Mid and North Coast HealthPathways
Evaluation Final Report

JUNE 2022

HEALTHY NORTH COAST
phn NORTH COAST An Australian Government Initiative
NSW GOVERNMENT Health Northern NSW Local Health District
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About this report

This report was commissioned by Healthy North Coast and funded together with partners, Mid North Coast Local Health District and Northern NSW Local Health District.

This report has been prepared for HealthPathways by The Science of Knowing Pty Ltd, an independent strategic insight consultancy that specialises in research, policy and evaluation.

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We would like to take this opportunity to thank all members of the HealthPathways Evaluation Working Group for their ongoing commitment and support for this research project. Their insights, feedback and recruitment support were invaluable and we greatly appreciate their time, specifically during a challenging year of lockdowns and COVID-19 outbreaks.

Refer to Appendix D for membership of the HealthPathways Evaluation Working Group.

Acknowledgement of Country

Healthy North Coast acknowledges the traditional custodians of the lands across our region, which includes the Githabul, Bundjalung, Yaegl, Gumbayngirr, Dunghutti and Birpai nations. We pay respect to the Elders past, present and emerging. We recognise these lands were never ceded and acknowledge the continuation of culture and connection to land, sky and sea. We acknowledge Aboriginal and Torres Strait Islander peoples as Australia's First Peoples and honour the rich diversity of the world's oldest living culture.

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Acronyms

ANC	Antenatal care
CE	Clinical Editor
CPC	Clinical Prioritisation Criteria
CPD	Continuing Professional Development
GA	Google Analytics
GP	General Practitioner
HHS	Hospital and Health Service
HNC	Healthy North Coast
HP	HealthPathways
HREC	Human Research Ethics Committee
LBVC	Leading Better Value Care
LHD	Local Health District
MNC LHD	Mid North Coast Local Health District
NNSW LHD	Northern New South Wales Local Health District
PHN	Primary Health Network
RACF	Residential Aged Care Facility
SME	Subject Matter Expert

1. Executive summary

1.1 Vision

The vision of Mid and North Coast HealthPathways is to enable pathways to better local health care through providing a 'single source of truth' for primary care - trusted local clinical information that supports health system improvement

1.2 Background and context

HealthPathways was initially adopted by the Mid North Coast LHD and Healthy North Coast (HNC) in 2013, followed by Northern NSW LHD in 2014, and has now produced over 700 localised health pathways. The platform receives more than 20,000 page views per month by over 1,000 users. HNC was interested in exploring the overall value of the program and investigating the hypothesis that HealthPathways contributes to the Quadruple Aim by providing a process for improved collaboration between different parts of the health system. The evaluation was also intended to identify opportunities for program improvements and future investment.

1.3 Evaluation methodology and plan

In recognition of the methodological challenges in capturing adequate metrics of Quadruple Aim outcomes and being able to plausibly attribute high-level outcomes to the HealthPathways program, the final Evaluation Plan (the Plan) focussed on intermediate outcomes. The Plan identified 20 questions covering process and outcome evaluation indicators, which could be realistically attributed to the program, and leveraged to affect the Quadruple Aim.

The Plan also explored other technologies used by PHNs and LHDs alongside HealthPathways, and opportunities for future quality improvement, including program adjustments and monitoring and evaluation activities. A desktop review of grey and peer-reviewed literature was undertaken and a mixed methods approach adopted, including a quantitative component consisting of a detailed descriptive statistical analysis of Google Analytics data and a Health Professionals Survey, alongside a qualitative case study of shared antenatal care pathways that included four online focus groups and eleven individual stakeholder interviews.

1.4 Key findings

HealthPathways should be leveraged to support coordination and integration across the three levels of the health system, and embedded as a single source of truth for primary care.

The evaluation has demonstrated that HealthPathways is viewed as a trusted and reliable source of local clinical information, and has improved clinicians experience of providing care.

The program has contributed to improvements in local models of care, and system changes in the region. However, the program's growth and capacity to meet its full potential is being impeded by its limited high-level integration into both HNC and LHD systems and processes. The current lack of explicit acknowledgment of HealthPathways within the LHD strategic and operational plans is hindering its capacity to grow.

Comprehensive integration of HP within LHD and HNC organisational policies and initiatives, underpinned by high-level buy-in and championing and improved data collection could help move the program from an operational focus to a strategic one.

1.4.1 Process evaluation: Implementation

Implementation of HealthPathways has had several benefits in the NNSW and MNC region, including:

- Providing opportunities for improvements in regional models of care and system change
- Relationship-building and collaboration across the different levels of healthcare. These outcomes are critical considering the complex nature of a federated health system, and
- Use of HealthPathways as an effective education tool, both by HNC for primary health care professionals and by GP Synergy for GP registrars.

Several operational challenges were identified that limited the influence of the program in the region, including:

- The program has not been fully embedded within HNC/LHD initiatives, documents and procedures
- HealthPathways is underutilised as a tool to enable discussion and system improvements,
- Staff turnover and a continual requirement to 'sell' HealthPathways to new management and specialists at both LHDs and within HNC is inefficient and prevents the program from being able to meet its objectives, and
- The project team experiences difficulties engaging with subject matter experts and services.

1.4.2 Process evaluation: HealthPathways uptake, usage and trends

Usage of HealthPathways in the region continues to increase over time and there is a very high level of awareness of the platform amongst GPs and GP Registrars surveyed. Survey respondents from all health professional types indicated a belief that HealthPathways is very credible (practical, high quality and a trusted source of information).

GPs and GP Registrars tend to use HealthPathways as a clinical tool to support decision making around the investigation and management of health problems, as well as for referral and service information. Pathways related to antenatal care, gynaecology and mental health are consistently the most used, with COVID-19 pathways also being frequently used over the past two years. Other health professionals are less aware of HealthPathways, are less likely to use it often and tend to use HealthPathways for different reasons (e.g. as an education tool).

Results were mixed but consistent with previous research in other regions that showed HealthPathways is easy to use and navigate[4-7] and improved users' knowledge of local services.[4,7,8] Respondents were less satisfied with the platform being able to assist them in identifying and communicating with the right health professional for clinical support or improving their confidence in providing collaborative care. GP Registrars were far more satisfied with HP overall than GPs or other professional roles and used the program more frequently.

Despite high-levels of awareness and credibility of the platform, respondents indicated that HealthPathways is less likely to be the first resource they consult for clinical information. GPs and GP Registrars reported that 'forgetting to use' HealthPathways was the primary barrier to continual usage. Supportive factors for HealthPathways awareness and uptake include the development of new pathways that meet health profession needs for up-to-date information (e.g. COVID-19 pathways) and the team should continue to

capitalise on these opportunities in the future. Findings also suggest that *ongoing* promotion of the platform is critical to increased awareness and uptake.

Technological barriers and solutions were identified as an area of growth for the Mid and North Coast region. Addressing poor interoperability between other digital health initiatives and HealthPathways, login challenges and the developing the ability to SMS/email patient information directly from HealthPathways would make the platform more relevant to practitioners.

1.4.3 Outcome evaluation

1.4.3.1 Fostering collaboration and communication

Simultaneous action at different levels of the system (micro, meso and macro) are important for successful implementation of a collaborative approach to person-centred care. The results from all data sources in this evaluation suggest that HealthPathways has an important role to play in fostering collaboration and communication between healthcare providers.

At the micro-level, HealthPathways' contributes by advising clinicians on local models of care and available services and promoting appropriate pathways for referrals and clinical support. Ongoing work by project partners is required to ensure referral and service information on HealthPathways is accurate and accessible.

At the meso-level, the evaluation showed that HealthPathways can play a crucial role in helping regional stakeholders have conversations about the pain points for a particular clinical or system issue and to identify workable solutions and models of care for those problems. Opportunities exist to leverage the high regard and trust in HealthPathways to drive GP engagement in other PHN and LHD initiatives. This role has been limited in the Mid and North Coast due to the siloing of the HealthPathways program, which operates independently from other integrated care initiatives in the region and across NSW.

1.4.3.2 HealthPathways as an enabler of system change

At the macro-level, the absence of a clear strategic vision of what the program can contribute to system reform has led to HealthPathways being under-utilised as a key enabler for regional and state-wide integrated care initiatives. Interrogation of the Queensland model identified that strong leadership, strategic direction, governance structures, buy-in (financial and otherwise), and collaboration are critical pre-cursors to fully utilise the potential of the program.

1.4.3.3 HealthPathways' contribution to the Quadruple Aim

The Quadruple Aim incorporates four domains: reducing costs, population health, patient experience and provider experience.[9]

This evaluation focused primarily on provider experience measures related to HealthPathways. The evidence from the data collected identified benefits for provider experience of care, including:

- Addressing several 'pain points' in the health system that existed prior to its existence.
- Ease of use as a credible source of local clinical information, and
- Increased confidence in delivering high quality care.

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The positive impact of HealthPathways on clinicians' experience of care could be enhanced further through improving the accuracy, scope and awareness of local service information included on the site.

Although this evaluation did not directly measure the influence of HealthPathways on the other domains of the quadruple aim, possible mechanisms for positive impacts were identified. For example, participants in the Health Professionals Survey indicated that using HealthPathways saved them time, improved their clinical management, increased their knowledge of local referral pathways and improved the quality of their care to patients – these outcomes are expected to support improved population health measures, improved patient experience of care and to reduce costs in the health system. Additionally, the evaluation highlighted HealthPathways' scope as a series of processes that can underpin, drive, and enable system change. System change improvements may lead to improved patient experiences, through improved flow through the system, reduced waiting times and improved access to services, thereby having a long-term influence on population health outcomes and reduce costs.

This evaluation has identified existing strengths and benefits in the Mid and North Coast HealthPathways program and practical recommendations for improvements. Adoption of a clear strategic vision of what the program can contribute to system reform and ongoing quality improvement activities provide an opportunity to unlock the potential of the program and enhance its impact and value in delivering efficient person-centred health care across the HNC footprint.

1.5 Recommendations

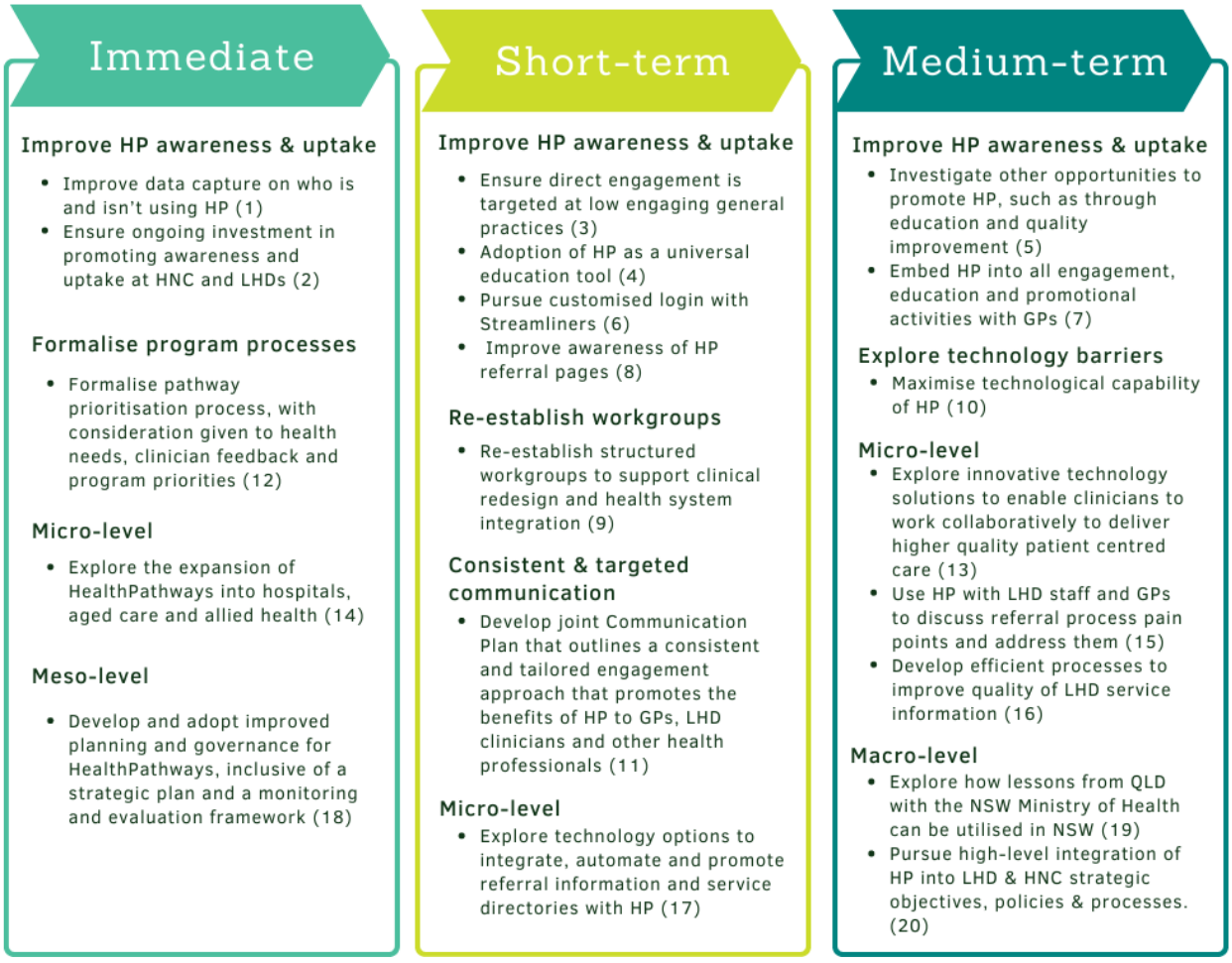
Administrative and Operational recommendations	Lead
Improve awareness and uptake of HealthPathways	
1. Improve data capture on who is and isn't using HealthPathways	HNC
2. Ensure ongoing investment in promoting awareness and uptake at HNC and LHDs	HNC & LHD
3. Ensure direct engagement is targeted at low engaging general practices	HNC
4. Adoption of HealthPathways as a universal education tool	HNC & LHD
5. Investigate other opportunities to promote HealthPathways, such as through education and quality improvement	HNC & LHD
6. Pursue customised login with Streamliners	HNC & LHDs
7. Embed HealthPathways into all engagement, education and promotional activities with GPs	HNC
8. Improve awareness of HealthPathways referral pages	HNC
Re-establish structured workgroups	
9. Re-establish structured workgroups to support clinical redesign and health system integration	HNC & LHDs
Explore technology barriers	
10. Maximise technological capability of HealthPathways	HNC & LHDs
Consistent and targeted communication	
11. Develop a joint Communication Plan that outlines a consistent and tailored engagement approach that promotes the benefits of HP to GPs, LHD clinicians and other health professionals	HNC & LHDs
Formalise program processes	
12. Formalise pathway prioritisation process, with consideration given to health needs, clinician feedback and program priorities	HNC & LHDs

	Strategic recommendations	Lead
MICRO	**Improving clinician experience of care: Information exchange about individual patients**	
	13. Explore innovative technology solutions to enable clinicians to work collaboratively to deliver higher quality patient centred care	HNC
	Shared understanding of Models of Care	
	14. Explore the expansion of HealthPathways into hospitals, aged care and allied health	HNC & LHD
	Referral processes and availability of services	
	15. Use HealthPathways with LHD staff and GPs to discuss referral processes pain points and address them	HNC & LHDs
	16. Develop efficient processes to improve quality of LHD service information	LHDs
	17. Explore technology options to integrate, automate and promote referral information and service directories with HealthPathways	LHDs & HNC
MESO	**HealthPathways as an enabler of system change and proactive GP engagement**	
	18. Develop and adopt improved planning and governance for HealthPathways, inclusive of a strategic plan and a monitoring and evaluation framework	HNC & LHDs
MACRO	**Leveraging HealthPathways for wider system improvements**	
	19. Explore how lessons from QLD with the NSW Ministry of Health can be utilised in NSW	LHD & HNC
	20. Pursue high-level integration of HealthPathways into LHD and HNC strategic objectives, policies and processes	LHD & HNC

1.5.1 Timeframe for implementation of Recommendations

Each recommendation has been assigned to a general timeline outlining immediate, short-term and medium-term focus areas (Figure 1). Whilst the program may not be able to fully implement each recommendation within timeframes identified, the expectation is that implementation of the recommendation has *commenced* within these timeframes. More detailed timeframes have been proposed in the accompanying Strategic Plan and Monitoring and Evaluation Framework for individual activities.

Figure 1: Proposed timeframes for Recommendations



2. Background and context

2.1 Healthy North Coast PHN

Healthy North Coast (HNC), trading as North Coast Primary Health Network (NCPHN), works alongside their local community, primary health care professionals, hospitals, social services and other health professionals to improve access to well-coordinated quality health care. PHNs were established in 2015 with objectives to increase the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes, and improve coordination of care to ensure patients receive the right care in the right place at the right time. HNC works to achieve these objectives through a commitment to:

- Identify health needs in their region
- Source and fund local services to address health care gaps, known as commissioning
- Develop and deliver innovative local health care solutions
- Support evidence-based health initiatives and programs
- Build primary health care workforce skills and capability
- Improve the integration of primary health care services with specialist and hospital care, and
- Inform communities about health care resources and education around self-care.[10]

The organisation's key priority areas are:

- Better mental health and emotional wellbeing
- Closing the gap in Aboriginal and Torres Strait Islander health
- Improving their population's health and wellbeing
- Building a highly skilled and capable health workforce
- Improving the integration of health services through electronic and digital health platforms, and
- Improving the health and wellbeing of older people.[11]

The HNC region covers 35,570 square kilometres from the Queensland border in the north, to Port Macquarie in the south. The population in the region is 520,000 with high rates of older people and disadvantage. The organisation covers the Arakwal, Birpi, Bundjalung, Dunghutti, Githabul, Gumbaynggirr and Yaegl Nations, which number approximately 25,000 people.[12]

2.2 Northern NSW Local Health District

Northern NSW Local Health District (NNSW LHD) is one of 15 LHDs covering metropolitan, rural and regional locations across NSW. NNSW LHD covers a large geographical area extending from Tweed Heads in the north to Tabulam and Urbenville in the west and to Nymboida and Grafton in the south.[13]

The LHD provides healthcare to over 300,000 residents across the footprint through 12 hospitals and multi-purpose services, 21 community health centres and other facilities.[13]

The NNSW LHD region has a high proportion of Aboriginal and Torres Strait Islander peoples compared with NSW overall. The proportion of people aged 65 years and over continues to increase with higher usage of

more acute health services due to chronic and complex conditions, dementia and fractures resulting from falls.[13]

NNSW LHD's vision is a 'Healthy community through quality care., which underpins their six strategic priorities for 2019-2024, specifically:

1. Value, Develop and Empower Our People
2. Our Community Values Our Excellent Person-Centred Care
3. Empowering Aboriginal Health
4. Integration Through Partnerships
5. Effective Clinical and Corporate Accountability
6. Champions of Innovation and Research.

2.3 Mid North Coast Local Health District

Mid North Coast LHD (MNC LHD) is one of seven rural and regional LHDs in NSW. The MNC LHD footprint extends from the Port Macquarie Hastings Local Government Area in the south to Coffs Harbour Local Government Area in the north and provides healthcare services across a geographic area of approximately 11,335 square kilometres.[14]

The LHD provides healthcare to over 200,000 residents in the region through seven public hospitals, 12 community health centres and a range of public health services, including allied health, cancer screening and health promotion.

Alongside the continued response to the COVID-19 pandemic, the main health issues facing the LHD are mental illnesses, and chronic age-related illnesses, such as cardiac, pulmonary, diabetes, renal disease and dementia.[15]

MNC LHD had seven strategic directions that guided their activities for 2017-21, specifically:

1. People, patients and the community
2. Leadership, workforce and culture
3. Integrated care
4. Safety and quality
5. Innovation and research
6. Value and accountability
7. Closing the gap

2.4 HealthPathways

HealthPathways (HP) is a web-based platform designed for use during a consultation to offer clinicians locally agreed information to make the right decisions, together with patients, at the point of care.[16] Each pathway provides clear and concise guidance for assessing and managing a patient with a particular symptom or condition, and localised information to enable appropriate referrals to local services.[16]

One of the primary objectives of HP is to reduce variations in care due to either variation in referral processes (i.e. criteria) and/or variations in how models of care are delivered by primary care practitioners. For these purposes, HealthPathways provides a process by which different parts of the health system can collaborate to address these issues and support a shared approach to patient care.[16]

Shared care approaches facilitate the Quadruple Aim by providing a scaffold for improved communication and integration between levels of the health service, enabling clinicians to work as a team to provide a standardised level of care that is based on shared understanding of the evidence base while maintaining the flexibility to respond to an individual patient's needs.[16]

HealthPathways was originally developed in Canterbury, New Zealand in partnership with Streamliners, a software company with online platforms that aim to deliver content to front-line staff. HealthPathways is now being used by organisations across New Zealand, Australia and the UK.[17] The HealthPathways program has been implemented in all 31 PHNs across Australia, with 30 using the Streamliners platform, and one publishing their pathways via their organisational website (South Eastern Melbourne PHN). HealthPathways generally operates as a partnership between a PHN and LHDs within their catchment. In Queensland, the LHD equivalents are known as Hospital and Health Services (HHS).

