted patient episode** An LBVC-related admitted patient episode is any episode that matches the LBVC admitted patient cohort definitions in the ROVE Data Dictionary[1]. Renal Supportive Care does not have an admitted patient cohort definition, the cohort is defined by NAP service events only. To be consistent with the other LBVC initiatives that include admitted patient episodes in their cohort definition, we have defined a RSC-related admitted patient episode as an episode with a principal or additional diagnosis of stage 4 or stage 5 chronic kidney disease (ICD-10-AM N18.4 or N18.5) for people aged 16+. **NAP service event in an LBVC clinic** For the LBVC initiatives HRFS, OACCP, ORP, and RSC, there are specific LBVC clinics with dedicated establishment types (ROVE Data Dictionary[1]). For CHF, COPD, and IMDM, we identified relevant clinics based on the establishment types of the clinics registered in HOPE for these initiatives. We validated these establishment types by analysing the clinics most frequently visited by CHF, COPD, and IMDM patients following discharge from an admitted patient episode.
Two	**Active LBVC patients in LBVC NAP clinics** Active LBVC patients who had at least one service event in an LBVC NAP clinic during the period of interest, currently 1 February 2021 to 31 December 2021.
Three	**Active LBVC patients in LBVC NAP clinics after HOPE go live** Active LBVC patients who had at least one service event in an LBVC NAP clinic after the clinic went live in HOPE, during the period of interest, currently 1 February 2021 to 31 December 2021.
Four	**Active LBVC patients registered and consented in HOPE**

	Active LBVC patients registered and consented in the HOPE system during the period of interest, currently 1 February 2021 to 31 December 2021. This includes patients in locations other than LBVC NAP clinics (Table 2). - Patient registered (patient details in the HOPE system) and patient created date between 1 February 2021 and 31 December 2021 - Consent status is 'Accepted' and consent status date between 1 February 2021 and 31 December 2021 Patients who have only completed REDCap surveys and have not consented nor been allocated HOPE surveys are not included. (REDCap is the legacy PRM data collection system. REDCap surveys have been transferred into the HOPE platform. Some patients have only completed REDCap surveys. They are not included in HOPE uptake analysis).
Five	**Active LBVC patients allocated at least one survey in HOPE** Active LBVC patients, registered and consented in HOPE, and have been allocated at least one survey in HOPE, during the period of interest, currently 1 February 2021 to 31 December 2021. • Patient registered (patient details in the HOPE system) and patient created date between 1 February 2021 and 31 December 2021 • Consent status is 'Accepted' and consent status date between 1 February 2021 and 31 December 2021 • Survey release date between 1 February 2021 and 31 December 2021 • Survey status does not include 'Cancelled by provider', 'Completed – Skipped', 'In Conflict', 'Scheduled' REDCap surveys are not included.
Six	**Active LBVC patients completed at least one survey in HOPE** Active LBVC patients, registered and consented in HOPE, and have completed at least one survey in HOPE, during the period of interest, currently 1 February 2021 to 31 December 2021. • Patient registered (patient details in the HOPE system) and patient created date between 1 February 2021 and 31 December 2021 • Consent status is 'Accepted' and consent status date between 1 February 2021 and 31 December 2021 • Survey release date between 1 February 2021 and 31 December 2021 • Survey status is 'Completed' and completion date between 1 February 2021 and 31 December 2021

	REDCap surveys are not included.

Table 2: Active LBVC patients registered and consented in HOPE by location - LBVC NAP clinic or other location, 1 February 2021 to 31 December 2021

	Registered			Consented		
LBVC initiative	**LBVC NAP clinics**	**Other locations**	**Total**	**LBVC NAP clinics**	**Other locations**	**Total**
CHF	673	122	795	418	91	509
COPD	469	48	517	373	41	414
HRFS	1,358	21	1,379	S	S	718
IMDM	261	36	297	188	20	208
OACCP	4,840	5	4,845	S	S	2,987
ORP	2,252	8	2,260	925	7	932
RSC	867	8	875	528	5	533
Total*	10,632	242	10,874	6,066	165	6,231

S – Suppressed due to small numbers (less than five) or consequential suppression

* Some people are in multiple LBVC initiatives. The sum of the people in individual LBVC initiatives is greater than the total number of people in LBVC.

Appendix 3: HOPE PRMs cascade results by subgroup

Figure 1: Number and percent of registered patients who consented by age and sex, 1 February 2021 to 31 December 2021

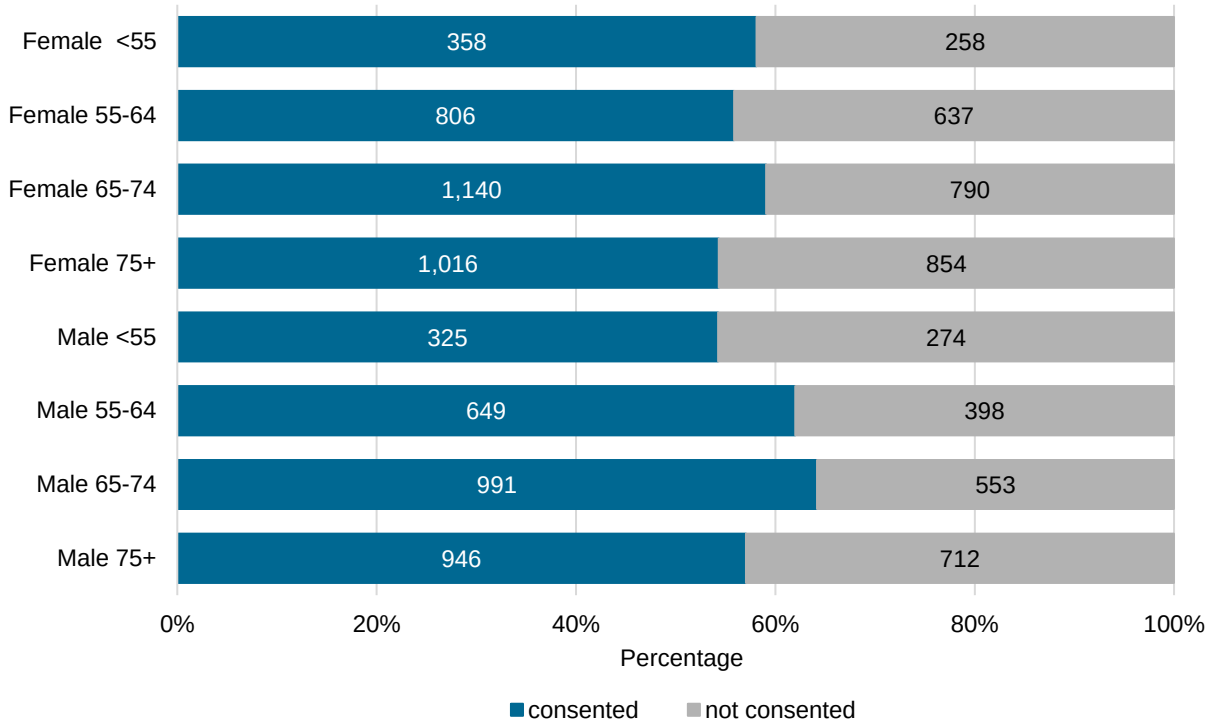


Figure 2: Number and percent of registered patients who consented by rurality, 1 February 2021 to 31 December 2021