HealthPathways was initially adopted by MNC LHD and HNC in 2013, followed by NNSW LHD in 2014, and has now produced over 700 localised health pathways. With considerable progress and investment into the HealthPathways program over the past six years, HNC were interested in learning more about what aspects of the program are most effective in supporting the Quadruple Aim, the overall value of the program and opportunities for further embedding the platform as business as usual for health professionals.[12]

2.4.1 Antenatal care pathways

Google Analytics data indicates that the Shared Antenatal Care pathway has consistently been one of the most accessed pathways on HealthPathways.

There is variation across the footprint with respect to the shared antenatal care schedule, as well as the process of engaging GPs to participate. GPs are required to attend the local shared antenatal care education event every three years to maintain registration with Port Macquarie Base Hospital, annually to maintain registration with the Coffs Harbour Health Campus, however no registration is required to participate in shared antenatal care in the Northern NSW LHD area.

There is also variation across each antenatal care schedule (e.g. booking-in appointment timeframes) with three separate schedules currently available within HealthPathways for the region: Coffs Harbour, Hastings Macleay, and Northern NSW.

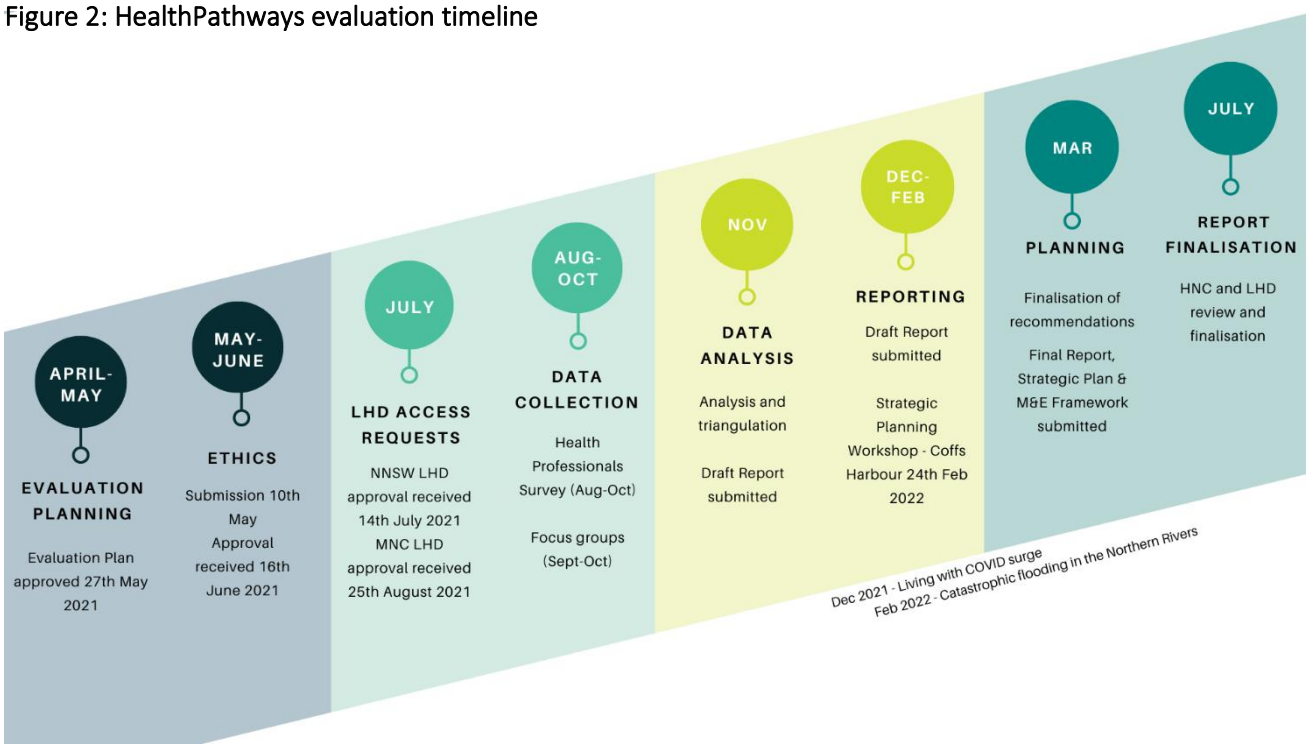
The NSW Health "Yellow card" remains the woman's record of pregnancy care. The 'Yellow Card' or Antenatal Record is a health record of a pregnancy given to all pregnant women in NSW, usually filled in by a doctor, obstetrician and/or midwife. It's usually updated at each antenatal and GP appointment. It is an A4 size, two-sided card that is light-yellow in colour.

2.5 Project objectives

The Science of Knowing was commissioned by HNC on 25th March 2021 to undertake an evaluation of the Mid and North Coast HealthPathways program. The project objectives were to:

1. Develop a detailed Evaluation Plan and methodology for undertaking the project
2. Submit an ethics application and Research Governance approval covering the Mid North Coast and Northern NSW Local Health Districts (LHDs)
3. Undertake a process and outcome evaluation of the Mid and North Coast HealthPathways program
4. Incorporate an antenatal shared care case study, and
5. Identify possible program improvements and recommendations for future investment.

Figure 2: HealthPathways evaluation timeline



3. Evaluation methodology

3.1 Evaluation approach

The evaluation approach was grounded on lessons learned from the literature on evaluating HealthPathways in New Zealand and Australia.[4,6,18-21] Our experience evaluating complex health system level interventions, such as those aimed at integration of services and improving the Quadruple Aim, suggested early involvement of key stakeholders to refine the scope of the evaluation and identify those evaluation questions that were critical to examine both the extent to which the program has achieved its intended goals and unpack what has been working in terms of program design and why.

Our first step was thus to examine lessons learned from previous evaluations and brainstorm the evaluation scope and approach with key stakeholders at a virtual 'brainstorming' meeting attended by representatives from HNC, MNC LHD and NNSW LHD, held on 1st April 2021.

A final Evaluation Plan (the Plan) was developed that recognised the methodological challenges in capturing adequate metrics of Quadruple Aim outcomes, and being able to plausibly attribute high-level outcomes, such as improved referral quality or quality of care, to the HealthPathways program. The Plan instead focussed on intermediate outcomes, which could be realistically attributed to the program, and leveraged to improve high-level outcomes set by the Quadruple Aim.

The final Plan was approved on 27th May 2021 and is available in Appendix A.

3.2 Evaluation design

The evaluation included outcome and process evaluation as well as a preliminary investigation into other technologies used by PHNs and LHDs alongside HealthPathways. The evaluation also included a case study on antenatal shared care to provide deeper insights into the program.

A mixed methods approach was adopted, including a quantitative component focused on a detailed descriptive statistical analysis of Google Analytics data and a Health Professionals Survey, as well as a qualitative component that included online focus groups and individual stakeholder interviews.

3.3 Ethics and LHD Access requests

Ethics approval was received from the Northern NSW HREC on the 16th June 2021 (Approval #2021/ETH00851). Further approvals were sought for amendments and received on the 29th July 2021 (revised Health Professionals Survey), 3rd August 2021 (Newsletter article), and 1st September 2021 (Social media advertising and website banner design). Access Request approval for the NNSW LHD was received on the 14th July 2021 and on the 25th August 2021 for MNC LHD.

3.4 Evaluation questions

The final Evaluation Plan identified 20 questions covering process and outcome evaluation indicators, and opportunities for future quality improvement, including program adjustments and monitoring and evaluation activities. Responses to each question were sourced from various data collection activities. Some of the evaluation questions will be further explored in February 2022 at a Strategic Planning session with representatives from HNC and both LHDs. The outcomes of this session will be included as an Addendum to this report.

3.5 Data collection activities

Data collection activities included an online survey for Health Professionals, four focus groups, eleven individual interviews, extraction of Google Analytics data from the Mid and North Coast HealthPathways website, and a desktop review of grey and peer-reviewed literature. A summary of the data collection activities is provided on the following page.

Data collection summary

A range of data collection activities both qualitative and quantitative were implemented to answer 20 evaluation questions, including an online survey, focus groups, individual interviews, Google Analytics data extraction, and a desktop review.

HealthPathways Program Team

Method: Focus Group (1 hour)

Session 1: 16th Sept 2021 (n=6)

Session 2: 23rd Sept 2021 (n=8)

General Practitioners

Method: Interviews: 30-60 mins

Interviews: Sept-Nov 2021 (n=5)

Male: n=3

Female: n=2

Mid North Coast LHD

Method: Focus Group (1 hour)

Focus Group: 29th Sept 2021 (n=5)

Northern NSW LHD

Method: Focus Group (1 hour) and interviews

Interview: 1st Nov 2021 (n=2)

Focus Group: 3rd Nov 2021 (n=3)

Leveraging other technologies

Method: Interviews: 60 mins

Participants: Streamliners, Hunter New England PHN, Gold Coast PHN, Brisbane South HHS, Illawarra Shoalhaven LHD

Health Professionals Survey

Method: Online survey

Responses: n=209 (GP/GP Registrars n=81)

Recruitment: Direct emails to Practice Managers, LHD staff, Pharmacies and GP Registrars, letter to GPs, Facebook advertising campaign, website and Intranet advertising, and newsletter articles.

Desktop review

Included a review of available HealthPathways program materials, grey and peer-reviewed literature. This process informed the evaluation plan, methodology and data collection tool development, as well as contextaulising the study results.

Google Analytics

Google Analytics data informed usage and access to specific HealthPathway's pages.

4. Results

4.1 Data collection and results overview

Questions from the Evaluation Plan have been answered in this section of the report by triangulating the data collected across all data collection methods, including a desktop review of grey and peer-reviewed literature, Google Analytics, individual stakeholder interviews, stakeholder focus groups, and the Health Professionals Survey.

The results have been presented under the following sub-headings and covering groups of questions from the Evaluation Plan:

- Implementation (Q. 7-9)
- HealthPathways uptake, usage and trends (Q. 3-6, 10-11, 13)
- Outcomes (Q. 1-2, 12, 14, 19).

4.2 Process evaluation: Implementation

This section of the results answers the following questions from the Evaluation Plan:

7. What were the main characteristics of the referral, collaboration and shared care system before the HP implementation?
8. What were the key problems/pain points that the HP program aimed to address?
9. How does the program work on the ground? This includes issues such as the main activities/strategies undertaken by HealthPathways to engage clinicians, build and maintain relationships as well as the triggers for new pathway development, pathway review or partial update?

4.2.1 Overview

This section of the report focusses on implementation aspects of the HealthPathways program. Results were drawn from qualitative information collected through focus groups and individual interviews, as well as HealthPathways program documentation.

4.2.2 Referrals, collaboration, and shared care prior to HealthPathways

Prior to the implementation of HealthPathways, characteristics of the referral, collaboration and shared care system were identified as key system challenges/pain points. Many of these were key drivers for the adoption of the platform in 2013, including:

- Reducing variations in care, specifically referral quality and local models of care
- Reducing potentially preventable hospitalisations – need to better manage patients in the community
- Limited access to local information during a GP consultation
- Inconsistent information available on local services, including specialists and LHD services (new ‘Directories’ introduced then fall by the way-side/not updated)
- No feedback mechanism to track changes to services, including when a service is ceased

- Limited existing collaboration between LHDs in the footprint, and a fragmented relationship between the PHN and LHDs.

4.2.2.1 Antenatal shared care

- Differences in shared care program availability across the region as well as timing for shared care between primary care and hospital (challenging for GPs to stay across, particularly if practicing in different locations across the footprint).
- Varying quality and completeness of referrals to antenatal care clinics across the region (e.g. not including blood test results or scans with referral)
- GPs referring to hospital for first booking-in appointment too early or too late in a woman's pregnancy, and
- Limited, if any, information being provided back to GPs about a woman's pregnancy and birth.

Prior to the establishment of the PHN, Medicare Local staff viewed HealthPathways as a tool to drive system improvement and integration. They implemented the program with the aim to improve access to the right service at the right time, primarily through discussions around particular topics where better models of care were needed, such as access to colonoscopies and antenatal care. The successes of HealthPathways in Canterbury were also a driver for the adoption of the platform in the region.

4.2.3 How does the HealthPathways program work on the ground?

4.2.3.1 Overview

Mid and North Coast HealthPathways has been developed and funded by HNC in collaboration with MNC LHD and NNSW LHD. The program's operational team consists of two Program Coordinators representing each LHD, a Project Officer, and five Clinical Editors (CE). The program receives management oversight by the Integrated Care Directors from each LHD and the Executive Director, Wellness from HNC.

Primary program activities consist of:

- Pathway development: Localising new pathways, existing pathway reviews and updates, and associated activities, such as relationship building with Subject Matter Experts (SME), workshops, and collaboration with Streamliners.
- Education: Developing patient resources, delivering continuing professional development (CPD) activities, and HealthPathways training.
- Relationship building: Establishing connections and building relationships with specialists and other subject matter experts, community-based clinicians, and training providers.
- Administrative: Operational meetings, progress reporting, responding to feedback, and delegating reviews/updates to pathways.

4.2.3.2 Pathway development and review processes

There is a documented and detailed process for prioritising and undertaking reviews and updates to existing pathways. However, a documented process for prioritising the localisation of new pathways was not clearly evident from this evaluation. Despite not having a process documented and formalised, the HealthPathways

team were able to detail the process they have undertaken over the past few years to identify and allocate new pathway development. The process is outlined in Appendix B, and includes tasks involved in maintaining a list of pathways for consideration for localisation, reviewing the list and prioritising pathways for development, and allocating pathways for development amongst the HealthPathways team.

The current process responds to feedback from HealthPathways users, requests from program partners and is responsive to system changes and significant events. Formalising and documenting this process would be a useful activity to undertake to support improved program governance and decision-making.

There are a number of examples where the HealthPathways team have proactively responded to significant events to prioritise pathway development. For example, during the NSW COVID-19 outbreak, HealthPathways program staff identified that there was no specific plan in place for GP management of paediatric patients with COVID-19. This prompted discussion between the LHD and the PHN (on behalf of primary care) to establish pathways and clinical processes for GP care. Similar discussions have been prompted throughout the pandemic, such as preparing for an increase in COVID-19 cases in the footprint.

In regards to initiating re-design activities, such as developing new models of care, these have been triggered as a by-product of a localisation process rather than an explicit and strategic identification process (e.g. What pain points exist that need addressing? Where are the service gaps?). The program could benefit from more investment in strategic prioritisation meetings between HNC and the LHDs to identify opportunities for system re-design activities. These conversations could be led by identifying pain points in specific referral processes or significant waiting times for specialist services, potentially preventable conditions that could be better managed in primary care, and alignment of prioritised work with health needs.

Example: How HealthPathways has driven system improvement

Over time, health professionals are becoming increasingly aware of the potential of HealthPathways to initiate conversations, and be used as a tool to address concerns in how patients are managed in the health system.

Medical termination in pregnancy complications follow-up pathway: The HealthPathways team were contacted by several GPs who were concerned about the follow-up process for women who had a medical termination of pregnancy. These concerns led to a face-to-face meeting between the Obstetrics team and concerned GPs and facilitated by HealthPathways. The face-to-face element helped to establish rapport and an ongoing relationship, which led to tweaks in the pathway design. The process allowed for consensus to be quickly achieved with the second LHD in the region and the pathway published.

Suicide risk pathway: A range of health professionals, including LHD mental health clinicians, psychologists, psychiatrists (private and hospital-based), and the PHN came together to develop the pathway for suicide risk. Conversations in the working group identified that mental health services required a major overhaul, and that there were some inaccuracies in other pathways. The face-to-face networking in the working group enabled further conversations and pathway updates to occur beyond the initial suicide risk pathway development.

4.2.3.3 *Working groups and relationship building*

The HNC HealthPathways program has been operating for more than seven years, so it has a relatively high number of localised pathways in comparison to other regions that are not as well established. The HNC program team reported that program implementation was very 'working group heavy' in the early days due to the need to localise pathways. There were different clinicians working on various suites of pathways. As more pathways have been localised the requirement for this 'classical' working group has not been as high. The program team has now moved into a clinical review stage with less need for the development of new pathways (with the obvious exception of COVID-19 related pathways). Review processes now are fairly routine and often involve a review by one CE followed by a review by two other CEs. The need for pathways to be reviewed by an SME has reduced and generally only occurs if there has been a clinical or guideline change. One member of the team reported that if it's been a steady pathway then it doesn't need to go to an SME for review. The team also reported that the streamlining of the review process means they are working more efficiently as there is less need for face-to-face workshops. This has also been heavily influenced by COVID-19, which has resulted in many conversations occurring online. However, as noted by recent evaluations, the success of HealthPathways hinges on an effective engagement strategy that requires considerable resource investments. So, as discussed in the *Outcomes* section later on in this report, this is an issue that deserves further consideration.

In regards to developing working relationships with LHD representatives, program team feedback suggests that this is heavily reliant on existing, often personal, relationships between HNC personnel and LHD specialists and other clinicians. Support to make connections with relevant specialists and clinicians does not always receive universal support from all LHD departments/clinical areas. The program team reported difficulties recruiting SMEs across different departments/specialties, and no uniform buy-in across specialities. There is some reliance on individual SMEs' willingness to support the program and/or 'give-back' to the medical profession by volunteering time to engage in the program or review pathways. This is particularly evident where pathway reviews are delayed for 12 months due to challenges finding specialists or SMEs to complete a review.

One interviewee identified that whilst engaging with the HealthPathways program was not a specified part of their LHD role, they participated in the program (e.g. reviewing antenatal pathways) as they saw the value in ensuring pathways were consistent with current guidelines and matched hospital referral requirements. They reported a positive change in referral quality and accuracy coinciding with the introduction of antenatal care pathways. This suggests that clinicians need to see the benefits of being involved in the program, either personally or from a system perspective, or both.

Feedback obtained during a program operational meeting indicated that there is a high level of trust in the program's operational team at HNC. The team is working well with the LHD and people are happy to "leave them to do what they need to do." The potential disadvantage of this is the possibility of disengagement from the program on a strategic level. Although LHD senior management appear happy that the program is operationally running well, they may be less invested in how the program could be leveraged to bring about system re-design discussions and action unless prompted.

4.2.3 Program implementation challenges

The program team identified the following key operational challenges in implementing the HealthPathways program:

- Subject matter expert (SME) engagement
- Frequent service changes
- Variability of available services across the region
- Limited understanding of who is and isn't using HealthPathways
- Platform specific challenges
- Team capacity, and
- Leadership buy-in.

As previously mentioned, SME engagement was reported as challenging depending on the topic, with some pathway reviews sitting idle for a year waiting for a clinical expert to review. It's not entirely clear why engagement is challenging for some areas and not others, but suggestions included being too busy, and not being paid to undertake the review. The team reported that they are collaborating with professional bodies to be able to allocate professional development points for SMEs who undertake pathway reviews. It is hoped that this will help to incentivise SME engagement. The HealthPathways program team had taken steps to improve SME engagement with a new SME flyer and planned engagement with hospital departments; however, this has been sidelined due to COVID-19. Pre-COVID-19, SME engagement was undertaken face-to-face.

Staying abreast of changes to services is also extremely time-consuming for HNC. This relates to the fact that the HealthPathways referral pages are updated manually by a HNC project officer. In most cases, neither hospital nor community-based services update the program team of changes to their services, including phone numbers, location, or closures. This requires the program team to contact and manually update service details. It was reported that simply contacting a service for updated details can create suspicion, and in some cases, services have requested being removed from HealthPathways due to already high demand for their service. Service changes are often identified during a pathway review or through the feedback portal on HealthPathways. Ideally, this process should be automated, with LHD clinics mandated to update HealthPathways as part of any service changes.

Data limitations on platform usage is a contributing factor to why actual HealthPathways usage across the HNC footprint is currently unknown. For example, there is no data source that accurately identifies who does and doesn't use HealthPathways. Google Analytics data is the only data source currently available to HNC and does not provide more granular geographic data beyond the PHN catchment. For example, it does not provide usage data by postcode or local government area, which would provide the PHN with more useful data on areas where HealthPathways is least used. The other key limitation with the platform itself is the universal username and password, which eliminates the ability to identify the number and type of health professionals accessing HealthPathways, such as GPs, hospital clinicians or allied health professionals, and demographic variables. HealthPathways does not seem to be integrated into other PHN primary care engagement

programs/activities since there is currently no database of primary care clinicians and whether they have or have not been engaged in the program.

Program staff also identified the challenge of balancing CE hours with the high number of pathways requiring reviews or updates. This puts pressure on the team's capacity to keep the content up-to-date, and sometimes decisions need to be made as to whether to keep a pathway and undertake a review or not.

With regards to leadership, there was feedback that, in some cases, there has been buy-in and agreement on-the-ground for specific pathways, however this has not flowed through to management. As a result, the new pathway or new model of care has not been adopted. A number of examples were reported, including in orthopaedics and access to colonoscopies. Despite coming up with a solution, the team were unable to secure the changes needed to implement the pathway. The program team are acutely aware of the need to have the 'right person' in the room during conversations, so that the required changes can be executed.

In regards to internal PHN support, program staff reported that there is limited awareness of HealthPathways across the organisation. This may be a reflection of staff turnover and/or geographical separation of staff at different offices. This may impact capacity to build relationships with other PHN staff members to learn about their respective programs and look for collaborative opportunities and program synergies.

Several of these operational challenges speak to broader, strategic-level limitations that exist within the HP program at present. Although HNC and the two LHDs have an agreed partnership in delivering HealthPathways, there does not appear to be widespread understanding across all levels of these organisations of the HP program, its potential benefits, and how it can be utilised as a mechanism of system change. The program appears to be quite siloed in its operation, rather than fully embedded within HNC/LHD initiatives, documents and procedures and HealthPathways is currently not the first point of call to address system issues, with it often being seen as an information dissemination tool to be engaged at the end of a system improvement exercise, rather than a process that can enable discussion and system improvements.

More comprehensive integration of HP within organisational policies and initiatives, underpinned by high-level buy-in and championing, would likely facilitate increased willingness to participate by SMEs and services, improved data collection at the point of care, and move the program from an operational focus to a strategic one.

4.2.4 What has worked well?

Despite some of the implementation challenges identified above, the program team identified a range of program factors that are working well and provided examples of many 'wins' during program delivery that have resulted in the introduction and/or changes to model of care. Factors that have contributed to program success include:

- Strong relationships and trust between partner organisation executives and the HealthPathways team.
- Strong and increasing usership by GPs since program implementation.
- Meetings and connections with other HealthPathways program teams to share content, and discuss potential program synergies.
- Using education events to promote HealthPathways regardless of topic being presented.

- Leveraging HealthPathways as a single source of truth to disseminate COVID-19 information that can be easily and quickly updated.
- Face-to-face workshops to discuss pain points identified during pathway development process. Easier to establish relationships and build rapport when meeting in person.
- Leveraging existing, long-term relationships with clinicians to initiate discussions around pain-points or newly identified gaps (e.g. paediatric COVID-19 patients).
- Having the 'right' person at the table who can make decisions and implement proposed new models of care/processes within LHD and/or specific hospital.
- Working groups that consist of multiple, relevant health professionals (e.g. suicide risk pathway working group consisted of multiple health professionals from LHD and community-based services. Together they were able to identify problems in the interface between primary and specialist care for mental health services).
- Reaching a threshold where many pathways have now been localised, so there's been a shift from pathway development to pathway review. Pathway review process is fairly streamlined and efficient.
- Sharing COVID-19 pathway development with other PHNs to distribute the workload.

HealthPathways has been identified as the preferred platform to establish state-wide pathways by NSW Health due to the following enabling factors:

- Widespread use of HealthPathways by GPs across all PHN/LHD regions in NSW
- Ability to provide information in a standard format
- Pathway development process is evidence-based and developed by local clinicians
- Aims to provide GPs with local referral options that are a mix of public and private providers
- Well established clinical pathway development and review processes, and
- Well established local governance processes and partnerships.[22]

4.3 Process evaluation: HealthPathways uptake, usage and trends

This section of the results answers the following questions from the Evaluation Plan:

Antenatal Care Study

3. What is the current uptake and trends since the start of the program for ANC HP in the MNC footprint?
4. What proportion of GPs in the HNC footprint used ANC HealthPathways during a pre-determined period prior to the evaluation?

All HealthPathways

5. What is the current uptake and trends since the start of the program for HP in the MNC footprint?
6. What proportion of GPs and other health professionals in the HNC footprint used HealthPathways during a pre-determined period prior to the evaluation?

ANC Case Study

10. What are the patterns of use for ANC pathways amongst both primary care and tertiary clinicians? This will cover issues of a) timing, such as usage during consultations, pre-post, when teaching students/registrars or while developing clinical procedures; and b) frequency of use, e.g., most sessions or only if required.
11. What are the key drivers and barriers of HP usage/uptake amongst primary care and tertiary care clinicians? Note the individual issues to be addressed under this question will be informed by our review of the literature on HealthPathways.

All HealthPathways

13. What are the key drivers and barriers of HP usage/uptake amongst primary care and tertiary care clinicians?

4.3.1 Overview

This section of the report covers HealthPathways uptake, usage and trends in use. The data was sourced from Google Analytics of the HealthPathways website, the Health Professionals Survey, qualitative insights from focus groups and interviews and the literature. The timeframes used in reporting trends for selected pathways was dependent on when the pathway went live as well as changes to pathways over time (e.g. multiple pathways being consolidated into one). Where possible, data was collected up until September 2021 to be as current as possible whilst allowing sufficient time for analysis and reporting.

4.3.2 Google Analytics

At the time of the evaluation, Google Analytics (GA) data was the only consistent data collection method providing an indication of HealthPathways usage across the HNC region. Further information on how this was supplemented through the Health Professionals Survey is included in subsequent sections of this report.

The GA data provided a general indication of usage trends by individual pathways, groups of pathways and by pathway localisation. Some of the limitations of GA data is the inability to track individual users (all users have the same username and password), and that users of the platform are determined by cookies and are specific to a device or browser rather than individuals. Despite the limitations, the GA data does provide an overall

indication of usage over time and gives us an idea of whether or not specific pathways are being accessed more frequently when we would expect them to do so. For example, we would expect peaks in usage during the flu season for the influenza related pathways.

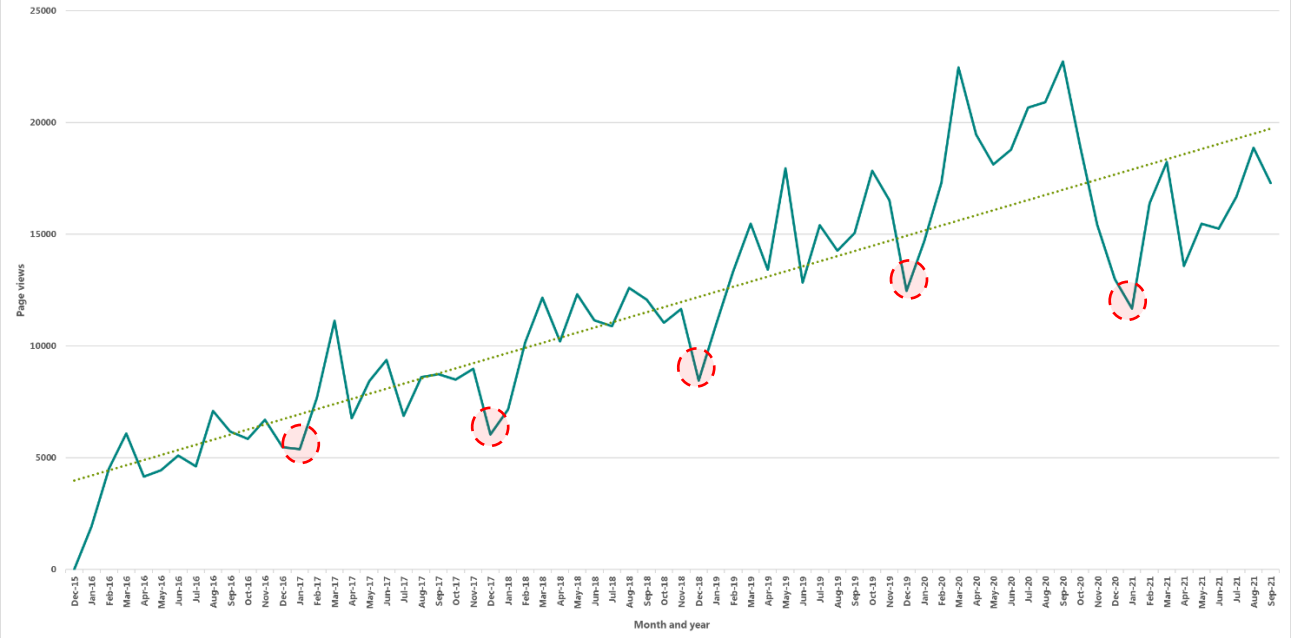
For the purposes of the analysis presented below, *Search/search results* and *Table of Contents* pages were removed from the results (unless stated otherwise), and activity related to Streamliners NZ and HNC HealthPathways Team was excluded as it generally indicates website maintenance activities. This was accounted for by only reporting on Normalised data.

4.3.3 Usage and trends for all HealthPathways

Google Analytics allows for usage data to be viewed by all users, individual pages as well as groups of pages (Pathway categories). Figure 3 indicates that access to HealthPathways has increased substantially since December 2015.[i] Total pageviews per month have increased from around 4,000 pageviews per month up to over 10,000 pageviews per month in recent years. Research by Gray et al (2020) suggests that there is a positive correlation between the number of localised pathways and HealthPathways use. There is also a trend suggesting that uptake increases as users gain more exposure to and experience with HealthPathways.[5]

At the peak of the COVID outbreak in 2020, pageviews increased to their highest levels, with more than 20,000 pageviews per month in March (22,474), July (20,666), August (20,903), and September (22,723). Interestingly, pageviews per month have declined over the 2021 period with an average of less than 16,000 pageviews per month and falling below the trend line. This may be a reflection of a reduced capacity to undertake face-to-face HealthPathways engagement activities, such as practice visits and education sessions. Trends over time also suggest that usage of the platform drops over the Dec-Jan period each year (red circles below). This is likely a reflection of the Christmas/New Year holiday period.

Figure 3: Total pageviews (all pages) Dec 2015 – Sept 2021[ii]



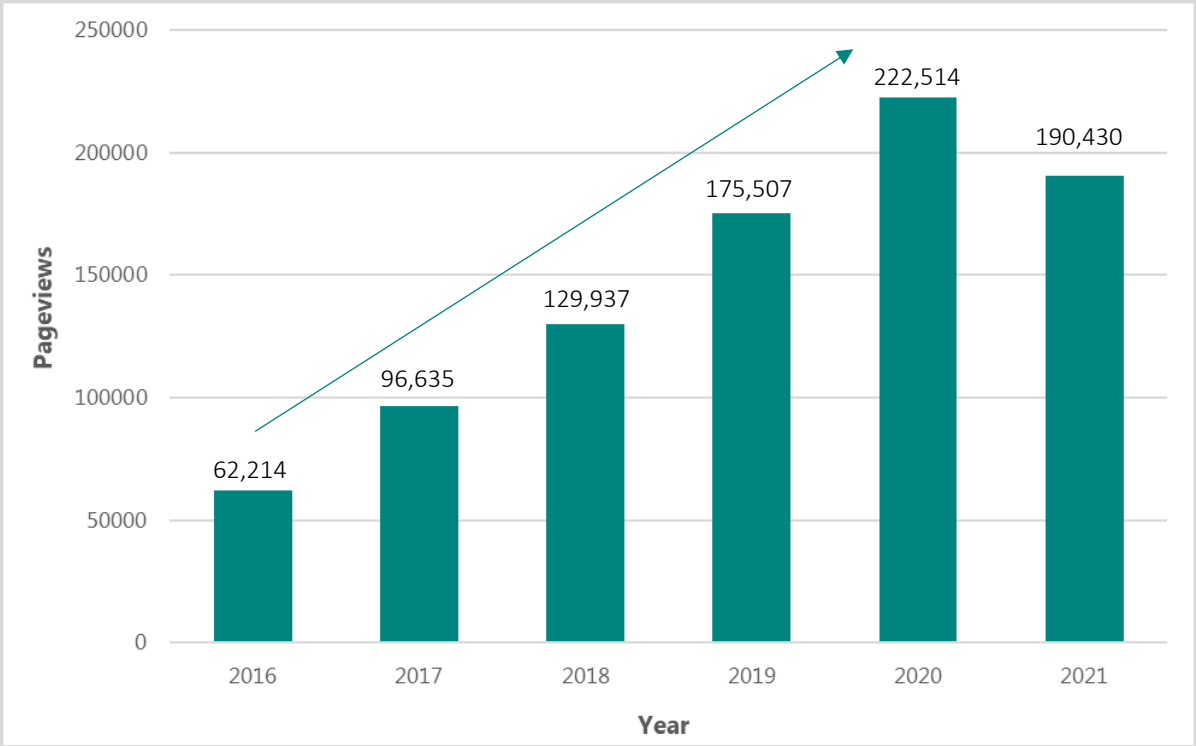
[i] The Mid and North Coast HealthPathway's website went live on 1 April 2014. Google Analytics data is only available from Dec 2015.

[ii] All pages, including search, home and landing pages

The total number of pageviews per year has increased annually from 2016 to 2020 (approx. 62,000 to 222,000 pageviews per year) (Figure 4). This could indicate either more individual users and/or increased usage of the platform by the same users. It is not possible to make this distinction whilst access is through a single username and login, and linked to cookies on individual devices.

There was a decline in pageviews for 2021 from 222,514 in 2020 down to 190,430. Despite the decline, the total number of pageviews was higher than 2019 and follows the pre-COVID-19 trend of total pageviews increasing each year. The spike in 2020 may be a reflection of COVID-19 and an increase in COVID-19 related pages.

Figure 4: Total pageviews per year (2016 – Sept 2021)



4.3.4 Changes over time

As highlighted above, COVID-19 has likely had a substantial impact on usage of HealthPathways and the types of pages being accessed. As a result, it is difficult to establish what normal trends may have been in total number of pageviews and types of pages over the past few years. However, what we can see from the pageviews from 2019 until September 2021 (Table 1 to Table 3) is that pages related to antenatal care remained as some of the most viewed pages, and were still accessed at around the same rate despite the obvious impact of COVID-19.

This consistency is also reflected when we look at Pathway Categories. Despite the introduction of a suite of COVID-19 pathways, pregnancy-related pages, mental health and gynaecology are still the most accessed pages from 2019 through to September 2021 (Table 4 to Table 6).

A possible explanation for why *Mental Health* is the most viewed pathway category over *Pregnancy* is the higher number of individual pathways that make up that category. There are 54 Mental Health pathways (50 localised, 4 under development), and 27 localised *Pregnancy* pathways.[23] It may also be a reflection of mental

health being a key health issue during GP consultations of high community need and an area with rapid, evolving evidence-base and models of care.

Table 1: Top 15 pages with the most pageviews from 1st Jan – 31st Dec 2019

Rank order	Page title	Number of pageviews	Approx. Views per week
1	Summary of Referral Pages	1389	27
2	Antenatal Care - Routine Mid North Coast	1112	21
3	Medical	934	18
4	Antenatal Care - Routine Northern NSW	873	17
5	Women's Health	813	16
6	Antenatal Care - Routine	790	15
7	Daily Updates	602	12
8	First Presentation Antenatal Blood and Urine Tests	591	11
9	Action Plans	531	10
10	Pregnancy	492	9
11	Northern New South Wales Antenatal Checks Schedule	491	9
12	Osteoporosis	459	9
13	Mental Health and Addiction	454	9
14	Suicide Risk	440	8
15	Child and Adolescent Health	435	8

Antenatal care pages make up **40%** of the Top 15 most viewed pages in 2019

Table 2: Top 15 pages with the most pageviews 1st Jan-31st Dec 2020

Rank order	Page title	Number of pageviews	Approx. Views per week
1	COVID-19 Assessment and Management	2105	40
2	COVID-19	2055	40
3	COVID-19 Referrals	1685	32
4	Antenatal Care - Routine Mid North Coast	1332	26
5	Antenatal Care - Routine Northern NSW	1198	23
6	Antenatal Shared Care Schedule – Northern NSW	1126	22
7	Medical	1093	21
8	Psychological Therapy	1027	20
9	COVID-19 Initial Assessment and Management	952	18
10	COVID-19 Information	950	18
11	Summary of Referral Pages	943	18
12	COVID-19 Recent Changes	940	18
13	Antenatal Care - Routine	864	17
14	Hypertension	851	16
15	First Presentation Antenatal Blood and Urine Tests	769	15

Antenatal care pages make up **one third (33%)** of the Top 15 most viewed pages in 2020

Table 3: Top 15 pages with the most pageviews 1st Jan-30th September 2021

Rank order	Page title	Number of pageviews	Approx. Views per week
1	COVID-19 Vaccination Information	2460	63
2	Antenatal Shared Care Schedule – Northern NSW	1582	41
3	COVID-19 Vaccination Procedure	1178	30
4	COVID-19	919	24
5	Medical	784	20
6	Antenatal Care - Routine	763	20
7	COVID-19 Vaccination	666	17
8	Hypertension	637	16
9	Non-acute Obstetric Assessment	608	16
10	COVID-19 Referrals	581	15
11	Non-acute Orthopaedic Assessment	563	14
12	Antenatal Care - Routine Mid North Coast	558	14
13	Women's Health	554	14
14	First Presentation Antenatal Blood and Urine Tests	521	13
15	Antenatal Care - Routine Northern NSW	520	13

Antenatal care pages make up **40%** of the Top 15 most viewed pages in 2021

Table 4: Top 15 most viewed Pathway Categories from 1st Jan – 31st Dec 2019

Rank order	Pathway category (content group)	Number of pageviews	Approx. Views per week
1	Mental Health	7183	138
2	Gynaecology	5482	105
3	Pregnancy	5461	105
4	Child Health	4662	90
5	Orthopaedics	3099	60
6	Gastroenterology	3051	59
7	Resources	2921	56
8	ENT/Otolaryngology, Head, and Neck	2740	53
9	Endocrinology	2647	51
10	Older Adults Health	2497	48
11	Diabetes	2470	48
12	Respiratory	2450	47
13	Cardiology	2430	47
14	Haematology	2417	46
15	Neurology	2016	39

Table 5: Top 15 most viewed Pathway Categories from 1st Jan – 31st Dec 2020

Rank order	Pathway category (content group)	Number of pageviews	Approx. Views per week
1	Mental Health	9970	192
2	Pregnancy	8629	166
3	Gynaecology	7837	151
4	COVID-19	7454	143
5	Child and Youth Health	5236	101
6	Public Health	4515	87
7	Gastroenterology / Hepatology	4506	87
8	Orthopaedics / Musculoskeletal Medicine	4444	85
9	Respiratory	3914	75
10	Infectious Diseases	3496	67
11	Cardiology	3234	62
12	ENT/Otolaryngology, Head, and Neck	3142	60
13	Endocrinology	3135	60
14	Haematology	2818	54
15	Resources	2716	52

Table 6: Top 15 most viewed Pathway Categories from 1st Jan – 1st Sept 2021

Rank order	Pathway category (content group)	Number of pageviews	Approx. Views per week
1	COVID-19	7556	194
2	Pregnancy	5487	141
3	Mental Health	5434	139
4	Gynaecology	4942	127
5	Child and Youth Health	3566	91
6	Orthopaedics / Musculoskeletal Medicine	2999	77
7	Gastroenterology / Hepatology	2942	75
8	Endocrinology	2242	57
9	ENT/Otolaryngology, Head, and Neck	2115	54
10	Cardiology	1996	51
11	Haematology	1947	50
12	Respiratory	1788	46
13	Diabetes	1666	43
14	Neurology	1568	40
15	Infectious Diseases	1553	40

4.3.5 How does HNC compare with other PHNs?

Nine comparative regions are regularly reported on in the monthly HealthPathways Dashboard. Permission was requested from all nine regions to collate their HealthPathways usage data. Six regions provided consent to report on their total number of localised pathways, total pageviews, and date when their platforms went live. Three regions (Mackay, Tasmania and Western Victoria) did not provide consent in time for their data to be included in this report.

The data below (Table 7) indicates that higher numbers of pageviews does not necessarily coincide with a higher number of localised pages. For example, Central and Eastern Sydney reported approx. 30,000 pageviews, which is half of what was reported in Hunter New England (HNE) (approx. 60,000) in the same period. HNE have far fewer localised pathways and total number of GPs compared to the Central and Eastern Sydney region. The Mid and North Coast has a relatively high number of localised pathways when compared to other comparable regions, but the number of pageviews is approximately half of those reported in Central and Eastern Sydney and just over a quarter of the number reported in the HNE region for the same period. That said, the number of GPs in the Mid and North Coast region is lower than both of the other two regions mentioned above.

A process evaluation of the HNE program found that there was a correlation between increased utilisation of the platform and an increase in the number of pathways published online.[19] Another study in the Barwon region also found that increased usage and usefulness of the platform was linked to an increase in localised pathways. Both of these evaluations were conducted around a year post their sites going 'live'.