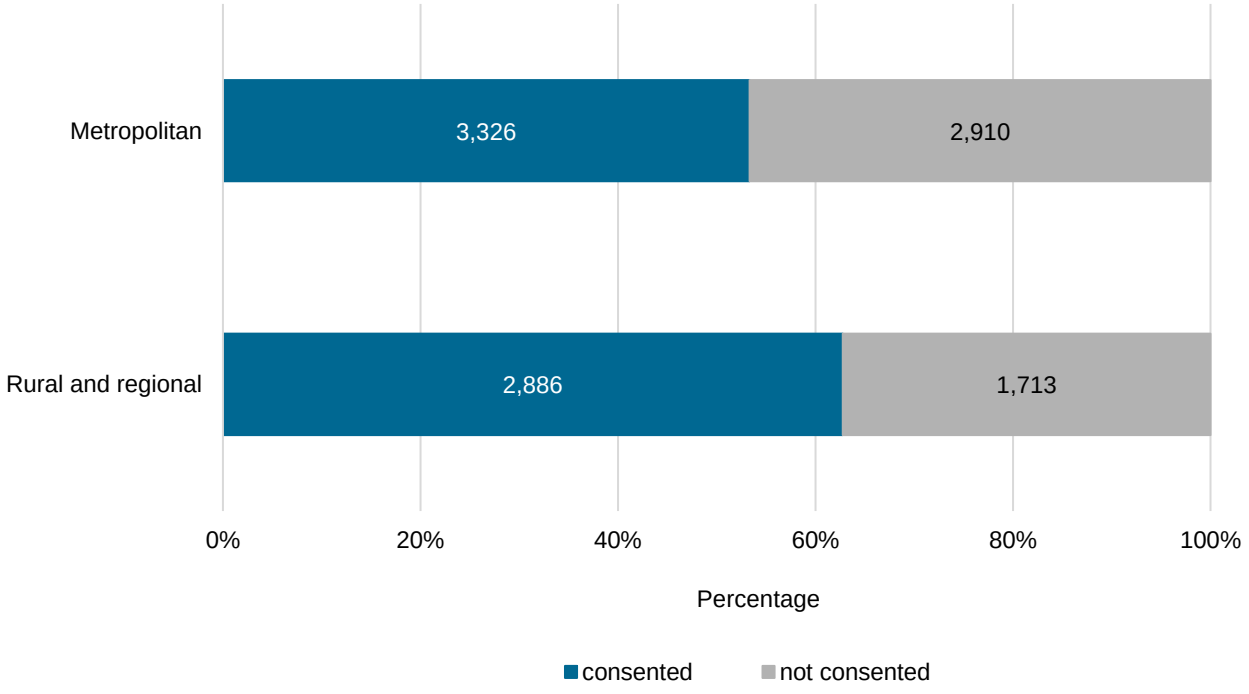


Figure 3: Number and percent of *total allocated surveys* that were completed by age and sex, 1 February 2021 to 31 December 2021

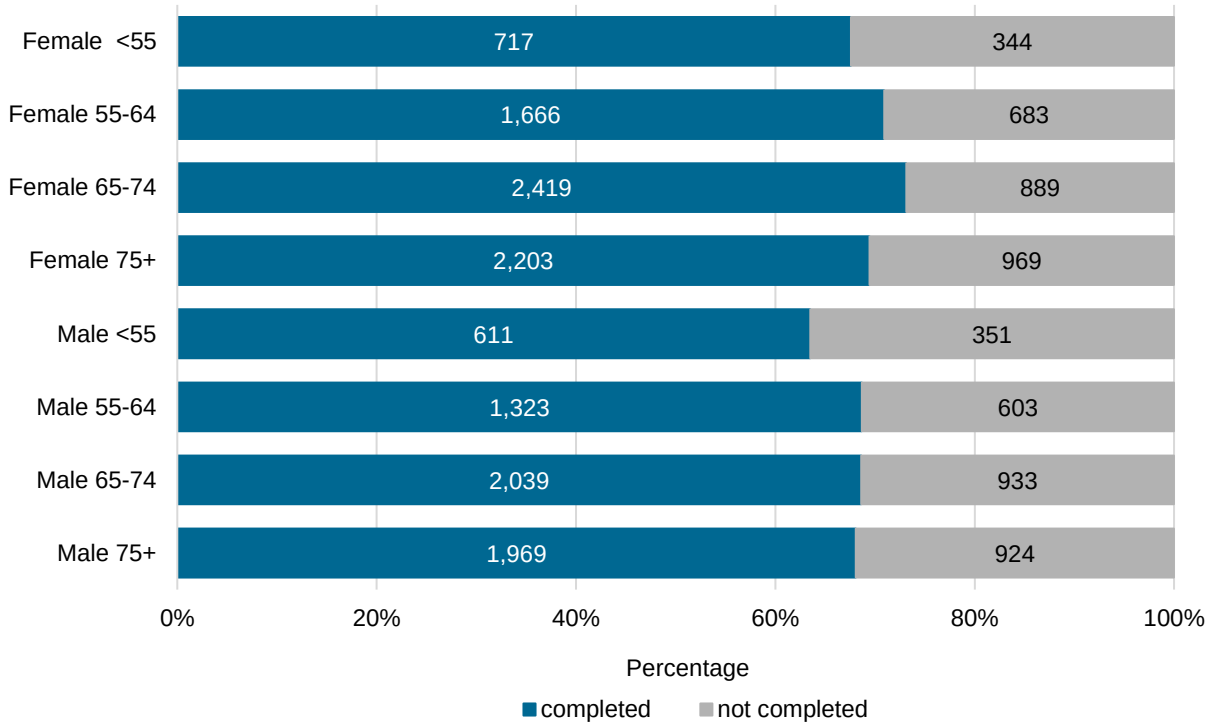
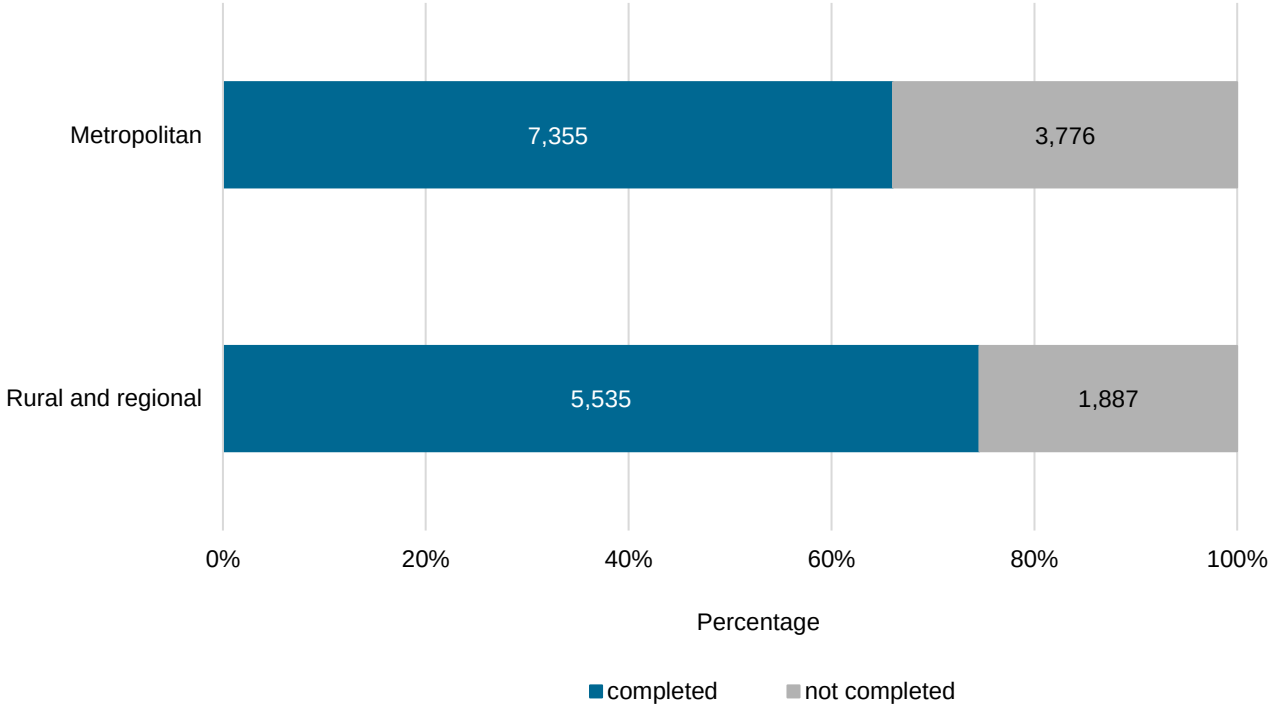


Figure 4: Number and percent of *total allocated surveys* that were completed by rurality, 1 February 2021 to 31 December 2021



Appendix 4: LBVC survey allocation and completion

Table 1: Surveys allocated and completed, 1 February 2021 to 31 December 2021

LBVC initiative	Survey	Allocated at least one survey	Completed at least one survey (%)	Total surveys allocated	Total surveys completed (%)
CHF	KCCQ-12	370	335 (91%)	487	371 (76%)
	Outpatient PREM	89	20 (22%)	99	20 (20%)
	PROMIS29	375	339 (90%)	499	377 (76%)
COPD	COPD (CAT) - v1.1	370	324 (88%)	490	375 (77%)
	Outpatient PREM	51	34 (67%)	60	36 (60%)
	PROMIS29	366	334 (91%)	488	400 (82%)
HRFS	CWIS	259	134 (52%)	522	153 (29%)
	Outpatient PREM	299	227 (76%)	483	270 (56%)
	PROMIS29	652	597 (92%)	1,049	665 (63%)
IMDM	DDS Scale	44	43 (98%)	73	48 (66%)
	PAID	162	145 (90%)	180	145 (81%)
	PROMIS29	204	183 (90%)	255	188 (74%)
OACCP	HOOS	91	74 (81%)	170	102 (60%)
	KOOS	240	223 (93%)	474	328 (69%)
	Outpatient PREM	438	223 (51%)	520	238 (46%)
	Oxford Hip Score	802	772 (96%)	1,361	1113 (82%)
	Oxford Knee Score	1,902	1,810 (95%)	3,237	2,649 (82%)
	PROMIS29	2,345	1,987 (85%)	3,895	2,669 (69%)
ORP	FES-I	763	676 (89%)	911	691 (76%)
	Outpatient PREM	416	146 (35%)	446	150 (34%)
	PROMIS29	719	652 (91%)	861	668 (78%)
RSC	EQ-5D-5L	460	367 (80%)	915	467 (51%)
	IPOS Renal	531	507 (95%)	1,035	748 (72%)
	Outpatient PREM	63	36 (57%)	68	37 (54%)
	PROMIS29	29	20 (69%)	30	20 (67%)

Note: surveys with small numbers (less than five) are not included in this table.

Appendix 5: HOPE data 1 February 2021 to 30 June 2022

ROVE data, which is required for HOPE PRMs cascade levels one, two, and three, was only available to 31 December 2021 at the time of analysis.

HOPE data was available up to 30 June 2022 at the time of analysis, which allowed to calculate the number of LBVC clinics live in HOPE (Figure 1 and Figure 2) and cascade levels four, five and six (Table 1 and Table 2) for the period 1 January 2021 to 30 June 2022.

At 30 June 2022, there were 231 LBVC clinics live in HOPE (Figure 1). While no clinics went live in Sydney LHD in 2021, there are now 11 clinics live in Sydney LHD (Figure 2).

Figure 1: Number of LBVC clinics live in HOPE, 1 February 2021 to 30 June 2022

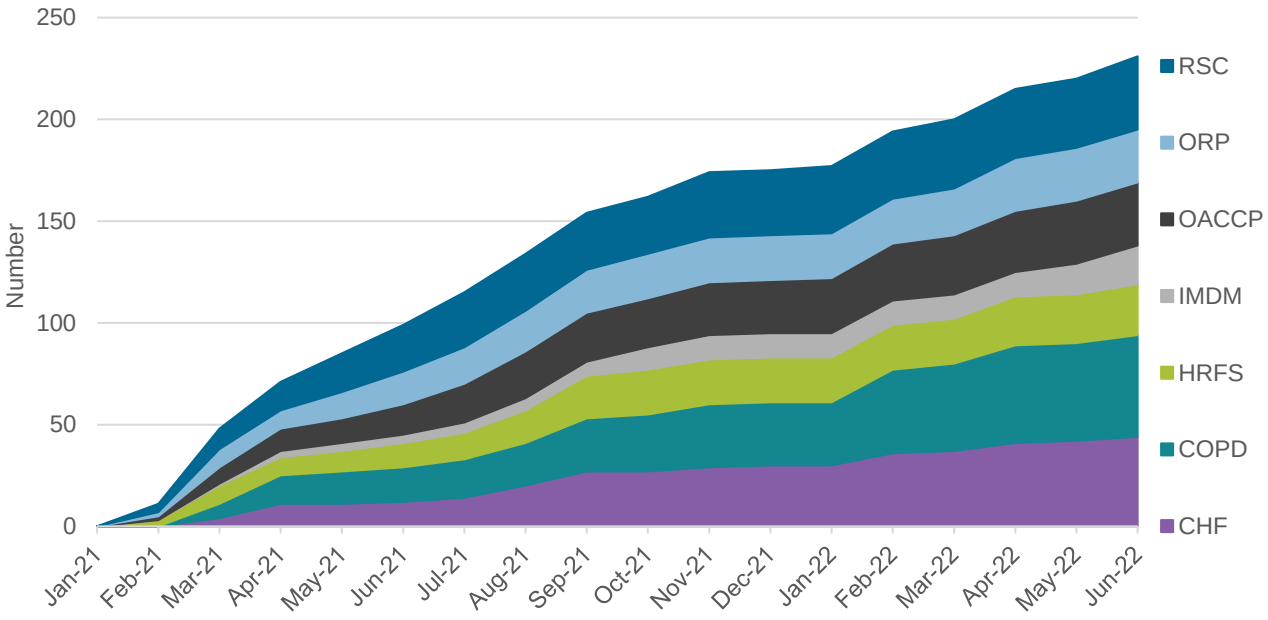
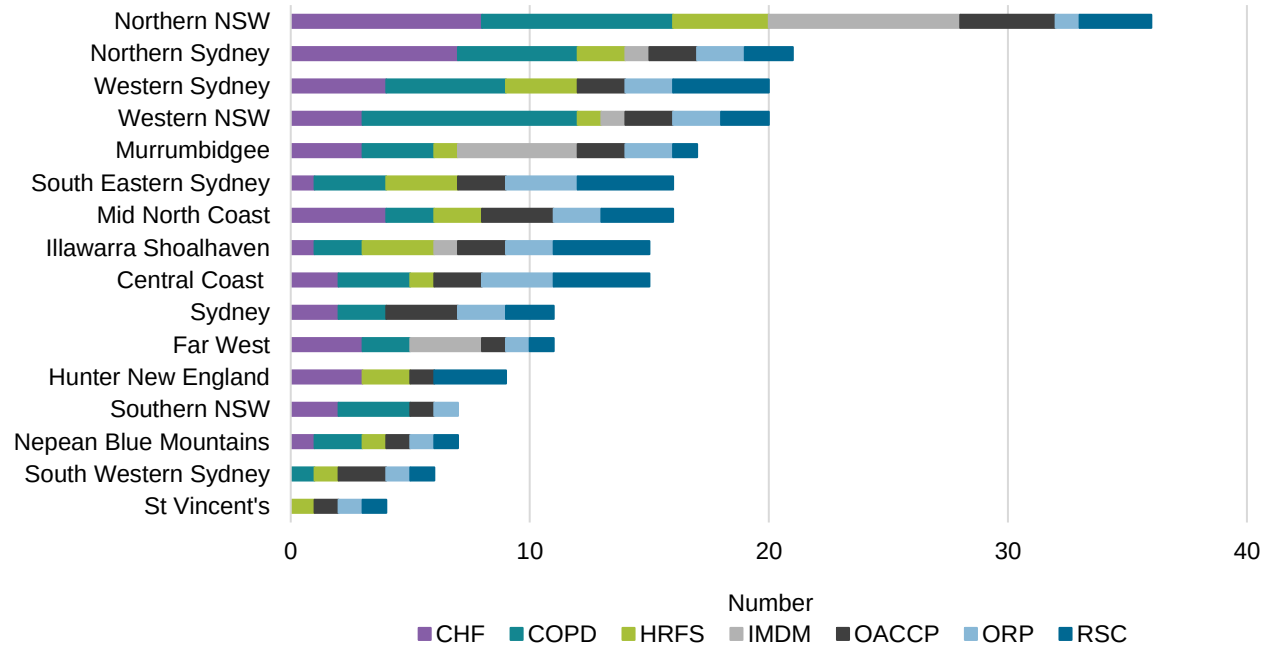