Considering the data below with the findings from these studies suggests that an initial focus on rapid pathway development assisted with adoption of the platform in the first instance, but doesn't necessarily lead to ongoing use by GPs over time. As discussed later on in this report, quality content and ongoing awareness and promotion are critical factors for maintaining and growing HealthPathways usage by GPs. Local/regional issues may also contribute to differences in usage between regions.

Table 7: HealthPathways usage by comparable PHN sites

HealthPathways region	Date site went live	Total # of localised pathways to date	Total pageviews (all pages) for the month of Sept 2021	Total # of GPs in region
Hunter New England, NSW	1/04/2012	677	62,146	1,301[iii]
Central Coast, NSW	1/09/2013	570	10,279	
Western Sydney, NSW	1/11/2013	574	13,174	1,243[iv]
Mid and North Coast, NSW	1/04/2014	711	17,256	959[v]
Central and Eastern Sydney, NSW	1/05/2014	980	32,753	2,051[vi]
South West Sydney, NSW	1/7/2015	625	8,478	1,185[vii]
ACT/Southern NSW	1/04/2015	622	16,347	790[viii]

 # The data is from Streamliners' records as of the 10/12/21, as the total number of localised pathways changes on a regular basis

4.3.6 What are users searching for?

Over the past few years, HealthPathways users have consistently used the search function to find information on four key areas: Antenatal, Hypertension, Osteoporosis and Diabetes (Table 8). This may represent conditions seen more frequently in practice and/or conditions where guidelines or referral pathways change

[iii] https://thephn.com.au/what-we-do/planning/who-are-our-health-providers
[iv] https://wentwest.com.au/wp-content/uploads/planning_resources/Reports_WSPHN_Needs-Assessment_201921.pdf
[v] GPs and GP Registrars
[vi] https://www.cesphn.org.au/documents/communications-1/2538-cesphn-health-snapshot-2019/file
[vii] https://www.swsphn.com.au/client_images/2108900.pdf
[viii] https://www.coordinare.org.au/about-us/our-region/regional-profiling-and-needs-assessment/

regularly. Data from the Australian Institute of Health and Welfare indicate that *Hypertension* and *Diabetes* were the top two most common chronic conditions managed by GPs in 2012-13.[24]

Table 8: Top 15 most used Search Terms (2019 to 2021)

Rank order	2019	2020	2021 *(to 30th Sept)*
1	Antenatal	Antenatal	Antenatal
2	Hypertension	Diabetes	Diabetes
3	Osteoporosis	Osteoporosis	Osteoporosis
4	Diabetes	Hypertension	Hypertension
5	Asthma	Asthma	Antenatal Care - Routine
6	COPD	COPD	PCOS
7	Gout	Eating Disorder	Haematuria
8	Back pain	Antenatal care	Menopause
9	Pregnancy	Iron Deficiency	Gout
10	Antenatal care	Menopause	Iron deficiency
11	Menopause	Haematuria	Sinusitis
12	Sinusitis	Gout	Hypothyroidism
13	Menorrhagia	Smoking Cessation	Back Pain
14	Hepatitis C	Back Pain	Miscarriage
15	Osteoarthritis	Antenatal Care - Routine	Antenatal Care

4.3.7 Uptake and trends for ANC pathways

At the time of preparing this report, there were 11 routine ANC pathways and 17 pathways for specific health problems in pregnancy. A full list is available in Appendix C, including graphs of pageview trends for each of the specific problems in pregnancy pathways.

Figure 5 illustrates the monthly pageviews for Routine Antenatal care for the Mid North Coast and Northern NSW regions from implementation in October 2016 through to May 2021. After June 2021, these pathways were consolidated into one pathway with links to each of the three antenatal care schedules. The average number of pageviews per month has increased in both regions (Table 9).

Noticeable spikes in pageviews occurred in February 2017, March 2018, early 2019, Jan 2020, Sept to Dec 2020, and April 2021 in NNSW, and March-May 2019, Jan-Sept 2020, and Mar-April 2021 in MNC.

Figure 5: Routine Antenatal care – Pageview trends 2016-2021

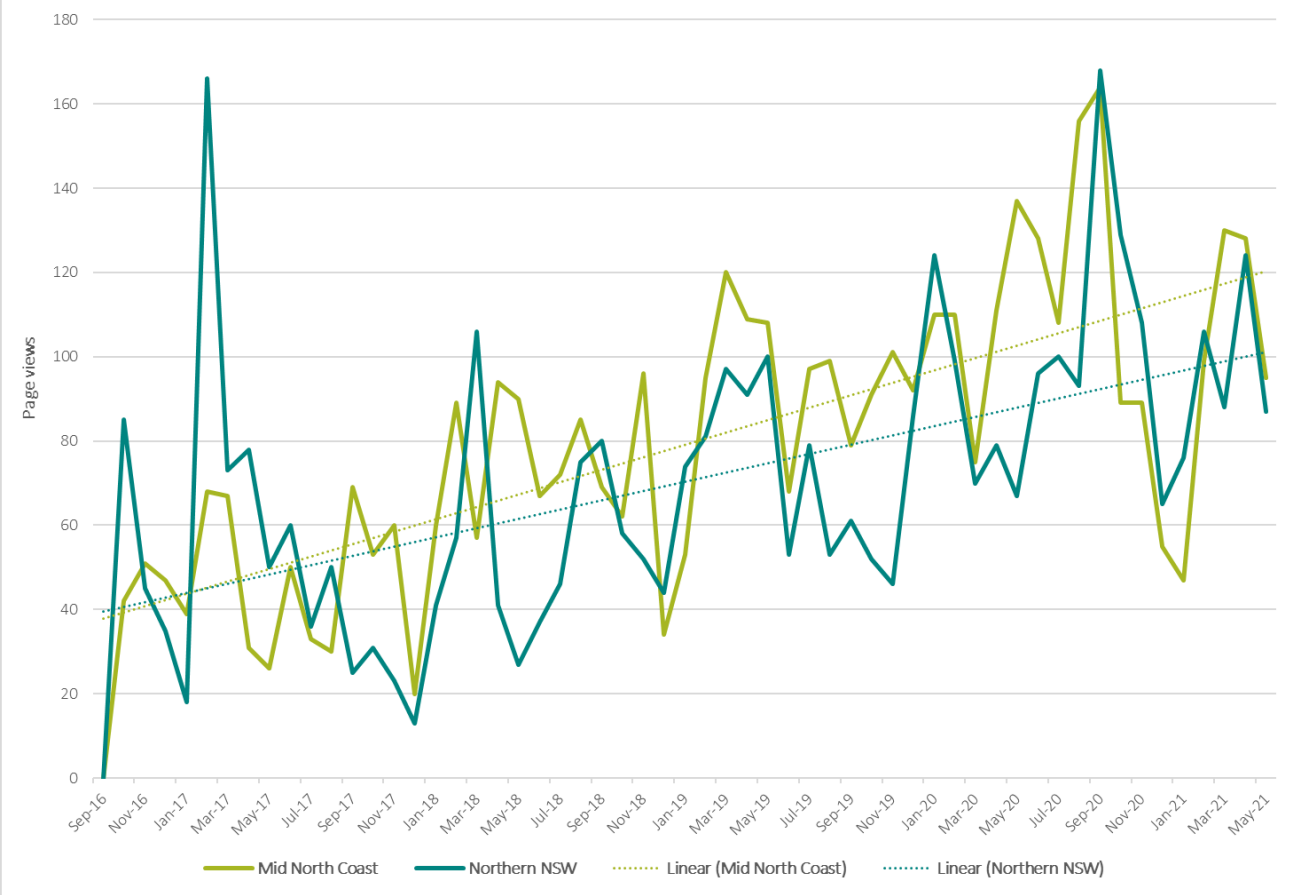


Table 9: Routine Antenatal care - Average pageviews per month by year

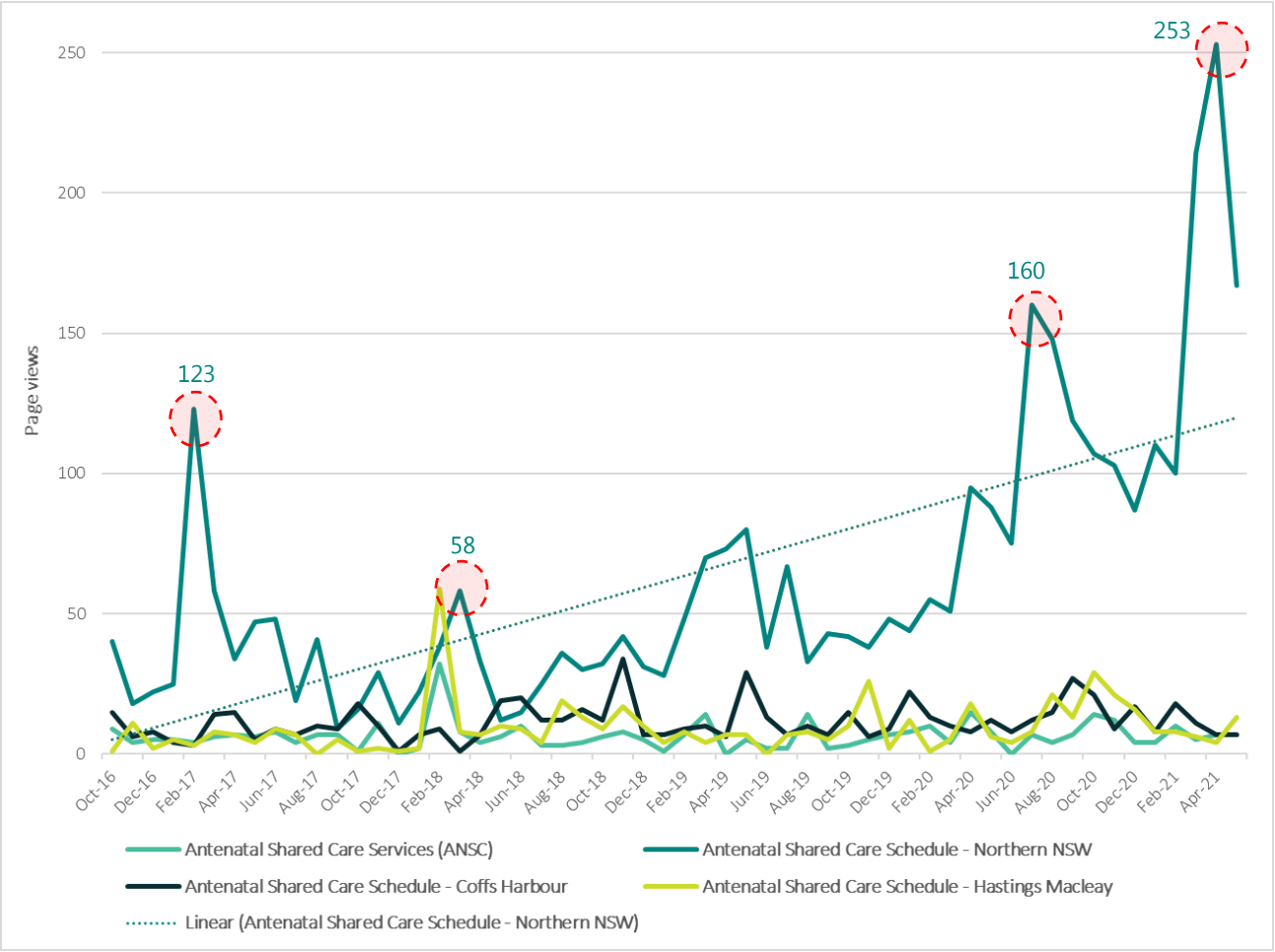
Year	Average number of pageviews per month	
	Mid North Coast	Northern NSW
2020	111	100
2019	93	73
2018	73	55
2017	46	52

Access to the Antenatal Shared care schedule varies substantially between NNSW and the Hastings Macleay and Coffs Harbour schedules in the MNC LHD (Figure 6). The average number of monthly pageviews (Oct 2016 to April 2021) were 62 for NNSW and only 9 and 11 for Hastings-Macleay and Coffs Harbour, respectively. Higher access to the NNSW pathways may be a reflection of no formal shared care program in the NNSW LHD. GPs may be referring to HealthPathways for differing clinical and referral information for each hospital. As registration is required in the Hastings-Macleay and Coffs Harbour programs, GPs are possibly receiving more information and guidance from the LHD as part of the registration process, and therefore less reliant on HealthPathways for guidance.

The noticeable spikes in pageviews for the NNSW page coincide with an Antenatal Shared Care forum held on the 23rd February 2017, and an Antenatal Workshop held on 24th February 2018. Consultation with the NNSW LHD Clinical Midwifery Consultant suggests that the spikes during the COVID-19 period are not likely to be

related to an increase in pregnancies as birth numbers remained stable, and even decreased at the Tweed Hospital due to COVID-19 border restrictions entering and exiting Queensland. There is also a possibility that some women may have preferred to visit their GP over the hospital since the pandemic, resulting in increased access or need to view HealthPathways.

Figure 6: Antenatal Shared Care pathways – Pageview trends 2016-2021



4.3.8 Critical events and HealthPathways usage

Access to relevant pathways/pages during certain events may indicate that the site is seen as a useful and reliable source of information. High pageviews serves as a proxy for usefulness, a need for localisation and/or trust as a reputable source of information.

To test this theory, we looked at the top 15 pages with the highest pageviews over specific periods of time, including Feb-March 2020 (first COVID-19 lockdown period in Australia), March 2021 (extensive flooding in HNC region), annual influenza season, and the NSW lockdown period June-Oct 2021. Home and Search page/results were removed from the lists.

During the period from February to March 2020, the top 7 most viewed pages were COVID-19 related pathways (Table 10). The total number of pageviews for *COVID-19 Assessment and Management* (most viewed page) was more than eight times higher than Antenatal Care – Routine Mid North Coast, which has frequently been in the top 10 most viewed pages prior to the pandemic (Ranked number 2 in 2019 – 1112 total pageviews).

Table 10: Pages with the highest number of pageviews from February to March 2020 (inclusive) – Australia-wide lockdown

Rank order	Page title	Number of pageviews	Approx. Views per week
1	COVID-19 Assessment and Management	1582	198
2	COVID-19	660	83
3	COVID-19 Practice Preparation	617	77
4	COVID-19 Referrals	579	72
5	COVID-19 Recent Changes	466	58
6	COVID-19 Information	460	58
7	Pandemic Respiratory Illness	374	47
8	Medical	199	25
9	Antenatal Care - Routine Mid North Coast	185	23
10	Summary of Referral Pages	182	23
11	Antenatal Care - Routine Northern NSW	169	21
12	Daily Updates	139	17
13	Notifiable Diseases	129	16
14	Antenatal Care - Routine	128	16
15	Polycystic Ovarian Syndrome (PCOS)	116	15

All of the local government areas covering the HNC footprint (Ballina, Bellingen, Byron, Clarence Valley, Coffs Harbour City, Kempsey, Lismore, Nambucca, Port-Macquarie-Hastings, Richmond Valley and Tweed) were declared natural disaster locations from the 10th March 2021 for the NSW Storms and Floods.[25] Over the following two-week period, *Disaster Management – General Practice Response* and *Disaster Management – Mental Health* ranked in the top 15 most viewed pages (Table 11).

Table 11: Pages with the highest number of pageviews during HNC region flooding (March 10-24th 2021)

Rank order	Page title	Number of pageviews	Approx. Views per week
1	COVID-19 Vaccination Procedure	228	114
2	COVID-19 Vaccination Information	170	85
3	Antenatal Shared Care Schedule – Northern NSW	126	63
4	Non-acute Orthopaedic Assessment	111	56
5	Preparing for COVID-19 Vaccination	99	50
6	Acne	98	49
7	COVID-19 Vaccination	70	35
8	Warts and Verrucas	66	33
9	Hypertension	62	31
10	Disaster Management - General Practice Response	56	28
11	Antenatal Care - Routine Mid North Coast	52	26
12	Disaster Management - Mental Health	44	22
13	Combined Hormonal Contraceptives (CHCs)	34	17
14	Non-acute Haematology Assessment	33	17
15	Osteoporosis	32	16

The Influenza Immunisation pathway was being accessed more frequently during March to May each year, which coincides with the annual flu season in Australia. Over time, the number of pageviews has also increased during these periods (Figure 7). The additional spike in August 2020 aligns with the announcement of the agreement with AstraZeneca to secure a COVID-19 vaccine in Australia. One possible explanation for the August spike is that GPs may have accessed the influenza immunisation pathway in search of relevant information on the COVID-19 vaccines.

Figure 7: Influenza Immunisation pathway pageviews from 1st Jan 2016 – 31st March 2021

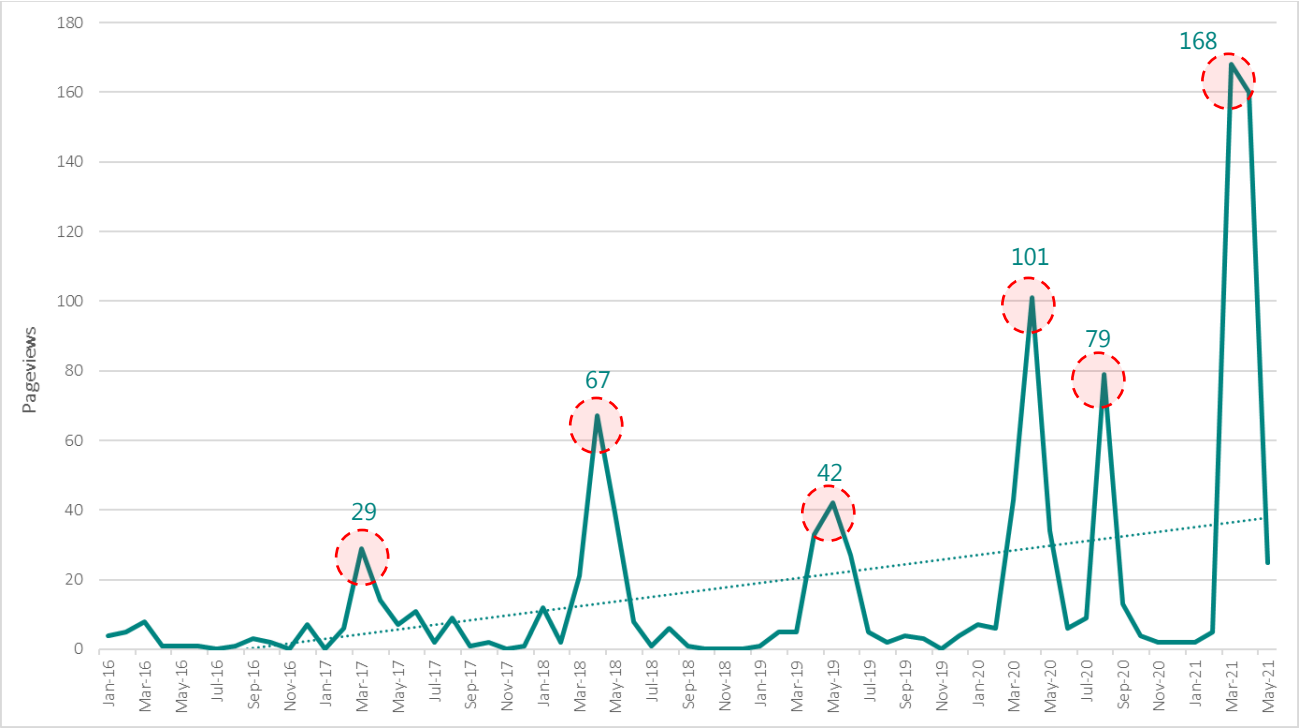


Table 12 highlights that COVID-related pages remained the highest viewed pages throughout the duration of the NSW lockdown period despite the HNC region having fewer cases and coming in and out of lockdown at various stages and sporadically across the footprint. Despite high access to COVID-related pages, routine antenatal care and the shared care schedule for NNSW LHD remained as pathways frequently accessed by users throughout this period.

Table 12: Pages with highest number of pageviews during NSW lockdown (26th June – 11th Oct 2021 inclusive)

Rank order	Page title	Number of pageviews	Approx. Views per week
1	COVID-19 Vaccination Information	1643	110
2	Antenatal Shared Care Schedule – Northern NSW	668	45
3	COVID-19	639	43
4	Antenatal Care - Initial Visits	540	36
5	COVID-19 Vaccination Procedure	451	30
6	Antenatal Care - Routine	422	28
7	Search	418	28
8	COVID-19 Referrals	372	25
9	Medical	357	24
10	COVID-19 Vaccination	351	23
11	COVID-19 Practice Management	334	22
12	COVID-19 Initial Assessment and Management	322	21
13	Hypertension	301	20
14	Psychological and Mental Health Therapy	279	19
15	Non-acute Obstetric Assessment	246	16

The results above indicate that HealthPathways is viewed as a reliable source of information during critical events, when access to up-to-date and relevant information is required by GPs. Peaks in pageviews for specific pages during specific events all showed increased access by users. Focus group and interview participants also echoed that HealthPathways is valued as a reliable and credible source of information.

4.3.9 Unlocalised pathway access

Repeated access to pathways that have not been localised may assist in prioritising pathways for localisation. Over a nine-month period (Jan 1st – Sept 30th 2021) there were 7,869 pageviews for pages that have not been localised to the MNC region. Pages that have been accessed over 100 times during this period are listed in Table 13. Despite the high number of non-localised pages being viewed, trends over the past five years suggest that the proportion of non-localised pages being accessed is decreasing over time (Table 14). This could be explained by a greater increase in the total number of localised pathways compared to the increase in access and/or individual users accessing localised pages.

Table 13: Pages viewed more than 100 times that are not localised (1st Jan – 30th September 2021)

Page title	Number of pageviews	Approx views per week
Headaches in Adults	280	7
Dyspepsia and Reflux	247	6
B12 Deficiency	241	6
Vertigo	228	6
Knee Injuries	158	4
Inflammatory Bowel Disease (IBD)	153	4
Amenorrhoea	144	4
Shoulder Pain	139	4
Haemorrhoids	138	4
Testosterone Deficiency in Men	133	3
Varicose Veins and Chronic Venous Insufficiency	124	3
Carpal Tunnel Syndrome	122	3
ADHD in Adults	114	3
Hearing Loss in Adults	111	3
Eczema (Dermatitis) in adults	108	3
Tinnitus	105	3
Non-alcoholic Fatty Liver Disease (NAFLD)	102	3
Peripheral Neuropathy	102	3

Table 14: Total number of pageviews for content that has not been localised

Period	Pageviews (Content not localised)	% of all pageviews
Jan - Sept 2021	*7,869*	*5.48%*
Jan-Dec 2020	12,170	5.47%
Jan-Dec 2019	11,018	6.28%
Jan-Dec 2018	11,701	9.01%
Jan-Dec 2017	9,749	10.09%
Jan-Dec 2016	8,386	13.48%

4.4 Uptake and patterns of use – Health Professionals Survey

4.4.1 Overview

A Health Professionals survey was distributed via multiple recruitment strategies to gain a better understanding of who is using HealthPathways and their patterns of use, including when they use the platform, how frequently, and their levels of satisfaction with its content, quality and usability. As noted in the evaluation planning stage, it was not anticipated that the survey would provide a representative sample of all target groups, including GPs, GP Registrars and other hospital and community-based clinicians. Rather, the survey was designed to provide a general indication of the measures identified above. Where possible, survey questions were matched to other existing evaluations to allow for comparisons.

We proposed using standard statistical techniques to address biases in the demographic composition of our sample. However, this required access to a database with all surveyed GPs and their basic demographic characteristics, which was not available.

Overall, we received 209 responses to the survey, including 58 GPs and 23 GP Registrars. The remaining 128 responses were from practice managers, nurses, administrative roles, hospital clinicians and allied health professionals. Due to the small number of responses in some cohorts, we have grouped the responses into the following five professional role categories:

1. GP (n= 58, 28%)
2. GP Registrar (n=23, 11%)
3. Nurse/Midwife (n=52, 25%)
4. Other clinician/allied health professional (AHP)/student (n=51, 24%), and
5. Manager/administrator (n=25, 12%).

At the time of the survey, there were 959 GPs and GP Registrars listed in the HNC database. Based on this figure, the survey achieved a response rate of 8%, and a margin of error of 10.4%. Whilst this is a relatively low response rate it is fairly consistent with other research conducted with these cohorts.[26] North Western Melbourne recently experienced similar challenges achieving high response rates from GPs. They received 163 responses to their GP survey, which was distributed across six Victorian PHNs between October 2020-January 2021.[27]

The impacts of COVID-19 were also felt throughout the region during the data collection period, with the region entering in and out of lock-down at various stages due to a number of outbreaks. Feedback from GPs also confirmed that COVID-19 was impacting their time and workloads, which is likely to have affected their engagement with data collection activities. An inundation of COVID-19 communications was also reported in the North Western Melbourne PHN evaluation as a barrier to GP engagement.[27] Despite interest from 31 GPs in participating in a focus group for this study, we were still only able to engage five after a number of reminder emails and follow-up calls.

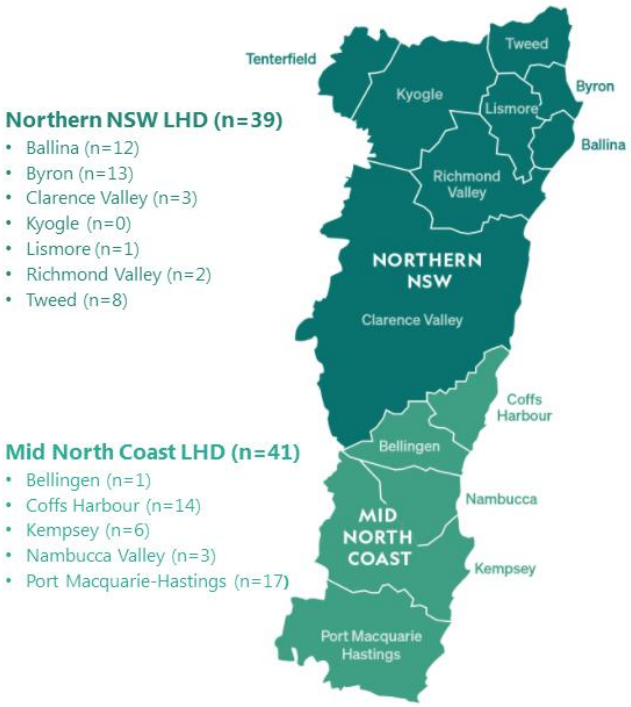
GPs and GP registrars were asked to provide the name and location of their practice to allow for an analysis of geographic representation. GPs and GP registrars came from various local government areas (LGAs) across the HNC region (Table 15 and Figure 8). In general, GPs/GP registrars tended to come from the more urban LGAs, with fewer respondents from more rural/remote areas. The largest number of GP/GP registrar respondents

came from the Port Macquarie-Hastings LGA (n=17), Coffs Harbour LGA (n=14), Byron LGA (n=14) and Ballina LGA (n=12). There were no respondents from Kyogle LGA and only one each from the Bellingen and Lismore LGAs. Response rates for each LGA were calculated using the HNC database of GPs.

Table 15: Survey response rates by Local Government Area (LGA)

LGA	Actual	Survey	Response rate
Ballina	94	12	13%
Bellingen	30	1	3%
Byron	96	13	14%
Clarence Valley	67	3	4%
Coffs harbour	134	14	10%
Kempsey	42	6	14%
Kyogle	13	0	0%
Lismore	72	1	1%
Nambucca Valley	31	3	10%
Port Macquarie – Hastings	181	17	9%
Richmond Valley	37	2	5%
Tweed	165	8	5%
TOTAL	962	80	8%

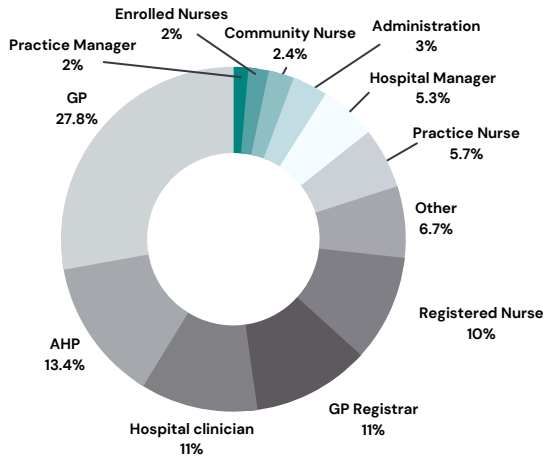
Figure 8: Number of survey respondents by LGA



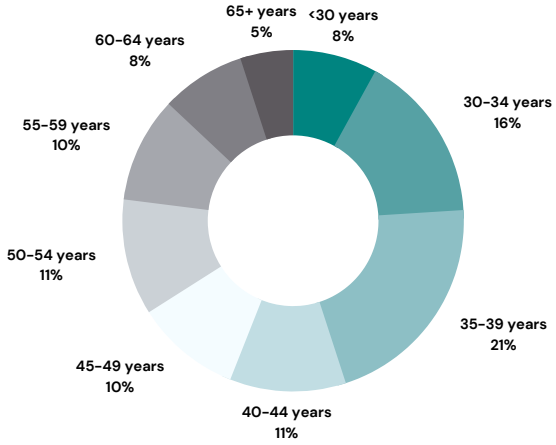
Health Professionals Survey Summary

ALL RESPONDENTS

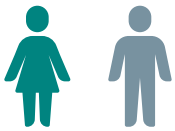
PROFESSIONAL ROLE



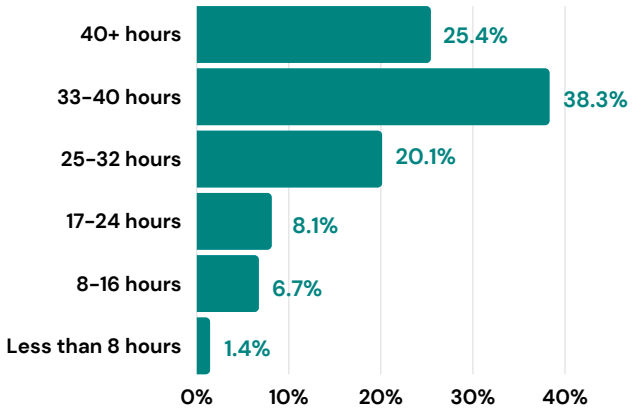
AGE



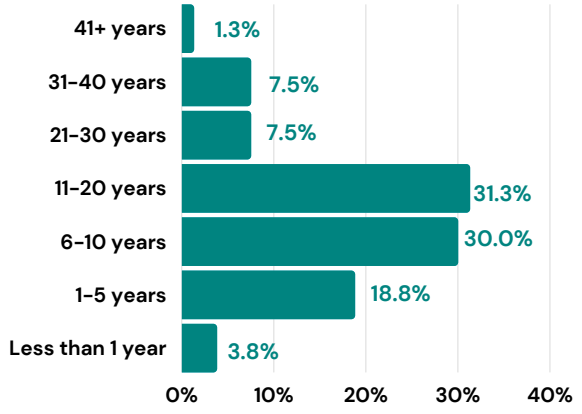
GENDER

71%  29%

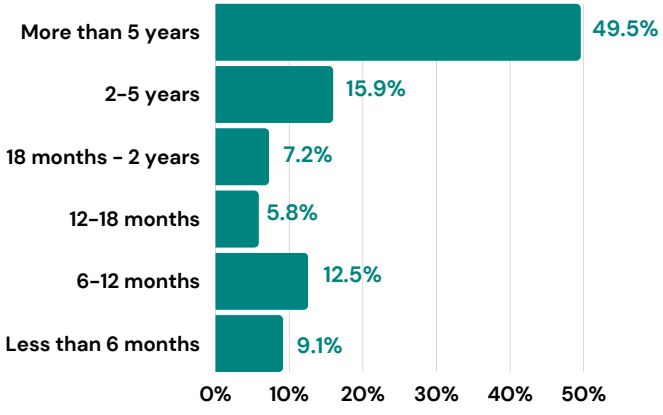
HOURS WORKED PER WEEK



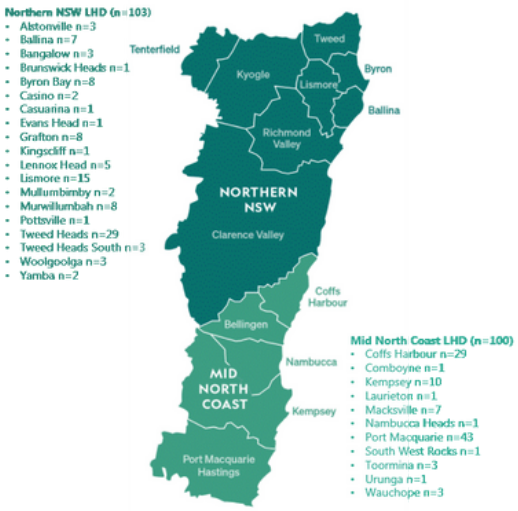
NO. OF YEARS PRACTISING AS GP/REGISTRAR



LENGTH OF TIME WORKING IN MNC REGION



LOCATION OF PRACTICE/HOSPITAL/CLINIC

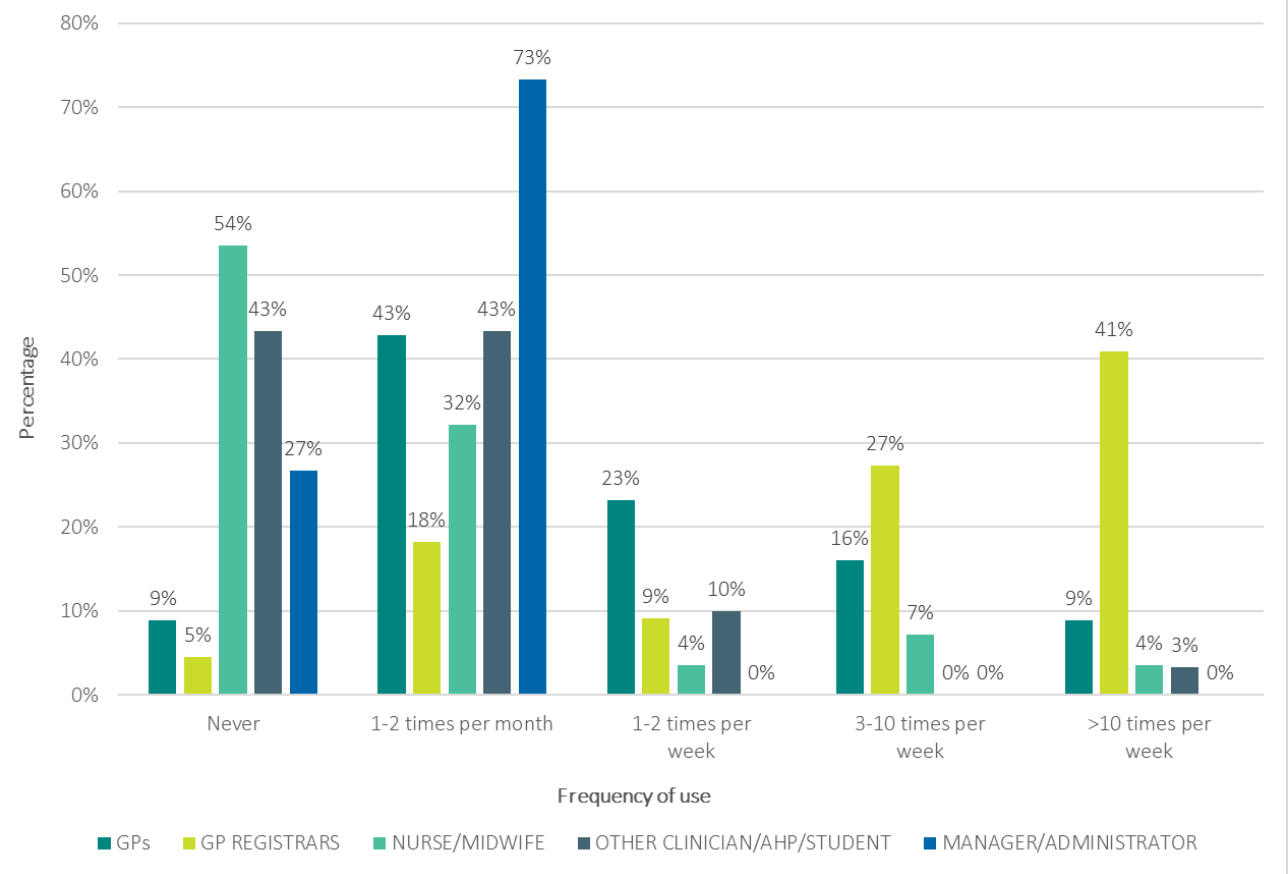


4.4.2 Awareness of HealthPathways and frequency of use

Approximately three-quarters of all survey respondents were aware of HealthPathways (74% n=153). Almost all GP and GP Registrar respondents were aware of the platform (97% n=56 and 96% n=22, respectively). Other health professionals were less likely to be aware of the platform (59% Nurse/Midwife and Other clinician/ AHP/Student, and 60% Manager/Administrators were aware of HealthPathways).

Those that were aware of HealthPathways were asked how frequently they use the platform on average over the past six months (Figure 9). GP Registrars used HealthPathways far more frequently than GPs or other health professionals. Over two-thirds (68%) of GP Registrars indicated they used the platform at least 3-10 times per week, with 41% using it more than 10 times per week. GPs who responded to the survey were more likely to have used HealthPathways just 1-2 times per month (43%) followed by 1-2 times per week (23%). All other health professionals were far more likely to indicate that they had never used HealthPathways in the past six months or only 1-2 times per month.

Figure 9: How frequently survey respondents have used HP over the past six months

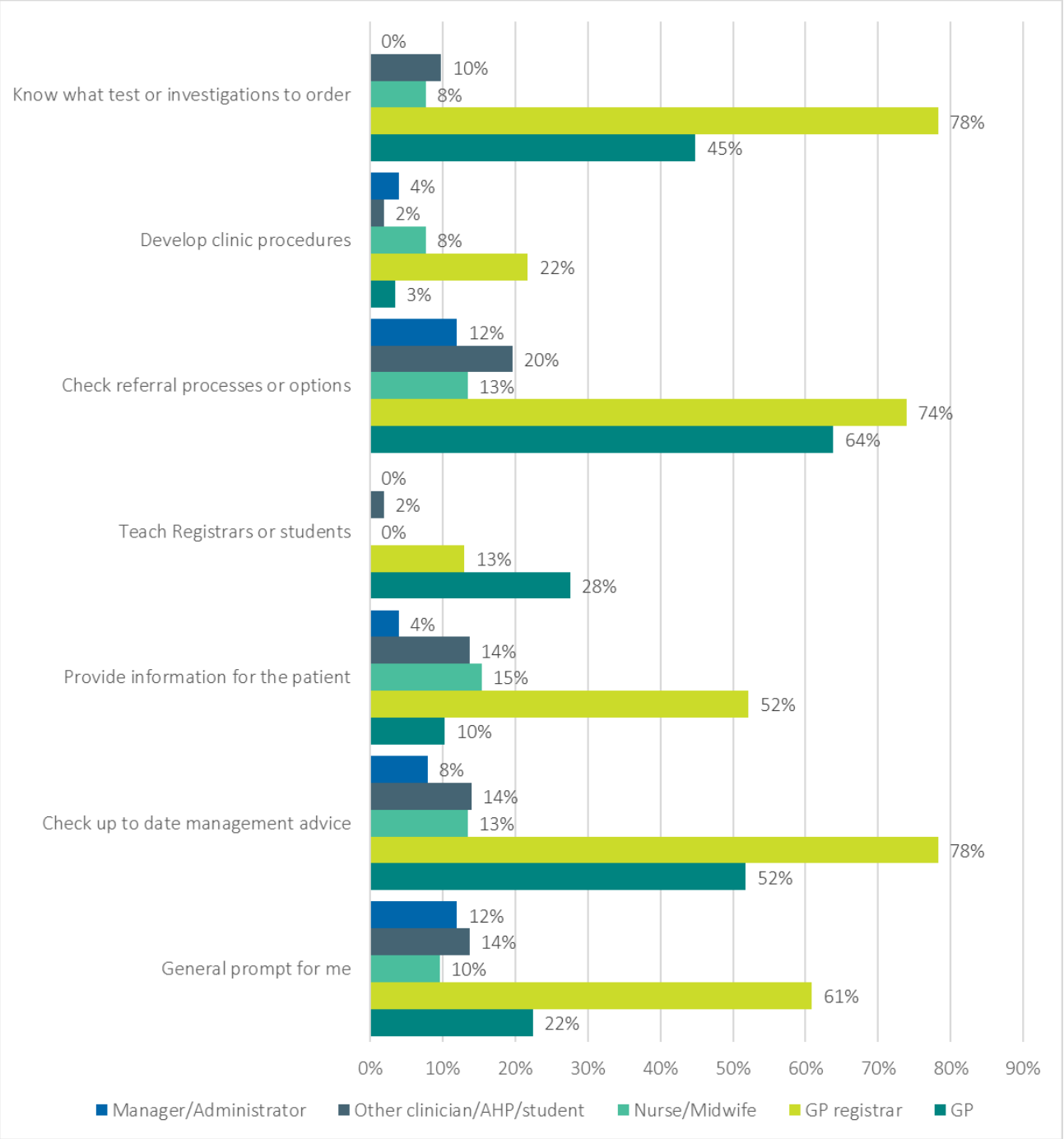


4.4.3 Why HealthPathways is used

Of those that were aware of HealthPathways, survey results indicated that the platform has been used by a range of healthcare professionals beyond the traditional target group of primary care. Hospital clinicians (e.g. nurse unit managers, specialists, registrars), nurses, allied health professionals and hospital managers reported using HealthPathways for various reasons, including as a general prompt, to provide information for patients, check up-to-date management advice, and to check referral processes or options (Figure 10).