Figure 2: Number of LBVC clinics live in HOPE by LHD at 30 June 2022



At 30 June 2022, there were 16,690 patients registered in HOPE and 10,540 consented in HOPE. Almost all consenting patients were allocated and completed at least one survey (Table 1).

Comparing the cascade for the periods 1 February 2021 to 31 December 2021 and 1 February 2021 to 30 June 2022 - **the number of months included in the time period has increased by 55% but the number of surveys completed has increase by 86%which suggests an acceleration in PRMs uptake in 2022.** (Table 2).

Table 1: HOPE PRMs cascade levels four to six, 1 February 2021 to 30 June 2022

	Cascade level					
	Four		Five		Six	
LBVC initiative	Active LBVC patients registered in HOPE	Active LBVC patients consented in HOPE	Allocated at least one survey	Total surveys allocated	Completed at least one survey	Total surveys completed
CHF	1,575	1057	1029	2381	993	1650
COPD	1,295	964	944	2570	909	2004
HRFS	1,859	1010	1001	3302	941	1693
IMDM	456	301	298	740	280	542
OACCP	7,266	5062	5008	19088	4,901	13496
ORP	3,167	1515	1495	3904	1,419	2498
RSC	1,313	807	800	3721	763	2166
Total*	16,690	10,540	10,470	35,706	10,144	24,049

Table 2: Comparison of cascade numbers 1 February 2021 to 31 December 2021 and 1 February 2021 to 30 June 2022

	Cascade level					
	Four		Five		Six	
LBVC initiative	Active LBVC patients registered in HOPE	Active LBVC patients consented in HOPE	Allocated at least one survey	Total surveys allocated	Completed at least one survey	Total surveys completed
Feb 21 to Dec 21	10,874	6,231	6,204	18,643	5,992	12,947
Feb 21 to Jun 22	16,690	10,540	10,470	35,706	10,144	24,049
% increase	**53%**	**69%**	**69%**	**92%**	**69%**	**86%**

Appendix 6: Patient Reported Measures Collection Points June 2022

Initiative	PROMs tools	PROMs collection points	PREMs collection points
Management of Osteoarthritis / Osteoarthritis Chronic Care Program (OACCP)	PROMIS 29 (v2.1)	• On commencement of the program • Every three months after commencement of the program • Upon completion from the program • Six monthly within a Primary Care setting	• Every three months whilst in the program • Upon completion from the program • Six monthly within a Primary Care setting
	Hip Dysfunction and Osteoarthritis Outcome Score (HOOS) or Oxford Hip Score (OHS) Knee Injury and Osteoarthritis Outcome Score (KOOS) or Oxford Knee Score (OKS)	• On commencement of the program • Every three months after commencement of the program • Upon completion from the program • Six monthly within a Primary Care setting	
Osteoporotic Refracture Prevention (ORP)	PROMIS 29 (v2.1)	• On commencement of the program • 6 monthly • Upon completion from the program • Six monthly within a Primary Care setting	• Six monthly while in program • Upon completion from the program • Six monthly within a Primary Care setting
	Falls Efficacy Scale – International (FES-I)	• On admission to the ward/ or identification that they are in the cohort • 6 monthly • Upon discharge from the inpatient setting • Six monthly within a Primary Care setting	
Diabetes High Risk Foot Services	PROMIS 29 (v2.1)	• Upon initial presentation to a service • Upon completion from the service • Six monthly within a Primary Care setting	• 6 monthly • Upon completion from the service • Six monthly within a Primary Care setting

Initiative	PROMs tools	PROMs collection points	PREMs collection points
	Cardiff Wound Impact Schedule (CWIS) Questionnaire	• Upon initial presentation to a service • 6 monthly • Upon completion from the service • Six monthly within a Primary Care setting	
Inpatient Management of Diabetes Mellitus	PROMIS 29 (v2.1)	• As part of inpatient discharge planning process to identify required support/referrals (for example, to social worker or psychologist) • On commencement of outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting	• Day prior to inpatient discharge • 3 monthly in outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting
	Problem Areas In Diabetes (PAID) Questionnaire OR Diabetes Distress Scale (DDS)	• On commencement of outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting	
Management of Chronic Obstructive Pulmonary Disease (COPD)	PROMIS 29 (v2.1)	• As part of inpatient discharge planning process to identify required support/referrals (for example, to social worker, dietitian etc) • On commencement of outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting	• Day prior to inpatient discharge • 3 monthly in outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting
	COPD (CAT)	• On commencement of outpatient service • Upon completion from outpatient service	

Initiative	PROMs tools	PROMs collection points	PREMs collection points
		• Six monthly within a Primary Care setting	
Management of Chronic Heart Failure (CHF)	PROMIS 29 (v2.1)	• As part of inpatient discharge planning process to identify required support/referrals (for example, to social worker or psychologist) • On commencement of outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting	• Day prior to inpatient discharge • 3 monthly in outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting
	Kansas City Cardiomyopathy Questionnaire (KCCQ)	• On commencement of outpatient service • Upon completion from outpatient service • Six monthly within a Primary Care setting	
Renal Supportive Care (End Stage Kidney Disease)	EQ5D-5L	• On commencement of the program • 6 monthly	• Every six months
	Integrated Palliative Outcome Scale (IPOS Renal)	• On commencement of the program • 6 monthly	
Adverse Events: Falls in Hospitals	PROMIS 29 (v2.1)	• As part of discharge planning process to identify required support/referrals (for example, to social worker, dietitian etc) • On commencement of an outpatient program • Upon completion from outpatient service • Six monthly within a Primary Care setting	• Day prior to inpatient discharge • Three monthly through the program • Upon completion from the program • Six monthly within a Primary Care setting
	Falls Efficacy Scale – International FES-I	• As part of discharge planning process to identify required	