GPs and GP Registrars were more likely to use HealthPathways to check what test or investigations to order (45% and 78% respectively), check referral processes or options (64% and 74% respectively) to teach registrars or students (GPs 28%), and check up-to-date management advice (52% and 78% respectively). Compared to GP Registrars (52%), GPs were less likely to use HealthPathways to provide information to their patients (10%).

Figure 10: Why different professionals use HealthPathways



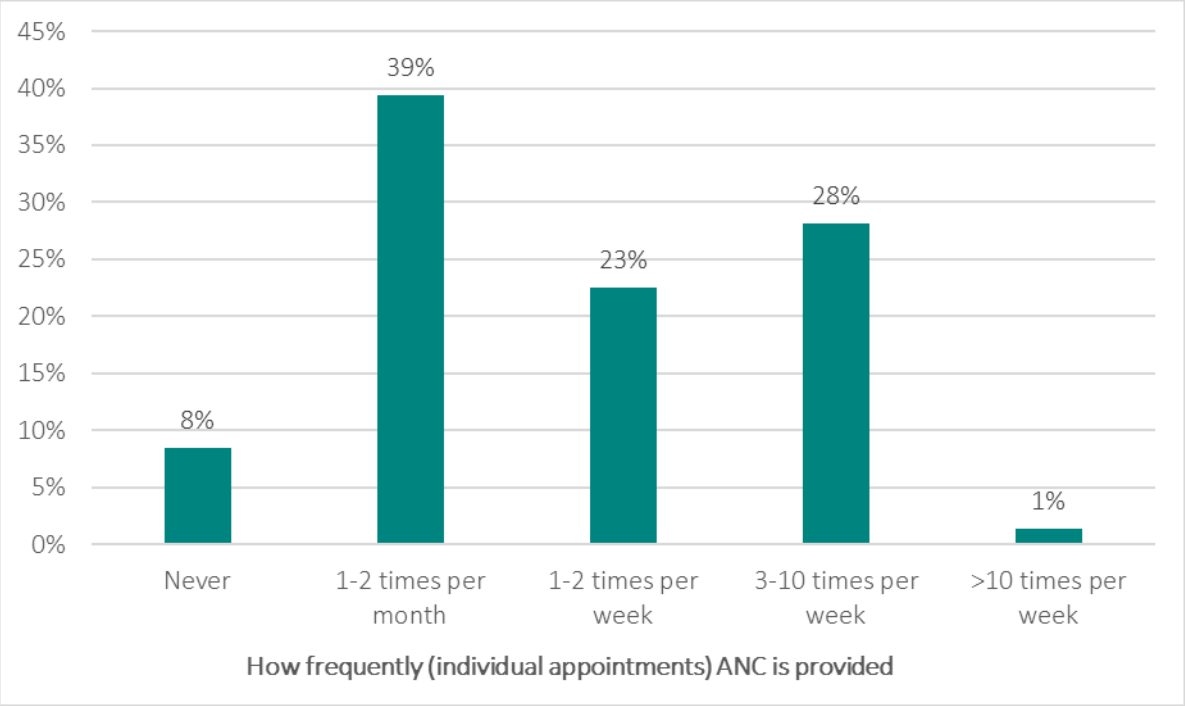
4.4.4 Using HealthPathways for antenatal care

GPs and GP Registrars who responded to the Health Professionals survey were asked a series of questions on their use of HealthPathways when providing antenatal care (ANC). Caution should be taken when interpreting these results as it only represents the 71 GPs and GP Registrars who completed the survey. In some instances, the results are for less than 40 GPs and GP Registrars. Despite this, it provides us with a general indication of the frequency of use and when HealthPathways is used when providing ANC.

Almost 90% (n=71) of GPs and GP Registrar survey respondents indicated that they provided ANC, with 72% (n=51) providing shared antenatal care after the hospital booking-in appointment.

Over half provided ANC to a patient at least weekly (52%, n=37), while 39% (n=28) provided ANC only once or twice a month (Figure 11).

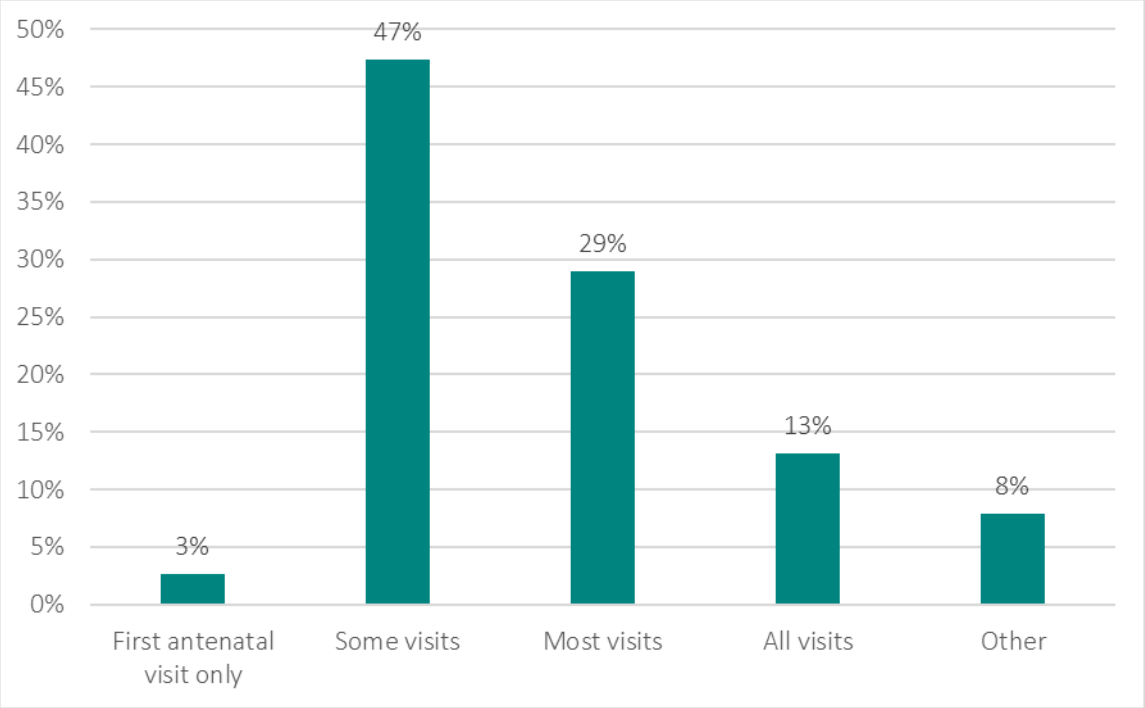
Figure 11: How often (individual appointments) GP and GP Registrars provided antenatal care (n=71)



A large majority (80%) of the respondents indicated that they *never* (46%) or *rarely* (1-2 times per month) (34%) use HealthPathways when providing ANC. Reasons cited for this were *not thinking to look at HealthPathways/ forgetting to use it* for both groups, and *feeling that their existing clinical knowledge was sufficient, being across the information/not needing to refer back to it*, and a *low shared antenatal care patient load*. Technical aspects of HealthPathways, such as being difficult to navigate and not being able to access the platform were not identified at all as reasons for not accessing HealthPathways for ANC.

For those that do refer to HealthPathways when providing ANC, they are most likely to access the platform *during* the consultation, compared with before or after. Almost a third (29%, n=11) use HealthPathways for most visits, with approximately half (47%) using it only for some visits (n=18) (Figure 12). The most frequently reported reasons cited for using HealthPathways for ANC were to check the antenatal visit schedule, to see what test or investigations to order, check for up-to-date management advice, as a general prompt, to provide information to the patient, and to check antenatal referral processes.

Figure 12: Usual practice for accessing HealthPathways for ANC (n=38)



Although we only received 33 responses to the questions about HealthPathways' impact on clinicians' experience of providing ANC, the results are consistent with the feedback gathered through the qualitative interviews. GPs and GP Registrars find the platform extremely useful for finding out what tests and investigations to order and when, it helps them stay up-to-date with ANC guidelines, and has improved their experience of providing ANC to their patients (Table 16). Respondents were less likely to report that HealthPathways improves the quality of their referrals or improved collaboration between primary and tertiary care. Further discussion on referral information not being available within HealthPathways, and communication challenges is discussed in further detail in the section on *Collaboration* later in this report.

Table 16: HealthPathways impact on clinician's experience of care when providing ANC (n=33)

The HealthPathways platform…	Average score
Helps me to know what tests and investigations I need to order and when.	4.2
Helps me to stay up-to-date with changes to antenatal care guidelines.	4.1
Has improved my experience of providing care to antenatal patients.	4.0
Has improved my understanding of my role in delivering shared antenatal care.	3.8
Has improved collaboration between primary care and hospitals when providing shared antenatal care.	3.6
Improves the quality of patient referrals.	3.6

4.5 Experiences with HealthPathways

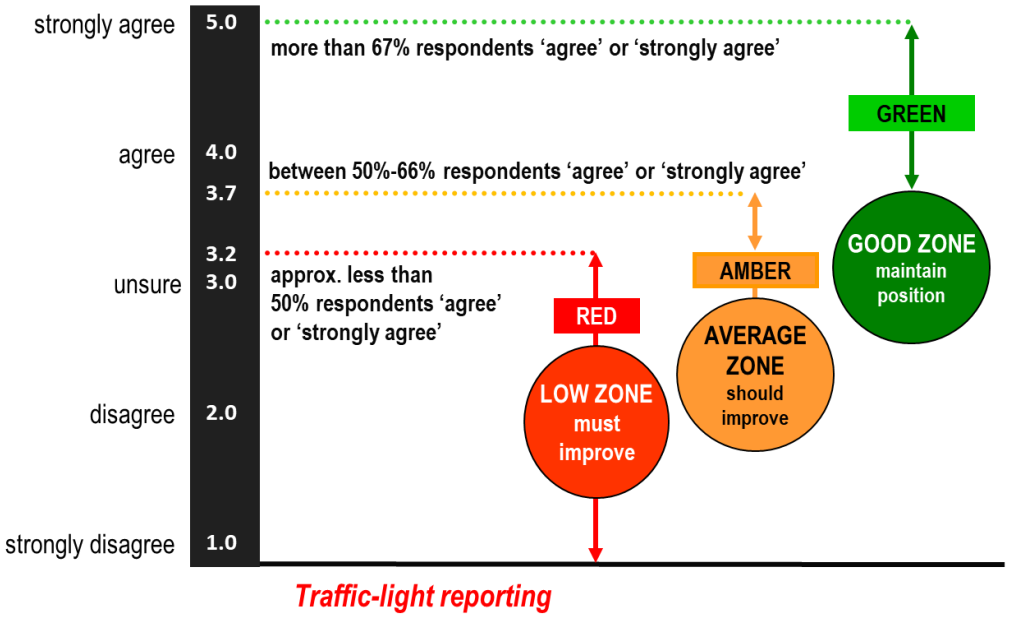
4.5.1 Overview

Survey respondents were asked a number of questions related to satisfaction and experiences with the HealthPathways platform. The results give us an indication of the drivers and barriers to uptake and continual use of the platform in practice.

To assist with interpreting the satisfaction results, we have used a traffic-light system for reporting (Figure 13). Traffic light reporting consists of three colours:

- Green indicates that more than 67% of respondents (average score of 3.7 or more out of 5.0) agreed or strongly agreed with a statement - this area should be maintained.
- Amber indicates that between 50%-66% of respondents (average score between 3.3 and 3.6 out of 5.0) agreed or strongly agreed with a statement - an area that SHOULD improve.
- Red indicates that approximately less than 50% of respondents (average score of 3.2 out of 5.0 or less) agreed or strongly agreed with a statement - an area that MUST improve.

Figure 13: Rule of thumb for interpreting average scores



4.5.2 Satisfaction and experiences

Survey respondents were asked to indicate their level of agreement with 14 questions about the HealthPathways platform using a five-point Likert scale (*strongly disagree* to *strongly agree*) (Table 17). Questions related to the benefits and facilitators of use, and clinician experiences of care. Results were mixed but consistent with previous research in other regions that showed HealthPathways is easy to use and navigate[4-7] and improved users' knowledge of local services.[4,7,8]

Respondents indicated that HealthPathways is less likely to be the first resource they consult for clinical information (all types of health professionals falling in the Red zone), and were less satisfied with the platform being able to assist them in identifying and communicating with the right health professional for clinical

support or improving their confidence in providing collaborative care (Amber zone). A study by Gill et al (2019) also found that HealthPathways is rarely the first resource GPs consult for clinical information.[4]

There were some key differences in the results by professional role. GP Registrars were far more satisfied with HealthPathways overall than GPs or all other professional roles. In fact, there was a statistically significant difference in their scores for three questions: HealthPathways has improved my clinical management (p=0.006); Using HealthPathways saves me time (p=0.001); and HealthPathways has increased my confidence in managing patients (p=0.009).

This is consistent with the feedback collected during the GP focus groups and interviews. GPs identified that GP Registrars value HealthPathways as a source of clinical and referral information whilst they are still learning, and getting to know available services in their region.

Interestingly, results indicate that almost two-thirds of the GP respondents did not agree that HealthPathways has improved the overall quality of their referrals. This differs from the results in the Barwon region, south-west Victoria where only approximately a third of GPs in the study felt that HealthPathways did not change the way they made referrals.[4]

As discussed further on in the *Outcomes* section, HealthPathways has not been adequately leveraged in the HNC region to reduce variations in referral processes and to disseminate the required information, so this result reflects the qualitative insights.

Table 18 tells us the proportion of participants who *agreed* or *strongly agreed* with each statement, or the percentage of positive responses. There were very high levels of agreement amongst GP Registrars for more than half of the statements. Over 95% of the GP Registrars who responded to the survey felt that HealthPathways is of *practical use*, is a *trusted source of information*, is of *high quality, easy to use, improved the care they provide to their patients, improved their clinical management, saved them time*, and *increased their confidence in managing patients*.

These statements also correspond with most of the aspects associated with *clinician experience of care*, which is discussed in more detail below. All health professionals regardless of their profession or role believe that HealthPathways is very credible (practical, high quality and a trusted source of information).

Table 17: Experience question average scores by professional role

Question	GP n=50	GP Registrar n=21	Nurse/ Midwife n=13	Other* n=16	Manager/ Admin n=10
The guidance provided by HealthPathways is of practical use	4.2	4.5	4.1	4.3	4.3
The information provided by HealthPathways is of high quality	4.3	4.5	4.0	4.1	4.4
HealthPathways is a trusted source for localised information	4.2	4.4	4.0	4.1	4.3
The HealthPathways website is easy to use	4.1	4.4	3.7	3.8	3.9
HealthPathways has improved the care I provide to my patients	3.9	4.5	3.8	3.8	3.7
HealthPathways has improved my knowledge of local services	4.0	4.1	3.9	3.8	4.0
HealthPathways has improved my clinical management	3.8	4.5	3.8	3.8	3.7
HealthPathways has made it easier to find the most appropriate person to refer to	3.9	4.0	3.8	3.7	3.6
Using HealthPathways saves me time	3.7	4.4	3.3	3.5	3.5
HealthPathways has increased my confidence in managing patients	3.5	4.3	3.6	3.6	3.3
HealthPathways has improved the overall quality of my referrals	3.6	3.8	3.8	3.6	3.7
HealthPathways helps me identify and communicate with the right health professional at the right time when seeking advice or clinical support	3.6	3.8	3.7	3.6	3.6
HealthPathways has improved my confidence in providing collaborative care	3.4	3.9	3.8	3.4	3.4
HealthPathways is generally the first resource I consult for clinical information	2.7	3.0	3.1	2.8	3.0

* Includes clinicians, allied health professionals and students

Table 18: Proportion of respondents who agreed or strongly agreed with survey questions

Question	GP n=50	GP Registrar n=21	Nurse/ Midwife n=13	Other* n=16	Manager /Admin n=10
HealthPathways has improved my knowledge of local services	80%	76%	85%	75%	80%
HealthPathways has improved my clinical management	76%	100%	77%	75%	56%
HealthPathways has made it easier to find the most appropriate person to refer to	71%	65%	77%	63%	60%
Using HealthPathways saves me time	68%	95%	46%	50%	50%
The HealthPathways website is easy to use	82%	100%	77%	75%	80%
HealthPathways is a trusted source for localised information	94%	95%	85%	88%	80%

Question	GP n=50	GP Registrar n=21	Nurse/ Midwife n=13	Other* n=16	Manager /Admin n=10
The guidance provided by HealthPathways is of practical use	92%	100%	100%	100%	100%
The information provided by HealthPathways is of high quality	88%	100%	85%	88%	100%
HealthPathways has improved the care I provide to my patients	80%	100%	77%	63%	71%
HealthPathways has improved the overall quality of my referrals	51%	56%	69%	56%	57%
HealthPathways has increased my confidence in managing patients	60%	95%	62%	56%	43%
HealthPathways helps me identify and communicate with the right health professional at the right time when seeking advice or clinical support	63%	67%	69%	63%	67%
HealthPathways has improved my confidence in providing collaborative care	53%	70%	77%	50%	50%
HealthPathways is generally the first resource I consult for clinical information	28%	38%	38%	25%	30%

* Includes clinicians, allied health professionals and students

4.5.3 Drivers of satisfaction and positive experiences

We used a statistical technique called Factor analysis to see whether there were particular themes/categories within the survey questions. The analysis produced six themes/categories, each measuring a different aspect of HealthPathways. The six themes (or factors) are listed below with their corresponding component questions (Table 19).

This type of analysis allowed us to see whether there were any differences in how different professionals (or users of HealthPathways) perceive different aspects of the platform. The results indicate that there was a statistically significant difference in scores between different roles for *Clinician experience of care*. GP Registrars were more likely to perceive that HealthPathways has a positive influence on their experience of providing care (p=0.004).

We explored this further (regression analysis) to determine which factors drive improvements in clinician experience of care. Results indicate that *Credibility* is the key driver of *Clinician experience of care* amongst all survey respondents (p=0.000). So, the more HealthPathways is viewed as a trusted source of information, is considered practical to use, and of high quality, the higher the impact on clinician experience of care.

The next most influential factor for all professionals was *Localised knowledge*; however, this changed to *First choice for clinical information* for GP and GP Registrars only. This suggests that GPs and GP Registrars need to be referring to HealthPathways as their primary source of information for it to be having a greater impact on their experience of care. This is less likely to be occurring as we've seen in the earlier results (and discussed in greater detail below), which have suggested that although many GPs are aware of HealthPathways they are simply forgetting to refer to it.

Table 19: Factor analysis of experience questions

Factor/theme	Questions from survey
Clinician experience of care	• HealthPathways has improved my clinical management • Using HealthPathways saves me time • HealthPathways has improved the care I provide to my patients • HealthPathways has increased my confidence in managing patients • HealthPathways has improved my confidence in providing collaborative care
Credibility	• HealthPathways is a trusted source for localised information • The guidance provided by HealthPathways is of practical use • The information provided by HealthPathways is of high quality
Localised knowledge	• HealthPathways has improved my knowledge of local services • HealthPathways has made it easier to find the most appropriate person to refer to • HealthPathways helps me identify and communicate with the right health professional at the right time when seeking advice or clinical support
Usability	• The HealthPathways website is easy to use
Referral quality	• HealthPathways has improved the overall quality of my referrals
First choice for clinical information	• HealthPathways is generally the first resource I consult for clinical information

4.5.4 Drivers for HealthPathways uptake and continual usage

Consultation with GPs and other health professionals have identified a range of drivers that support uptake and continual usage of the HNC HealthPathways, including:

- Awareness of the platform
- High quality content (i.e. accurate and reliable information)
- High level of trust in the information/content contained within the platform
- Access to localised information on what services are available and where
- Great resource for general information and acting as a reminder of what needs to be done for GPs that treat a wide range of conditions, and for rarer conditions
- Great source of information for overseas doctors who are getting to know how the system works in Australia, particularly referrals, and
- Highly valued amongst GP Registrars whilst they are still learning, particularly when practising across different areas in the footprint and are not familiar with available services or referral processes.

In regards to antenatal care, it was noted during the consultations that, as there are a few different colleges (guidelines) of information it can be difficult to know which one to refer to. For example, if a pregnant woman develops diabetes there are the pregnancy guidelines as well as Diabetes-related guidelines, so it can be

difficult to know what to refer to. HealthPathways consolidates this information and provides one point of truth and aids decision-making.

As highlighted above in the survey results and during GP consultations, the ANC content in HealthPathways is highly valued. GPs value the ANC visit schedule, required tests and investigations to order, up-to-date management advice, patient information, and antenatal referral information.