Initiative	PROMs tools	PROMs collection points	PREMs collection points
		support/referrals (for example, to social worker, dietitian etc) • On commencement of an outpatient program • Six monthly within a Primary Care setting	
Chronic Wound Management	WOUND-Q PROMIS 29 (v2.1)	• **To be collected** on entry to a clinic/practice/service or facility, at 3 monthly intervals throughout care and treatment and/or as clinically relevant, including at the patient or carer's request, along the continuum of care and at discharge. • For short duration outpatient visits where the wound has not changed it may only be relevant on entry and three months thereafter and not collected at discharge.	• Use relevant PREM either Inpatient/outpatient/longitudinal 2. • To be collected 3 monthly along the continuum of care and at discharge
Integrated Care: Planned Care for Better Health (PCBH)	PROMIS 29 (v2.1)	• On commencement of an outpatient program • Upon completion from outpatient service	• Longitudinal PREM upon completion of the service
Integrated Care: **3.**	PROMIS 29 (v2.1) Condition specific PROM to be selected by the service	• On commencement of an outpatient program • Upon completion from outpatient service	• Longitudinal PREM upon completion of the service

Initiative	PROMs tools	PROMs collection points	PREMs collection points
Integrated Care: Paediatric Network		4.	• Paediatric Integrated Care Survey (PICS) • Every 6 months after commencement of the program
Hip Fracture Care	PROMIS 29 (v2.1) *Note:* • *Nil condition specific PROM has been confirmed*	• As part of inpatient discharge planning process to identify required support/referrals (for example, to social worker or psychologist) • On commencement of outpatient service • Upon completion of outpatient service	• Use relevant PREM, either Inpatient PREM or Outpatient PREM
All Above	Depression Anxiety Stress Scale (DASS 21)	• Optional if clinically indicated	5.
All Above	St George's Respiratory Questionnaire (SGRQ)	• Optional if clinically indicated	6.

References

1. NSW Ministry of Health. Register of Outcomes, Value and Experience (ROVE) Data Dictionary. Unpublished; 2022 [cited June 2022]. Available from: https://nswhealth.sharepoint.com/sites/NSWH-SAPHaRI/data/Documents/ROVE_Data_Dictionary.pdf

APPENDIX 2: CLINICIAN SURVEY INSTRUMENT

Survey Component	Content
• ***Demographic data***	Data of professional group and LHD or Speciality Health Network (SHN) (survey questions 12 and 13).
• ***Extent and nature of use of HOPE and PRMs***	Data included information on first use of HOPE PRMs, frequency of use, patient cohorts and % of eligible patients that PRMs in HOPE are applied with. Experiences of using other PRMs approaches and of using generic- and condition-specific PROMs were also captured. (Survey questions 2, 3, 4, 5 and 6)
• ***HOPE platform usability***	Clinician experience of using the HOPE platform was assessed via the System Usability Scale (SUS) (1), which is commonly applied to provide an indication of how 'usable' a system is from by proving a usability score. SUS provides a simple and reliable method to capture experiences of interacting with the HOPE platform. Comparing SUS scores across different stages of the HOPE platform implementation may also be useful to determine if and how usability changes over time.
• ***Impacts of using HOPE PRMs of clinical practice***	The extent to which HOPE PRMs are currently achieving the expected outcomes in clinical practice were captured by delineating the expected outcomes of HOPE PRMs at a clinician level and creating measures that correspond to each of the expected outcomes. Existing items and scales that assess shared decision-making, patient-clinician interaction, and clinician experience of providing care were sought and adapted to the context of HOPE PRMs.
• ***Barriers and facilitators to HOPE PRMs implementation***	Barriers and facilitators to the HOPE PRMs achieving its expected outcomes so far at an individual level, were addressed by developing items relevant to the Consolidated Framework for Implementation Research (CFIR). The CFIR is an implementation science framework that supported robust exploration of a range of factors that may act as barriers or facilitators of HOPE PRMs achieving the expected individual outcomes. Qualitative data from phase 3 was also used to guide the relevant implementation issues for HOPE PRMs, along with consideration of enabling factors identified in the Monitoring and Evaluation Plan such as the extent of active sponsorship from senior leadership within LHD/SHNs to see the value in PRMs, and actively sponsor the collection and use of PRMs.

In addition to the closed survey items, seven free text items were used to capture evidence of the circumstances where PRMs were not used, examples of how using HOPE PRMs has changed clinical practice and additional comments and suggestions on collecting and using PRMs through HOPE (Survey questions 6a, 6b, 6c, 9a, 9b, 9c and 14).

APPENDIX 3: SAMPLE BREAK-DOWN DATA

Data Sources by Cohort

Stakeholder Group	Group stakeholder consultations	Individual stakeholder consultation	Email	Multiple Sources	Total respondents
System level	15	0	0	0	15
LHD Executive Sponsor	13	0	1	2	14
LHD PRM Lead	19	1	0	5	20
Clinician	31	2	8	2	41
Total responses	78	3	9	9	90 99

Stakeholder groups represented by LHD

LHD	LHD Executive Sponsor	LHD PRM Lead	Clinician	Total
Central Coast	1	1	5	7
Far West	1	1	1	3
Hunter New England	0	0	9	9
Illawarra Shoalhaven	1	1	1	3
Mid North Coast	1	1	3	5
Murrumbidgee	0	3	2	5
Nepean Blue Mtns	1	1	2	4
Northern NSW	2	1	3	6
Northern Sydney	0	1	3	4
South Eastern Sydney	0	1	3	4
South Western Sydney	1	2	0	3
Southern NSW	2	2	1	5
Sydney	1	1	0	2
Western NSW	1	2	6	9
Western Sydney	2	2	2	6
TOTAL	14	20	41	**75**

APPENDIX 4: DATA ANALYSIS PLAN

Extended method: Analytic strategy:

Data preparation and preliminary analysis: Data from 421 respondents were captured. The dataset was cleaned and subsequently transferred to SAS version 9.4 for quantitative analysis and Microsoft Excel to manage the analysis of free text items. Responses were treated as incomplete and removed ahead of the analysis in cases where only demographic data was entered, or less than one domain was completed (n=40). Responses from administrative staff, as identified from professional group category were removed (n=8). because administrative staff were not the intended respondents of this survey. Additional variables were created to undertake group comparisons on key outcome variables.

A new categorical variable was created for *patient cohort* to create five groupings: 1) Admitted Leading Better Value Care (LBVC), 2) Non-admitted LBVC, 3) Integrated care, 4) Others and 5) Multiple cohorts (more than one of the above cohorts). 'Admitted LBVC' consisted of the following initiatives: chronic heart failure, chronic obstructive pulmonary disease, inpatient management of diabetes mellitus, falls and hip fracture care. 'Non-admitted LBVC' group comprised of osteoarthritis chronic care program, osteoporosis refracture prevention, high risk foot services, and renal supportive care. 'Integrated Care' was comprised of planned care for better health and specialist outreach to primary care, and paediatric network. Where patient cohorts did not align with the identified groups, individuals were allocated to the 'Others' category. Clinicians who had selected more than one patient cohort would be allocated to the 'Multiple cohorts' group.

Analysis of closed items: Descriptive statistics, including frequencies and percentages, were used to describe the clinician sample who have used HOPE and their patterns of HOPE PRMs usage. Comparison between clinicians who have and have not used HOPE were conducted based on LHDs and professional groups. To determine the clinician experience of collecting and using PRMs in the HOPE platform, mean scores were developed for each of the items relating to generic quality of life PROM and condition specific PROMs. To determine the usability of HOPE platform, usability scores were calculated in accordance with Sauro 2011.[1] The 10 items were scored on a scale from 1 to 5, with each negatively worded item being reverse coded. The scores were summed and multiplied by 2.5 to develop an overall score between 0 and 100. A score of 68 or higher was considered satisfactory usability in line with the SUS user guidance.[1]. We examined the mean usability scores as well as proportions within the satisfactory product cut-off limit in groups stratified by professional group, patient cohort, HOPE PRM usage and use of PROMs/PREMs prior to the introduction of the HOPE platform. Kruskal-Wallis H test was used for inferential analysis.

To determine the extent to which the HOPE PRMs program is achieving the changes and outcomes expected at the clinician level, levels of agreement on the five identified clinical practice outcomes were computed and described. Scores ranged from 1 (strongly disagree) to 5 (strongly agree) with higher scores indicating higher level of agreement with impact on patient care. Bar charts were developed to depict the impact on clinical practice and contribution by individual items. Mean scores stratified by professional group, patient cohorts and HOPE PRM usage and use of PROMs/PREMs prior to the introduction of the HOPE platform was also developed and compared by means of Kruskal-Wallis H test. To determine the barriers and facilitators to the HOPE PRMs program achieving its expected outcomes so far in terms of its implementation, levels of agreement on the 11 identified factors affecting implementation were computed and described. Scores ranged from 1 (strongly disagree) to 5 (strongly agree) depending on the level of agreement. A bar chart was developed to facilitate data interpretation.

Univariate logistic regression models were used to explore the factors associated with frequency and the percentage of patients with whom HOPE is used. A binary 'frequency of use' variable

(frequent user/non-frequent user) was developed by combining the first three (daily, weekly, monthly) and last three ratings (every 2-3 months, every 6 -12 months, never) of the frequency of use variable. Similarly, the two lowest responses to the item '% of patients for which HOPE was used' (0 - 25 %, 25 – 50 %) and two highest responses to this item (50 – 75% and 75 – 100 %) was combined to develop a binary 'level of use' variable (high user /low user). Variables explored as determinants were professional group, patient cohorts, usability score, impact on patient scores and previous experience with PRMs. Odds ratios and 95 % confidence intervals (CI) were calculated.

Analysis of free text items: Findings from the free text items were analysed using inductive qualitative content analysis (2) to categorise common experiences and perceptions of barriers and facilitators to using the HOPE platform. Qualitative content analysis provided a flexible approach that allowed for some use of quantification (e.g., frequencies, percentages) but retained the qualitative focus on understanding phenomena and their contextual nuances.(3) Qualitative data were analysed in Microsoft Excel beginning with data immersion, followed by an open coding approach to derive categories. The research team then discussed the emerging framework, agreeing on the scope and description of to summarise the responses for each question. Coding frameworks were applied by two researchers who independently coded the responses within each question, comparing the results, to ensure the rigour and clear description of codes (cross-coding). During this process, as many codes were used as required to summarise the units of meaning within an individual response, such that codes are not mutually exclusive.[2] Code categories were summarised and interpreted through a description of each category with illustrative quotes, and with reference to its frequency and any relationships with other categories (e.g., co-occurrence, main/sub-category).

APPENDIX 5: QUALITATIVE CODING FRAMEWORK

CFIR domain	Relevant elements of CFIR	Codes
1. Intervention characteristics **Intervention in this context is the HOPE platform, the process of completing surveys and using the results.**	• *Perception of strengths* • *Quality* • *Relative advantage* • *Adaptability/adaptations* • *Complexity/ease of use* • *Cost* • *Unexpected consequences* • *Role in shared decision making*	1. Perceived value of HOPE platform, processes and/or results 2. Relative advantage of HOPE compared to other PRMs approaches 3. Ease of use of HOPE platform, processes and/or results 4. Day-to-day resourcing 5. Flexibility for adaptation 6. Unexpected Outcomes 7. Role in patient care
2. Outer Setting **System-level policies, structures and pressures external to service level implementation.**	• *Patient* • *Resources to meet needs,* • *Networks (other organisations)* • *Competition/pressure* • *External policies*	1. External organisation's policies and influence (e.g. Commonwealth) 2. System and/or policy influences (e.g. NSW Health system) 3. Governance and oversight 4. Intergroup alignment
3. Inner setting **Inner setting refers to LHD and service-level structures and interactions.**	• *Organisational structure* • *Culture* • *Implementation climate* • *Network support training* • *Availability of measures*	1. Inter-group communication 2. Service preparedness and responsiveness 3. Clinician Readiness and Resourcing 4. Rural vs Metro needs
4. Characteristics of Individuals **Characteristics of individual participants, including their knowledge of, or belief about and confidence to use HOPE.**	• *Role* • *Personal attributes* • *Knowledge/beliefs about measures*	1. Confidence 2. Professional Experience 3. Knowledge and beliefs about value of PRMs
5. Implementation Process **Implementation processes refer to activities directly related to HOPE roll out.**	• *Planning* • *Engaging* • *Executing* • *Evaluating*	1. Implementation Planning 2. Stakeholder Engagement 3. Implementation methods and strategies 4. Evaluation and measures of success

APPENDIX 6: TRAINING AND PREPARATION ACTIVITIES REPORT

The Social Research Centre provided an interim report of the training and education activities conducted in the HOPE PRMs program, which has been directly embedded below.

Summary of Data Sources

	Data file name	Data source	Date extracted	Period	Frequency	Description
TRAINING DATA	2021 – PRMs COP Attendance	Unknown	File received 30th March 2022	February 2020 to December 2021	Monthly	Name and response for monthly community of practice meeting invites
	PRM E-Learning Modules completion data	Unknown	3rd March 2022	Completion dates range from December 2016 to February 2022	N/A	Completion dates for e-Learning modules 1 to 4
	PRM Training activity reporting 2021	Unknown	File received 30th March 2022. Update via email 5th May 2022.	2020 – 2021	Annually	Number of sessions conducted for various training activities
	PRMs Training and Education Report 2020-2021	N/A	N/A File received 30th March 2022	2020 – 2021	N/A	Summary of Education Activities for Patient Reported Measures including audience and number of attendees
DENOMINATORS	ROVE Admitted patient count by LBVC initiative	ROVE	File received 20th April 2022	February 2021 to September 2021	N/A. Total count supplied	Number of unique **admitted** patients by LBVC initiative and LBVC + LHD. Total patients = 184, 684
	ROVE Non-Admitted Patient and Clinics [Patient level]	ROVE	File received 20th April 2022	October 2019/February 2021 to September 2021	Monthly	Number of unique **(non-admitted**) brand new, first seen and return patients by LBVC