4.5.5 Barriers to HealthPathways uptake and usage

At the heart of HealthPathways is a frequently reported desire to reduce unwanted variations in care, and to ensure patients receive the right care, at the right place and at the right time. A strategy used frequently to address this is the development of standardised guidelines or templates to constrain clinical decisions to conform to a standard pattern.[28] This strategy is arguably a key strategy of HealthPathways. Theoretically, this strategy works by ensuring access to consistent information by clinicians and other decision-makers; however, a number of barriers exist to uptake of standardised guidelines, including:

- Personal factors related to clinicians' knowledge and awareness, such as lack of awareness of guidelines, and lack of self-efficacy, motivation and learning culture.
- Guideline-related factors, such as lack of evidence, outdated information, poor layout, limited access, lack of applicability (e.g., to complex patients)
- External factors, such as organisational and time constraints in practice, lack of collaboration, and the existence of local clinical and social norms (e.g., ingrained practice).[29]

In the context of HNC HealthPathways, consultations and survey data identified the existence of barriers associated with personal and external factors. The two primary barriers related to the *uptake* of HealthPathways were awareness of the platform itself, and secondly, remembering to refer to it during usual practice once a GP was made aware of the platform. This was reflected in the survey results where the most frequently reported reason for never using or rarely using HealthPathways (~1-2 times per month) was *not thinking to look at HealthPathways/forgetting to use it*.

A recent study by Goddard-Nash et al (2020) identified the main barrier to HealthPathways use by GPs was not thinking to use it, and the main barrier to use by all health professionals was a lack of awareness.[5] This is consistent with earlier research demonstrating the two main barriers to HealthPathways use was not knowing about it, and not thinking to look at it during practice.[4] There is also evidence to suggest that even those GPs who are aware of HealthPathways still forget to use it due to habit.[18]

Significant barriers to *uptake* and *continued usage* of HealthPathways is 'how' GPs practice. One GP noted that their older colleagues still preferred using hard copies of guidelines and were less computer literate. Opening up electronic information resources in front of a patient may also be viewed unfavourably if the patient interprets it as the GP not knowing what steps to take (referred to as the *Googling doctor* by one GP). It is well established in the literature that attitudes, behaviours and deeply ingrained routines and practices are notable barriers to uptake and continual usage of HealthPathways, and clinical care pathways in general.[5,18,30]

When GPs are time-poor, not remembering the URL or the username and password creates a barrier to usage. It was also reported by a GP who has used multiple HealthPathways websites that sometimes it is hard to distinguish between them as they appear very similar. Murray PHN have implemented role-specific

passwords to assist users in remembering their passwords. This also allows for improved reporting on who is using HealthPathways.[31]

Some GPs reported that there is less value in the medical content in HealthPathways for more experienced GPs; however, the local information on referrals is still regarded as useful. This is consistent with current evidence that suggests interest and uptake of HealthPathways is higher among younger GPs.[4,5]

Whilst awareness of HealthPathways and generally just forgetting to use it appear to be the primary barriers, it's important to reflect on the impact of other potential barriers. Very few survey respondents indicated that the following reasons were why they *never* or *rarely use* HealthPathways:

- I cannot access HealthPathways (e.g. error/restricted access)
- The information on HealthPathways is not useful
- I find HealthPathways website difficult to navigate
- It takes too long to use HealthPathways
- Prefer to get my information from other sources
- Feel that my existing clinical knowledge is sufficient, or
- I am across the information now, so do not need to refer back to it.

These results are consistent with the high levels of satisfaction HealthPathways users have with the platform as outlined above. These results suggest that respondents aren't choosing not to use the platform for technical reasons or because they don't view the content as useful or trustworthy.

4.5.6 Improving awareness and increasing uptake

A strategy that was identified by program staff that was effective in the past at increasing awareness of the platform was face-to-face practice visits that involved setting up HealthPathways quick access links. Education events where HealthPathways is used as the education tool (regardless of topic or whether it's a HealthPathways specific education event) also coincide with noticeable increases in the number of users (i.e. Google Analytics pageviews and users). However, the COVID-19 pandemic has significantly limited the provision of face-to-face interactions with GPs and other health professionals.

The emergence of COVID-19 has led to the development of COVID-19 pathways within HealthPathways and, in turn, increased usage of the platform to access these pathways. This recent experience has highlighted that uptake of HealthPathways increases with the incorporation of pathways on new health issues or information. Thus, using HealthPathways a key tool for disseminating all new information (not just new/ reviewed pathways) to health professionals could be an effective way to increase uptake of the platform.

Research suggests that *ongoing* efforts to promote HealthPathways is required to increase awareness and uptake.[4] As such, one-off practice visits are unlikely to sustain usage or encourage uptake over time. Several studies have also highlighted that the adoption of technology by GPs is highly varied, and can be driven by several factors, such as a culture of adoption, perceptions of new technology, ease of use, confidentiality, and the resourcing (time, training) dedicated to implementation.[32]

Evidence from the Illawarra Shoalhaven LHD and COORDINARE evaluation (2017) found that LHD specialist-led demonstrations of HealthPathways to outline standard processes of providing care (e.g. chronic kidney

disease) during GP cluster meetings were a meaningful way for GPs to gain awareness of HealthPathways.[33] They also found that when HealthPathways was not referred to, GPs requested more HealthPathways integration to support the presentations.[33]

Feedback from one GP highlighted the increased awareness and usage of HealthPathways by GP Registrars. This was reported to be a result of the high usage of HealthPathways by RACGP in their training. GP Registrars come into practice aware of and already using HealthPathways, which they then share with other GPs. Illawarra Shoalhaven LHD and COORDINARE had similar findings where they found that HealthPathways was being integrated into medical training, with positive adoption by students who then take the use of the platform out to their general practice placements.[33]

In regards to the broader program, a key barrier for program growth is broader management/leadership buy-in. Whilst support for the program is evident in the partnership between the PHN and both LHDs there was limited evidence that this extends beyond the pathway development or review process. There is support for HealthPathways at a micro (clinician) and high (Executive) level, but not always consistent at the meso (system administration and management) level.

HealthPathways does not appear to be explicitly embedded within other relevant system re-design activities, such as the Leading Better Value Care (LBVC) program (NSW Health) or Winter Strategy (NNSW LHD and HNC), where there are potential program synergies and strategic alignment. Engagement in the LBVC program appears to have occurred as a result of proactive engagement of the HealthPathways team, rather than HealthPathways being embedded within the initiative as a system re-design framework or tool.

The LBVC is state-wide program aimed at improving the health outcomes and experiences of people with specific conditions. The program is a collaboration between the Ministry of Health, Agency for Clinical Innovation, Clinical Excellence Commission and the Cancer Institute NSW and local health districts and networks. Working together to develop, authorise and share successful models, NSW Health is implementing 13 initiatives at scale across all health districts. Each initiative focuses on improving patient outcomes and experiences, creating evidence-based solutions to known issues and measurable capacity for the NSW health system.[34]

The Northern NSW Winter Strategy was an integration initiative, jointly implemented by HNC and Northern NSW LHD. Unlike traditional winter strategies implemented by hospitals as a means of managing demand during peak winter periods, the Northern NSW Winter Strategy focusses its attention upstream, working with general practices to proactively identify and manage patients at heightened risk of hospitalisation. The program rolled out in three phases from March to September from 2017 to 2020 focussing on:

- Priority access to general practice.
- Active engagement with patients and early intervention when health deteriorates.
- Increased self-management through sick day action planning and other health coaching.
- Integrated and collaborative strategies with Local Health District Chronic Disease Management teams and hospital services.[35]

Both these initiatives offer opportunities to realise the potential of HealthPathways as a framework and mechanism for system reforms. However, in order for this to occur, HealthPathways must become a clear strategy within these initiatives and have buy-in at all levels.

4.6 Outcome evaluation

This section of the results will answer the following questions from the Evaluation Plan:

ANC Case Study and All HealthPathways

1. Has HP implementation contributed to improved collaboration between primary and tertiary care staff?
2. Has HealthPathways contributed to improved experience of care for GPs?

ANC Case Study

12. What are the key drivers and barriers for HP to contribute to improved collaboration between primary and tertiary care staff? Note the individual issues to be addressed under this question will be informed by our review of the literature on care coordination/collaboration.

All HealthPathways

14. What are the key drivers and barriers for HP to contribute to improved collaboration between primary and tertiary care staff?
19. What other technologies and/or systems/processes are being used elsewhere that could assist Healthy North Coast in achieving their HP objectives?

4.6.1 Overview

In this section we will focus on examining the impact that HealthPathways has had on two major outcomes outlined in our evaluation plan: collaboration between primary and tertiary care staff and clinician experience of care (Q1 & Q2). We will examine these outcomes and any associated barriers/facilitators (Q12 & 14) in the context of service integration in which the project has been implemented. As noted in our evaluation approach, for this analysis we rely on a few subjective metrics included in our survey and the qualitative information collected through our focus groups and individual interviews, which have been informed by the literature.

We note that our objective here is not to present a comprehensive theory of change on collaboration and clinician experience of care, but rather: a) to examine the quantitative evidence to explore whether or not there is a perception of HealthPathways contributing to these two outcomes, and b) draw on the recent literature to identify relevant frameworks and themes to analyse our qualitative evidence and explore 'how' HealthPathways contributes to those outcomes (i.e. drivers of performance to be leveraged) and missed opportunities (i.e. implementation barriers to be addressed).

Throughout the discussion and particularly in the Brisbane Metro South case study, we also draw on our interviews with other HealthPathways implementation sites and Streamliners to point out the potential for leveraging other system improvements for optimising the potential benefits of HealthPathways (Q19).

4.6.2 HealthPathways in the context of Integrated Care

As noted by the Productivity Commission Report, *Shifting the Dial – 5 Year Productivity Review,* achieving the Quadruple Aim is the main objective of delivering integrated and patient-centred care.[36] Since the Quadruple Aim covers health outcomes, costs, quality of care and the wellbeing of the workforce, policymakers and managers can ensure a balanced approach that includes, but is not limited to, system efficiency.

Integrated care thus covers a wide range of strategies, initiatives and programs of very different scope and reach. They might include high-level health funding reforms to address for example the existing budget silos providing perverse incentives for system fragmentation and inefficiency, as well as small scale programs aimed at delivering integrated mental health and social services to specific populations.[36] The literature distinguishes between three levels of integrated care:

- Micro level focused primarily on the clinical aspects of integration, that is the coordination of individual care in a single process across time, place and discipline.
- Meso level which focuses primarily on both professional integration (inter-professional partnerships) and organisational integration (inter-organisational relationships such as strategic alliances and common governance mechanisms) to deliver a comprehensive continuum of care.
- Macro level, which focuses on system integration, both horizontal (i.e. between primary care providers) and vertical (i.e. between tertiary and primary care), for the benefit of broader populations, such as whole state.[37,38]

In this framework, tools like HealthPathways can play an enabling role, called functional integration, by supporting the coordination of processes of service delivery across all three levels simultaneously. For example, at micro level this support could manifest in clear referral processes for individual clients. At meso level, HealthPathways can make a very important contribution as an enabler of inter-organisational dialogue on system issues. For example, as noted below, a recent evaluation of HealthPathways in Queensland stressed the central role of HealthPathways for a PHN's effective engagement of primary care clinicians. At macro level, cases like that of Metro Brisbane South illustrate how HealthPathways can be used to leverage other system reform strategies and contribute to communication and engagement of general practices to support state-level coordination and integration of care between primary and tertiary care providers.

4.6.2.1 Micro-level: Collaboration and Clinician experience of care

Similar to integration, there is no consistent definition of collaboration or clinician experience of care in the literature, although there is agreement that collaboration is a critical element of effective teamwork and affects clinician experience of care.[39,40]

Leaving aside the prolific academic discussions about the semantics of collaboration, broadly speaking it refers to professionals in health care 'working together'.[39,41] No matter how many more or less elements a definition of collaboration has (i.e. complementary roles, or partnerships) it is clear that in reality there is a wide continuum of collaboration. This ranges from basic collaboration as required for care coordination, which involves for example some sharing of information and a clear understanding of roles and responsibilities, through co-location models where systems and spaces are shared to facilitate collaboration, to models of close collaboration under full integration of services in which all providers are part of the same team.

Considering the fragmented funding system under which primary and tertiary care operate, it is reasonable to expect that the extent of collaboration in the region between clinicians and organisations in these two sectors ranges from some form of basic collaboration for care coordination to co-location models. Our case study (Shared ANC) did not include any co-location models, so our analysis focuses on the contribution that HealthPathways can make to improving basic collaboration between clinicians who operate across different

spaces and have access to different systems (i.e. information technology and other digital tools) with a view to improving care coordination.

An extensive literature review has documented the poor outcomes of fragmented care and the benefits of care coordination and seamless transitions between service providers and service contacts.[42-44] Care coordination and seamless transition requires collaboration between clinicians and exchange of information about individual clients so that clients only need to tell their story once and feel that their service teams work together. To effectively work together team members also need to share a common understanding of what best-practice is to treat their clients and what the roles and expectations of each other are.[39]

We explore those two themes below and note that a recent review of the literature on clinician experience of care suggests a number of factors contributing to a positive or negative experience of care, which included some outside the scope of HealthPathways (such as senior management support) and some inside the scope of HealthPathways. The latter include effective collaboration, improved trust amongst different disciplines and clear professional responsibilities.[40] However, the last two are also considered important pre-conditions of effective collaboration, which shows how much disarray exists in the literature. Moreover, our interviewees did not make a clear distinction between the way HealthPathways contributes to factors associated to collaboration and to factors associated with their experience of care. For example, when discussing barriers to collaboration, such as lack of clarity about processes, they used words like frustration, which reflected a negative impact on their experience of care. On the other hand, when discussing the content provided in HealthPathways in terms of models of care, they spoke about how it helped them improve the way they deliver care to clients, a contributing factor to experience of care. In contrast, LHD staff spoke of confidence that practitioners using HealthPathways and attending workshops were 'doing the right thing', which contributes to improved trust and collaboration.

So, to facilitate our discussion, we first review our quantitative evidence on both collaboration and clinician experience of care. This is followed by our analysis of the qualitative evidence on information exchange about individual clients and a shared understanding of models of care and processes. As discussed above, those two factors are identified in recent literature reviews as pre-conditions for 'working together' and clinicians having a good experience of care.[39,40]

Communication and collaboration in the region

Survey respondents were asked to indicate their levels of agreement on five statements about communication and collaboration in the HNC region. These questions were used to establish their general feelings about the pain points that currently exist regardless of whether or not they reported using HealthPathways (Table 20). The same questions were asked again later in the survey to establish whether or not health professionals believed that HealthPathways has helped to improve those pain points (Table 21).

We used the same colour-coding system as the satisfaction questions discussed earlier to assist in distinguishing differences between scores by question and professional role.

Most respondents indicated that they have good relationships with other health care professionals in the region. GP Registrars scored themselves slightly lower; however, this is likely an impact of having not practiced for as long and/or having the opportunities or time to develop those relationships. Perhaps not surprising given the fractured nature of the Australian healthcare system, less than half of the GPs (21%), GP

Registrars (48%) and other clinicians/AHP/students *strongly agreed* or *agreed* that the primary and hospital health care systems are well integrated in the region.

Overall, survey respondents were less likely to agree that HealthPathways improved relationships, communication or collaboration in the region, with the exception of Managers/Administrators. Overall, Managers and Administrators perceived HealthPathways to have improved all areas, including communication, referral knowledge, how health professionals work together, integration and relationships. GP Registrars were more positive overall towards the impact of HealthPathways compared with GPs. Improving respondents' knowledge of where to refer patients to scored the highest for GPs (72%) and GP Registrars (68%).

Table 20: Survey respondents' perceptions of communication and collaboration in the HNC region

Question	GP	GP registrar	Nurse/ Midwife	Other*	Manager/ Admin
Communication between health professionals is effective in my region	67%	77%	61%	59%	61%
If I need to refer a patient, I know who and where to send them	81%	57%	81%	60%	73%
In my region, health professionals work together to deliver quality health care	76%	74%	79%	66%	60%
The primary and hospital health care systems are well integrated in my region	21%	48%	56%	41%	64%
I have good relationships with other health care professionals in my region	93%	74%	88%	78%	91%

* Includes clinicians, allied health professionals and students

Table 21: Impact of HealthPathways on communication and collaboration in the HNC region

Do you think HealthPathways has improved…	GP	GP registrar	Nurse/ Midwife	Other*	Manager/ Admin
Communication between health professionals	40%	59%	41%	44%	75%
My knowledge of where to refer patients to	72%	68%	52%	46%	75%
How health professionals work together	38%	60%	57%	46%	50%
Integration between primary and hospital health care systems	45%	60%	44%	52%	62%
Relationships between health care professionals	33%	61%	48%	31%	75%

* Includes clinicians, allied health professionals and students

Information exchange about individual clients – A big hurdle, but outside the scope of HealthPathways

A recurrent theme in our interviews with both GPs and LHD staff was the lack of digital tools and mechanisms for an adequate exchange of information about individual clients, which is a source of frustration as it hampers their ability to provide the best care. Even in a model of minimal collaboration, some exchange of information about individual clients is required if professionals are said to collaborate or 'work together'.[39,45-48]

In an ideal system, all health care information about all clients could be accessed by all practitioners through My Health Record, but to date this is still a distant dream, not only due to privacy concerns, but also due to connectivity of clinical information systems and readiness of eHealth solutions, amongst other factors.[49] For example, at one of the LHD focus groups, participants noted that the discharge summary is the only hospital information about a woman in shared antenatal care that they are able to register automatically on My Health Record.

So, even if there is shared antenatal care between the GP and the hospital staff, communication about the individual client still happens through fax and is paper based. As noted by several interviewees across both primary care and LHDs, for antenatal care, the Yellow Card is still used as the medium to record the information about individual clients and does not guarantee that everything is included, which might be problematic for some women, especially those deemed high-risk.

Several interviewees across both sectors also noted that they usually had to rely on the information provided by the patient as to what sort of exams had already been ordered by other practitioners or what had happened during consultations. One of the LHD participants noted that it is much easier to get that information from the woman herself than to call their GPs and ask them directly because they are usually very busy and hard to get.

When talking more generally about the services they provide, as expected, GPs also highlighted the problems arising from not knowing what happened to their patients after their referral to the hospital specialist outpatient clinics. Sometimes they do not even know if the patient was able to secure the requested appointment.

We observed that for some GPs and LHD staff there was an expectation that HealthPathways could help bridge this communication gap about individual clients, though this obviously is not the intended purpose of HealthPathways. Others seemed to be more aware of this fact, for example some GPs noted that all that information about individual clients is managed through their practice software, which is not linked to HealthPathways, though noted that in an ideal world the two could be connected.

This shows first that it is important to be very clear as to what can and cannot be expected from HealthPathways to avoid unrealistic expectations. As the Streamliners interviewee noted, HealthPathways helps with information exchange at a higher level (i.e. models of care and referral processes for groups of the population), not at the level of individual clients, which is not their intended purpose.

However, we note that in our interviews with other PHNs there was also a sense of frustration that HealthPathways does not have the capability to integrate other digital tools such as electronic referrals (an issue briefly discussed below).

Second, this clearly illustrates that for system-level issues as complex as collaboration, it is unrealistic to expect that a single program like HealthPathways, on its own, can make significant improvements without other pain points, such as this one, being addressed through complementary measures. Whether this happens with a component of technology integration or not will dictate the way this is managed by stakeholders to avoid GPs' weariness of using multiple digital tools during a consultation, which can impact negatively on their experience of care.[9]

On the other hand, this only reinforces the important potential added value of HealthPathways to facilitate grounded conversations about 'what is wrong with the local system', which of course does not happen at the clinical level, but at the meso-level, as later discussed.

Models of care improving current practice and collaboration – A key contribution

To be able to work together, at the very minimum, practitioners should have a shared understanding of what the best treatment or care plan for a client is, of their respective roles and responsibilities and of their processes, i.e. when to refer and when to retain.[39,45-48] It comes as little surprise that these factors also contribute to a clinician positive experience of care.[40,50]

One of the key themes from interviews and focus group discussions was the contribution that the current HealthPathways was making to clinical practice in the region, by providing best-practice and localised evidence on models of care for various conditions, contributing to reducing unjustified variations of care.

As one of the interviewees noted, HealthPathways provides useful advice as to what to do at each appointment and which exams and procedures to request; routine emails keep them updated and by using HealthPathways they are confident that what they do aligns with best practice and local standards. This is important because, as some of them put it, you cannot keep up-to-date with the advances of clinical practice for all conditions all the time and it is easy to forget exams and procedures for conditions you do not see often.

Furthermore, specialists and other hospital staff also told us that they trusted the current clinical content on HealthPathways and are reassured that best-practice is followed when GPs use HealthPathways. This shows the important contribution that HealthPathways makes in terms of improving current practice and inter-professional trust. As discussed in previous sections, information on best-practice models of care is useful not only to new doctors such as registrars, but more broadly since the range of conditions that GPs need to see is very wide and, as noted earlier, it is impossible to keep up to date with best-practice models for all conditions.