						initiative + HOPE live status. Includes HRFS, OACCP, ORP, RSC. Total patients (HOPE denominator) = 13,412
	[Clinic level]]			October 2019 to September 2021	Monthly	Number of Operating clinics in NSW by LBVC initiative and HOPE live status. Includes HRFS, OACCP, ORP, RSC. Total live clinics = 86/112 (September 2021)
	ROVE NAP – volume FebSep2021 LBVC clinics	ROVE	File received 28th April 2022	February 2021 to September 2021	Monthly	Number of unique **(non-admitted)** patients in clinics by LBVC, LBVC + LHD, and LBVC + LHD + clinic. Includes HRFS, OACCP, ORP, RSC. Total patients = 23,048
HOPE DATA	File 1 Patient Registration	HOPE	File received 5th April 2022	Consent dates range from December 2020 to March 2022	N/A	HOPE registered patient and demographics. Consent date identifies whether patients are active or pending.
	File 2 Survey Instance	HOPE	File received 5th April 2022	Completion dates range from January 2017 to March 2022	N/A	Survey level data for HOPE patients. Status indicates whether surveys have been completed. Links to File 1 by patient ID variable.
	File 3 Patient location	HOPE	File received 5th April 2022	Consent dates range from February 2021	N/A	Patient location data. Each record is a unique combination of

				to December 2021		ID and location. Includes patients with consent status of active or pending.
	File 4 User roles	HOPE	File received 5th April 2022	December 2020 to December 2021	N/A	HOPE user data, including role, location, and location type.
OTHER DATA	Onboarding Inputs and Tracking v1 (1)	Unknown	File received 30th March 2022	Go live dates range from February 2021 to June 2022	N/A	HOPE clinic go-live dates and status. Includes clinic details such as name, LHD and HeroID
	HOPE to Onboarding concordance (two versions)	Unknown	Files received 28th April 2022 and 4th May 2022	N/A	N/A	Aligns Onboarding and HOPE clinic names
	Organisation districts	Unknown	File received 10th May 2022	N/A	N/A	List of organisations and their district

The Change and Adoption Strategy (ACI 2022a) incorporated education and training. To ensure stakeholders were familiar with the PRMs and HOPE's functionality, stakeholder engagement activities and education sessions focused on capacity building regarding the collection and use of PRMs and around HOPE and its functionalities. Key components of education and training are described below (ACI 2022a).

Education and training components, Change and Adoption Strategy

Content	Delivery	Outcomes
Train the Trainer **PRMs, the PRM IT platform 'HOPE' and using the Accelerated Implementation Methodology**	Face to Face workshop Co-delivered by ACI PRM team, PRM Vendor and ACI AIM team Online support	Overview of PRMs Competency in use of PRM IT platform 'HOPE' Overview of AIM program Able to use training to present local training sessions to LHD/SHN staff
Introduction to PRMs	Face to Face workshops Online learning Module	Increase clinical knowledge of PRMs
Evidence of PRMs	Face to Face workshops Online learning Module Videos	Understanding of benefits to consumers and service delivery
PRMs survey sets & clinical implementation	Face to Face workshops	Healthcare providers and other key stakeholders agree on

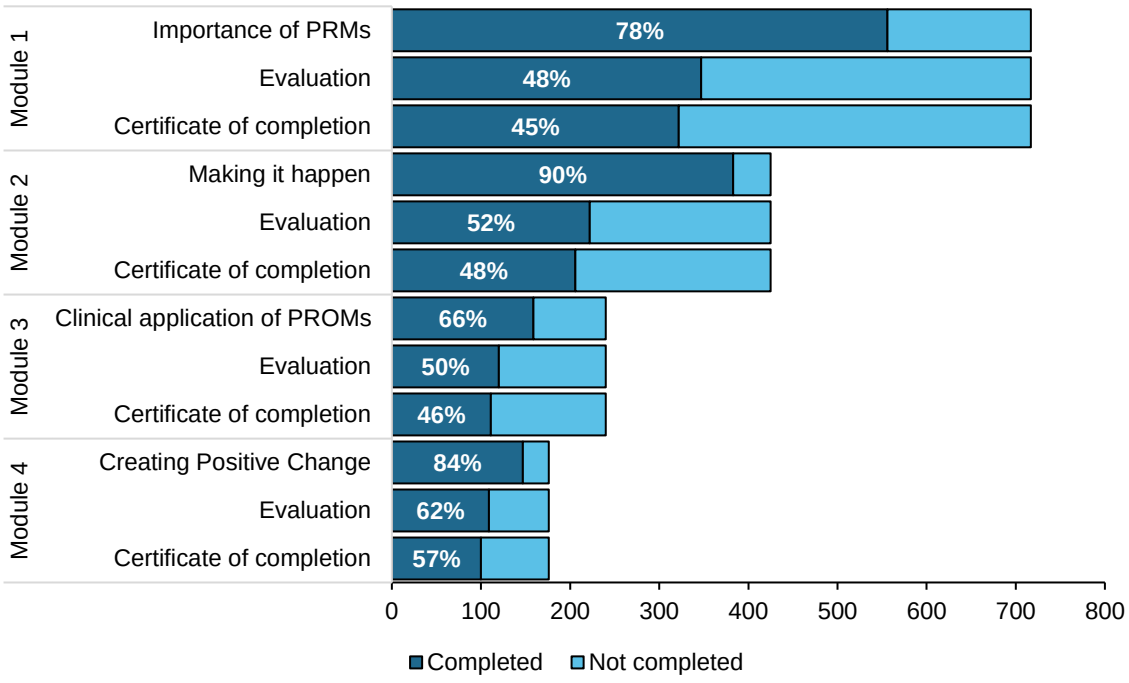
	Webinars	standardised state-wide PROM/PREM question sets & understand how to implement locally
Preparing for PRMs Implementation	Face to Face workshops Online learning Module	Preparation for Clinical Leaders relating to implementation of PRMs
Step by Step overview of PRMs in the Clinical Setting	Face to Face workshops Online learning Module	Clinical staff understand how the PRM process is undertaken
Implementation Support	Face to Face workshops Online learning Module	Healthcare provider confident of benefits of PRM in creating positive change in service
Introduction to the PRM IT platform 'HOPE'	Face to Face workshops Webinars	Healthcare providers understand the IT platform
Implementation of the PRM IT platform 'HOPE'	Face to face workshops for key staff Local 'super user' led and ongoing support Webinars Telephone support Online support	Successful implementation at LHD/SHN Local Super Users able to continue the training of staff in the PRM IT platform 'HOPE'
Using PRMs data / PRM IT platform 'HOPE' reporting	Face to Face workshops Webinar Quick Reference guides	Healthcare providers to utilise PRM data to improve service delivery to clients
Source: ACI 2022a		

Training activity data for PRMs and HOPE conducted in 2020 and 2021 were provided by ACI. E-Learning completion dates for Modules 1 and 2 fall between December 2016 and February 2022, and completion dates for Modules 3 and 4 fall between February/June 2017 and February 2022. Module 1 had the highest number of registered users, with this number declining with each subsequent module. Across the 4 modules an average of 49% of people are completing the certificate of completion module. We assume the first of each of the modules is the 'content' provided to the people registered, with the evaluation and certificate of completion, the subsequent assessment. Therefore, it seems people are completing the course content but not meeting the requirements in the evaluation to obtain the certificate of completion. We are unable to determine when people are registered, who they are (including their role and LHD), and the differences between the modules. Further clarification is required with ACI.

Training Activity	Number of sessions	
	2020	2021
PRM 101	Combined with Go-live Prep	49
HOPE training	0[1]	75
Go-live Prep education and training[2]	661	784
PRM workshops	1	1
User Testing[3]	26	31
e-Modules	Refer to **Error! Reference source not found.**	

[1] There was no HOPE training in 2020
[2] Includes weekly one-on-one catch-ups with districts, Community of Interest and Community of Practice
[3] Includes User Acceptance Testing.
Source: ACI via email communication

PRM e-Learning completion data, number of people undertaking modules by completion status, modules 1 – 4



Source: PRM E-Learning Modules completion data provided by ACI, extracted on 3rd March 2022.

Notes: Completion data for four PRM e-Learning modules was provided by ACI, extracted on 3rd March 2022. Users recorded completion dates for Modules 1 and 2 between December 2016 and February 2022, Module 3 between February 2017 and February 2022, and Module 4 between June 2017 and February 2022.

Patient Reported Measures, Education Activities 2020-2021

Event	Date	Purpose	Venue	Audience involved	Number of attendees
PRMs Reporting and Data workshop for PRM Leads	March 2022	Explore, share and collaborate on current and future use of data and reporting in Health Outcomes and Patient Experience Platform..	Hybrid - mix of face to face at 1 Reserve Road, St Leonards and virtual	LHD/SHNs/ACI	24 F2F 16 VIRTUAL
PRMs Education Readiness activities HOPE Implementation Readiness and program training sessions	November 2021 – January 2022	Providing HOPE platform training to Clinicians, Consumers, Carers and Clerks to engage and understand the use and benefits of the program. Provide training and education sessions for HOPE Program Implementation Continue Onboarding of PRM Leads	Virtual and face-to-face as enabled for local training		Numbers exceeded 700 for the quarter
PRM Implementation workshop	April 2021	Bringing PRM leads, managers, pillar partners and consumers/carers together to share in current implementation approaches of PRMS/HOPE, share lessons learnt and outline next steps forward.	Paramatta	all LHD/SHN	Approximately 100

Super-user training: Health Outcomes and Patient Experience (HOPE) email / SMS / face-to-face workflow	January 2021	Training for PRM Leads as Super Users for the system platform of Patient Reported Measures Health Outcomes and Patient Experience (PRMs HOPE)	Virtual	PRM leads at LHDs/SHNs	16
Patient Report Measures (PRM) preparations for HOPE IT Solution	November 2019 – February 2020	The PRM team continues to work to support Leading Better Value Care, Integrated Care and Primary Health Network sites to embed PRMs into routine clinical practice. Training sessions across NSW have been provided with specific reference to HOPE implementation. These sessions included consumers, admin staff and clinicians.	Not available	Not available	Not available
Source: PRMs Training and Education Report 2020-2021, provided by ACI					

APPENDIX 7: HOPE PRMS CASCADE DEFINITIONS

Cascade level	Definition
One	**Active LBVC patients** An active LBVC patient is defined as an LBVC patient who had at least one LBVC-related interaction with the NSW public healthcare system during the period of interest, currently 01 February 2021 to 31 December 2021. An LBVC patient is anyone who meets an LBVC cohort definition, as included in the ROVE Data Dictionary[1]. An LBVC-related interaction may be either an: • *LBVC-related admitted patient episode; or* • *NAP service event in an LBVC clinic.* **LBVC-related admitted patient episode** An LBVC-related admitted patient episode is any episode that matches the LBVC admitted patient cohort definitions in the ROVE Data Dictionary[1]. Renal Supportive Care does not have an admitted patient cohort definition, the cohort is defined by NAP service events only. To be consistent with the other LBVC initiatives that include admitted patient episodes in their cohort definition, we have defined a RSC-related admitted patient episode as an episode with a principal or additional diagnosis of stage 4 or stage 5 chronic kidney disease (ICD-10-AM N18.4 or N18.5) for people aged 16+. **NAP service event in an LBVC clinic** For the LBVC initiatives HRFS, OACCP, ORP, and RSC, there are specific LBVC clinics with dedicated establishment types (ROVE Data Dictionary[1]). For CHF, COPD, and IMDM, we identified relevant clinics based on the establishment types of the clinics registered in HOPE for these initiatives. We validated these establishment types by analysing the clinics most frequently visited by CHF, COPD, and IMDM patients following discharge from an admitted patient episode.
Two	**Active LBVC patients in LBVC NAP clinics** Active LBVC patients who had at least one service event in an LBVC NAP clinic during the period of interest, currently 01 February 2021 to 31 December 2021.
Three	**Active LBVC patients in LBVC NAP clinics after HOPE go live** Active LBVC patients who had at least one service event in an LBVC NAP clinic after the clinic went live in HOPE, during the period of interest, currently 01 February 2021 to 31 December 2021.
Four	**Active LBVC patients registered and consented in HOPE** Active LBVC patients registered and consented in the HOPE system during the period of interest, currently 01 February 2021 to 31 December 2021. This includes patients in locations other than LBVC NAP clinics (Tables 2 - 3). • *Patient registered (patient details in the HOPE system) and patient created date between 01 February 2021 and 31 December 2021* • *Consent status is 'Accepted' and consent status date between 01 February 2021 and 31 December 2021* Patients who have only completed REDCap surveys and have not consented nor been allocated HOPE surveys are not included. (REDCap is the legacy PRM data collection system. REDCap surveys have been transferred into the HOPE platform.

Cascade level	Definition
	Some patients have only completed REDCap surveys. They are not included in HOPE uptake analysis).
Five	**Active LBVC patients allocated at least one survey in HOPE** Active LBVC patients, registered and consented in HOPE, and have been allocated at least one survey in HOPE, during the period of interest, currently 01 February 2021 to 31 December 2021. • *Patient registered (patient details in the HOPE system) and patient created date between 01 February 2021 and 31 December 2021* • *Consent status is 'Accepted' and consent status date between 01 February 2021 and 31 December 2021* • *Survey release date between 01 February 2021 and 31 December 2021* • *Survey status does not include 'Cancelled by provider', 'Completed – Skipped', 'In Conflict', 'Scheduled'* REDCap surveys are not included.
Six	**Active LBVC patients completed at least one survey in HOPE** Active LBVC patients, registered and consented in HOPE, and have completed at least one survey in HOPE, during the period of interest, currently 01 February 2021 to 31 December 2021. • *Patient registered (patient details in the HOPE system) and patient created date between 01 February 2021 and 31 December 2021* • *Consent status is 'Accepted' and consent status date between 01 February 2021 and 31 December 2021* • *Survey release date between 01 February 2021 and 31 December 2021* • *Survey status is 'Completed' and completion date between 01 February 2021 and 31 December 2021* REDCap surveys are not included.

7. REFERENCES

1. Lewis JR. The system usability scale: past, present, and future. International Journal of Human–Computer Interaction. 2018;34(7):577-90.
2. Vears DF, Gillam L. Inductive content analysis: A guide for beginning qualitative researchers. Focus on Health Professional Education: A Multi-disciplinary Journal. 2022;23(1):111-27.
3. Javadi M, Zarea K. Understanding thematic analysis and its pitfall. Journal of client care. 2016;1(1):33-9.
4. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Med Res Methodol. 2013;13(1):1-8.
5. Brunton G, Oliver S, Thomas J. Innovations in framework synthesis as a systematic review method. Research Synthesis Methods. 2020;11(3):316-30.

AUSTRALIAN INSTITUTE OF HEALTH INNOVATION
Macquarie University
NSW 2109, Australia

L6, 75 Talavera Road
North Ryde, NSW 2113
T: (02) 9850 2400
mq.edu.au

MACQUARIE
University