Although LHD staff noted that the content of HealthPathways was robust and they had confidence that the information was conducive to better GP care, one of their concerns was that the GPs that needed to use HealthPathways the most were probably the least likely to use it. For example, they noted that the GPs that attend the education sessions are also users of HealthPathways, which probably suggests self-selection of GPs interested in providing good quality care.

In our view, this evidence shows that one of the most important added values of the current HealthPathways is the quality content provided in terms of models of care, which contributes to reducing unjustified variations of care across the PHN footprint, while also facilitating collaboration and providing GPs with an extra source of information to feel confident that they are delivering the best care possible for their patients. This is an important strength that could be leveraged to promote usage amongst GPs not familiar with HealthPathways and secure buy-in from LHD staff to further support the implementation of HealthPathways. One of our interviewees, who was familiar with HealthPathways used in other areas in Australia, even suggested that in terms of content, the MNCPHN was better than the others she was familiar with. This obviously contributes to confidence in using HealthPathways to guide care provided to patients and is one strength of the current program that should not be underestimated.

Building on this strength of HealthPathways and the Canterbury experience, Illawarra LHD have also started a Hospital HealthPathways pilot. The primary objective of this project is to support young and junior doctors

working in emergency departments. Specifically, the LHD noted that there was no easily available information regarding best-practice care that junior doctors working in an emergency department could access when senior staff were not available (i.e. at 2am). This was leading to unnecessary tests and less than optimal care. This initiative aims to provide junior doctors with clinical guidelines and other internally relevant information required to make those decisions and improve both the efficiency and quality of care provided at the hospital.

So, similar to community HealthPathways, an important added value of Illawarra LHD's initiative is to provide best-practice information that has been agreed on by the relevant local clinicians.

Referral processes and availability of services – Important missed opportunities

In terms of processes, two important themes emerged from the discussions relating to referrals and availability of services. First, referral criteria and the associated information that GPs should include with their referral is not always clearly communicated. An important source of frustration for some GPs was the fact that sometimes referral criteria changed when new specialists came on board. This was aggravated in some hospitals, where there has been high staff turnover. Others noted instances where clinicians working in the same hospital applied different criteria, so they were not sure if the referral would be accepted or not. One of the GPs interviewed also noted that it was frustrating to have cases where administrative staff at the hospital would reject referrals, even though they met the criteria set by clinicians.

This suggests that, at the moment, HealthPathways is not being effectively used to facilitate discussions about referral processes and improve them. Reinforcing this point, examples were also given of referral forms required by hospitals that did not exactly align with the form available in HealthPathways. Some of the GPs interviewed noted that to avoid rejections, it was better just to use the hospital form and ignore the one provided in HealthPathways.

> *"I have logged on to HealthPathways expecting to find advice about where to refer for a specific condition - not found it. So don't use HealthPathways as much since as feel it doesn't have the info I need."*
>
> *(GP, Female, aged 30-34, survey respondent)*

On the other hand, LHD staff noted that although referrals seem to have improved over the years, there were still referrals with incomplete information or that did not meet the criteria or that women were sent too late in their pregnancy.

For the evaluation team, not using HealthPathways as a mechanism to agree on clear referral criteria and forms, at least for individual hospitals, and disseminate it to GPs through HealthPathways seems to be a missed opportunity. This is a pain point stressed by both LHD staff and GPs and so there are incentives on both sides to ensure the referral processes are clear, well understood and well disseminated. This would also provide more incentives for reluctant GPs to use HealthPathways more often. Additionally, having the right referral information available in HealthPathways contributes to reduced variations in care due to referral processes. It can help standardise those, increase timely referrals and reduce unnecessary ones; contribute to better experience of care for clinicians, and reduce waiting lists and costs.[4,20,51,52]

We note that, several of our interviewees pointed out that, the problem with referral information is more prevalent in large areas and less so in small areas where everybody knows each other and when a GP is unsure, or a referral is rejected they can just call the specialist and discuss. Although, sometimes, they need to refer elsewhere and so access to this information is still useful. Additionally, if variations in referral processes,

such as criteria, across small and large areas are contributing to unjustified variations in care across the PHN footprint, the issue of information and standardisation of referral processes through HealthPathways deserve special consideration.

With a view to improve quality referrals, including the type of information included in them, PHNs such as Illawarra and Hunter New England have engaged in various system improvement processes targeting referrals through secure messaging (i.e. an email but through a secure system) directly from GP software, such as Medical Director and Best Practice and other methods of electronic referrals. As noted by one of our interviewees, this aligns with the vision of NSW Health to phase out fax and other means of referrals and implement e-referrals across the state. And, importantly, one of the interviewees noted that although GPs are not able to do electronic referrals directly from HealthPathways, secure messaging referral information is aligned with the information provided by HealthPathways.

In terms of processes, a second theme that emerged related to information on services available locally. Some interviewees told us that it was hard to find information on which services (both primary care and hospitals) were available, their hours of operation and their cost (i.e. for private practitioners). Mental health was noted as a prime example of available services changing relatively often, and for which it is very hard to keep information updated. The HealthPathways team members also noted the challenges of trying to keep pace with changes in services. This was aggravated by the lack of automatisation processes to link any service directory maintained by the PHN to HealthPathways.

In the discussions it was acknowledged that information such as cost of services can be hard to obtain. Whilst the HealthPathways team routinely update a service directory, this information may not be included, and some GPs were not aware that the directory even existed. Awareness of the service directory would provide good incentives for more GPs to use HealthPathways and to use it more often. Although, one interviewee noted that GPs end up building their own local directory of services to help with this task and adding notes about their preferred providers. However, it is hard to keep it thoroughly updated and such information available through HealthPathways could also facilitate the GP's work, particularly in large areas. Similar to referral processes information, this is a missed opportunity for HealthPathways, which has an important added value.

> *"It [HealthPathways] doesn't give relevant information and excludes lists of private providers which is particularly relevant when public clinics and lists are closed."*
>
> (GP, Female, aged 35-39, survey respondent)

Some of our interviewees from other PHNs reported that a key limitation of HealthPathways is that the platform cannot easily integrate HealthPathways information with other digital tools, such as LHD service directories or electronic referrals. This is obviously a 'technology' issue, beyond the scope of our evaluation and from our discussions it was difficult to assess the extent to which these technology barriers can effectively be addressed to improve integration of HealthPathways with other technologies.

Should the ability to integrate HealthPathways with other digital tools be a key concern and priority for several PHNs and LHDs, various options should be considered, including approaching Streamliners as a group to discuss the extent to which such technology integration between the platform and their own systems is feasible, under which circumstances and at what cost. We found it surprising that, notwithstanding the fact that for some stakeholders, technology integration seemed to be a key limitation of HealthPathways, to date

no evaluation of HealthPathways has included a technology review/evaluation of the platform itself, which would be required to address such technology integration issues.

At the very least for HNC, updated information on hospital services should be made available on HealthPathways (even if not linked to LHD service directories) and stakeholders could approach Streamliners directly to discuss the extent to which it would be feasible to automatically link HealthPathways with the corresponding hospital system listing those services. Similarly, LHDs should ensure that referral information provided through the platform aligns exactly with their requirements.

4.6.2.2 Meso-level: HealthPathways as an enabler of inter-organisational and inter-professional collaboration

According to the Productivity Commission, integration of care is generally best managed regionally.[36] This focus ensures that local knowledge and relationships are considered and provides an efficient scale for managing health service delivery and integration with other parties that address local population health. This rationale drove the general alignment of PHNs' and LHDs' territorial boundaries.

Our review of the HealthPathways literature, our experience with evaluating a wide range of system improvement strategies and the evidence collected through this evaluation has shown us that, notwithstanding the important contribution that HealthPathways is making to outcomes such as clinical collaboration and clinician experience of care, a stronger focus is required at this level to ensure HealthPathways can make a significant contribution to broader outcomes. However, for this to happen, emphasis should be placed on how HealthPathways is leveraged to have the right conversations with the right people about 'what is wrong with the system' (i.e. the pain points) and which solutions to implement. Getting those right conversations going requires strong leadership and commitment from both PHN and LHDs, as well as lots of work to engage the right people and give them the space to have those conversations.

As noted by an interviewee from Streamliners, no digital tool, including HealthPathways could by itself create an integrated system where people are willing to collaborate. However, it was pointed out that HealthPathways can play a crucial role to help stakeholders have conversations grounded on clinical and system issues about the specific pain points for a particular pathway and about the best realistic solutions for those problems. Our interviewee noted that the program succeeds where people across sectors and organisations are willing to collaborate and so are willing to explore all the features that HealthPathways offers to have those conversations about 'what is wrong with the system'. As identified previously, the development of the suicide risk pathway brought together a range of health professionals from the primary, secondary and private healthcare sectors. Face-to-face working groups enabled stronger relationships to be built, and discussions were able to be progressed beyond developing a pathway to identifying problems in the interface between primary and specialist mental health care services.

Though this might seem obvious, our team notes that all too often digital tools such as business intelligence or risk stratification software are sold like the solution to the problem, not the enabler of the solution. This usually leads organisations to have unrealistic expectations of what can be achieved by a digital tool and diverts resources from the more mundane, but critical, tasks of setting up the right teams and having the right conversations.

This emphasis on HealthPathways as a tool to facilitate strategic conversations to fix concrete pain points was echoed by one of the GPs interviewed, who noted that currently there is too much emphasis on rapid development of content and not on getting the key conversations going.

Since Streamliners is already working on facilitating the work on rapid development of content by providing information on existing pathways that are considered best-practice and can be replicated or modified by any client, the GP noted that it is understandable that rapid 'localisation' seems to be a major focus. This was advantageous in the case for example of COVID-19, as it reduces workloads for clinical editors and other staff.

However, the GP pointed out that the downside is that by not having the right people at the table to discuss specific pathways and problems on the ground, pain points cannot be identified and so cannot be addressed. He noted that while developing the content of HealthPathways can lead to benefits such as improved care for GP patients, without addressing these system problems, such as different referral criteria applied by different staff at the same hospital, better integration and the Quadruple Aim objectives are hard to achieve.

This is echoed by a recent evaluation of the program in a New Zealand District Health Board, which found that failure to engage local clinicians in substantive conversations to localise pathways led to the program not meeting the intended goals.[28]

The importance of having the right people to have the right conversations and make the right decisions was also stressed by the HealthPathways program team during the focus group discussion. Some positive cases were mentioned, like GPs and specialists attending some discussions who called attention to other health pathways such as those related to 'termination of pregnancy'.

The team also mentioned that during HealthPathways conversations for orthopaedics in a particular area, very specific problems were identified such as all patients getting appointments at the same time. Unfortunately, because the right people were not at the table, the solution to the problem, although identified, could not be implemented.

Not surprisingly, a thorough evaluation of HealthPathways in the HNE region found that implementation of several clinical redesign activities addressing pain points, such as those related to referral, triage criteria and discharge letters amongst others, accompanied pathway development and contributed to the observed improved outcomes.[19]

As evaluators, we are painfully aware of the issues of attribution, causality and correlation. However, for interventions like HealthPathways aimed at addressing complex system level issues, such as fragmentation, it would be a mistake to assume that because those clinical redesign activities are the ones that seem to have the most direct impact on outcomes, the direct contribution of HealthPathways is somehow diminished. This is because HealthPathways contributes to both providing information on best models of care and enabling those system conversations to ensure the right pain points are identified and the right clinical redesign activities are implemented.

One of our interviewees noted that the absence of a strategic vision of what the program can contribute to system reform has led to state-wide initiatives such as LBVC being used to address system level issues, but without a well-tested and grounded tool such as HealthPathways that provides an evidence base and systematic framework to examine models of care and associated pain points on a local level. The interviewee noted that by using HealthPathways infrastructure and the associated workshops, there is a very clear

framework to have those conversations, which makes it much easier for team members to focus on the clinical and technical aspects of system issues rather than 'politics'.

Engaging GPs for HealthPathways and leveraging other PHN initiatives

In a recent Queensland evaluation, stakeholders across various PHNs and LHDs emphasised that the program succeeds only if resources are invested in direct and person-to-person engagement of GPs.[28] However, investing in engaging GPs for HealthPathways can have multiple benefits beyond the program itself, as it can provide an effective platform to build meaningful relationships with General Practice.[27]

GPs are busy practitioners and the added value of various PHN programs might not be apparent to them, which makes their effective engagement a very difficult task. As illustrated by the quotes below, HealthPathways is however one of those PHN programs that GPs can more easily engage with as it is directly relevant to their practice.

> *"My team love visiting for HealthPathways. It's one of the main things along with referral quality that has been really meaningful for GPs."*
>
> [PHN manager][28]

> *"We wrap a package of support about HealthPathways. We never go in and just talk about HealthPathways. We talk about how HealthPathways can enhance GP knowledge, efficient processes, support integration, the right patient care at the right time, all these things… …we have visited 1200 GPs, but how do you keep it up? …GPs want to talk about it. It has strengthened our relationship with them."*
>
> [PHN][28]

Our discussions with the program team seem to suggest that HealthPathways is not well integrated with other general practice programs in the PHN. As mentioned earlier in this report, HealthPathways appears to be somewhat siloed in its operation. This seems to be a missed opportunity for further strengthening the pro-active engagement of general practice.

4.8.2.3 Macro-level: Leveraging HealthPathways for wider system improvements

A recent review noted that simultaneous action at different levels of the system (micro, meso and macro) are important for successful implementation of integrated care.[53] The Productivity Commission Report pointed out that in the country most initiatives work at small scale (i.e. micro level) with many initiatives trying to swim against the tide of a system that poses significant barriers to integration.[36] Many of these barriers, such as those related to service financing remain. However, states like Queensland have embarked upon ambitious reforms through a coordinated suite of system-level measures implemented across the whole state to improve the patient journey from GP referral to outpatient appointments, diagnostic procedures and any required surgery and recovery.[54]

Our interviews with both the Gold Coast PHN and Brisbane Metro South Hospital and Health Services revealed the central place that HealthPathways had supporting Queensland Health's vision for improved specialist outpatient services in the state. The Gold Coast PHN interviewees noted that to use HealthPathways to full capacity, strong governance processes must be in place to ensure alignment between HealthPathways (implemented at the meso level), and other initiatives, such as Smart Referrals (implemented across the

whole state and managed directly by Queensland Health). The interviewees also stressed the importance of providing a cohesive framework that allowed the various digital tools (including HealthPathways) to be integrated or at least operate in a coordinated way.

In the Gold Coast, HealthPathways has been operating for less than a year so their experience with actual implementation of HealthPathways and their integration with other system-level reforms was not as rich as the experience of Brisbane Metro South, one of the Queensland pioneers, with several years of experience implementing HealthPathways and moving forward Queensland Health's vision for an improved specialist outpatient strategy.

CASE STUDY - Brisbane Metro South's Implementation of HealthPathways under the strategic vision set by Queensland Health

We used our interview with a representative from Brisbane Metro South and our review of documentation to illustrate how HealthPathways is used to facilitate engagement and communication with GPs. The interviewee presented a clear strategic vision for HealthPathways set by Queensland Health and implemented by the Hospital and Health Services (i.e. LHD). In our view, this vision aligns with best-practice recommendations which suggest that, in the context of integrated care, digital tools should focus on supporting collaboration and communication, rather than administrative procedures.[53] Brisbane Metro South's case also illustrates high level leadership for HealthPathways and other system level initiatives aimed at improving referrals and care integration in general, which have been strategically linked to HealthPathways to optimise its expected benefits.

An opportunistic investment: HealthPathways added benefits to rationalise information burden on GPs

In 2016, Queensland Health was piloting their Clinical Prioritisation Criteria (CPC) strategy. This is a new clinical decision support tool to be used by both GPs and outpatient services with the aim of consistently assessing readiness to care and reduce variations in care due to referral processes. They are developed by clinical advisory groups for each medical specialty, and contain transparent referral criteria. Their main objective is to increase quality referrals (i.e. referrals with sufficient clinical information) and standardise triage practices. GPs use them when referring into public hospitals to ensure the right patients are referred at the right time and with the right information and exams. Specialist outpatient services use them to determine the urgency category of a patient (i.e. how quickly the patient should be seen).[55]

During the CPC pilot and after reviewing available trial data stakeholders agreed that CPC was a key strategy to reduce variations in care and improve efficiency of services. GPs were supportive of the initiative, but stressed their weariness with yet another digital tool, another website, that they needed to look at in the midst of delivering care to their clients.

One of the CPC trial sites (Mackay) was also involved in the implementation of HealthPathways. Their representative attending the meeting took on board GP concerns regarding burdens associated with new informational demands of evidence-based initiatives like CPC. The representative pointed out that HealthPathways was the ideal technological platform for Queensland Health to build CPC into, while at the same time use HealthPathways to standardise and disseminate broader information to GPs. Townsville, which had also been using HealthPathways, also drew on their experience showing that clinicians would actually use the platform. The argument was that by centralising the required information through HealthPathways, the informational burden that initiatives like CPC would have on practitioners could be minimised and they would be more likely to support their implementation (Figure 14).

The evaluators note that this concern with the burdens associated with digital tools and other information demands of evidence-based practice was indeed one of the key drivers for the inclusion of providers' wellbeing in the Quadruple Aim.[9] However, for managers and administrators it is not always easy to pursue evidence-based care while avoiding new workload burdens associated with data and information in general.

Queensland Health thus saw HealthPathways as a pivotal strategy for their integrated care and patient journey reforms. HealthPathways not only helps to reduce unwarranted variations in care through standardised information on models of care, but also helps to centralise information for GPs so that the informational burden of each initiative is significantly reduced. Queensland Health's vision is that

HealthPathways centralises all the information required by GPs to deliver good quality of care and which is not available through their practice software.

In line with the strategic importance given to HealthPathways and in contrast to other states, like NSW, where each site/PHN funds the bulk of the program, Queensland Health directly funds local licenses and other implementation costs for the program. Each site is responsible for engaging GPs and localising HealthPathways, which involves having those conversations addressing meso-level system issues, including models of care. We note that during the interview it was pointed out that the quality of these conversations, partly the result of getting the right people on the table, is critical to the success of HealthPathways.

Queensland Health's direct investment also has important consequences, as it provides a very clear signal that they 'have skin in the game' and so it is barely surprising that there are strong incentives for LHDs in Queensland to support and engage with HealthPathways at a regional level. In our view, this is not the case across the HNC footprint, although the recent NSW Health Options Paper (2021) might be a move in the right direction, if the focus can broaden beyond providing clinical pathway information to GPs to a system-improvement focus.

Maximising the benefits of HealthPathways within current constraints

Our Brisbane South interviewee noted that in an ideal world, we would have all digital tools required by primary care practitioners integrated, so that they would need to open only a single application while delivering care to their clients. However, it was also noted that this is not always feasible, realistic or cost-effective within the current technology parameters of the various applications and within privacy concerns related to health information.

This however does not constrain the ability of HealthPathways to become the central platform where GPs will find all the information not available in their practice software. This includes information as varied as NDIS, patient transport, telehealth, interpreter services, or individual clinical guidelines widely used by practitioners in Australia. In HealthPathways, practitioners will also find hyperlinks to other digital tools aimed at improving the patient journey and overall integration of care.

Using HealthPathways as a central platform of information attracts more practitioners and creates positive feedback loops. GPs will be more likely to use HealthPathways because it provides all the information they need to do their job and which is not available through their practice software. On the other hand, the more GPs use HealthPathways, the more they will have access to best-practice models of care available in HealthPathways, with the positive impact on reductions in unwarranted variations of care. Additionally, the more they use it, the more frequently they will access other apps developed by Queensland Health or LHDs aimed at improving the quality and number of necessary referrals. This however requires that there are consistent and sustained efforts to ensure alignment of the various initiatives.

For example, the Queensland Health Specialist Outpatient Strategy 2017-2020 outlined key strategies to improve the patient journey across the State, which included several important investments that are linked to HealthPathways, such as CPC briefly discussed above, Smart Referrals, an online service directory, and digital information sharing with GPs.[54]

In regard to CPC, there is a pathway checklist for clinical editors to localise HealthPathways, and one of those standards is the clinical prioritisation criteria. However, even if only a handful of specialties have clinical prioritisation criteria agreed at the State level, HealthPathways is still useful to standardise and improve referral practices, as it has information on referral criteria agreed by HHS specialists (not state-wide) built into

the pathway. HealthPathways has also been identified as critical to GPs' buy-in of CPC. Engaging them in the context of a platform like HealthPathways that provides something directly useful to them helped address their concerns that CPC was just another demand management, cost-cutting measure.[28]

> *"GP response to CPC was initially negative "this is the HHS telling us what to do, and making it more difficult for our patients to be seen". The engagement strategy was then to provide something useful to the GPs – how to make this useful for them as well."*
>
> [GP Liaison, HHS] [28]

In regards to referrals, Brisbane Metro South has a 'refer your patient' application to support GP referrals, which has links to HealthPathways and the corresponding localised referral criteria. The evaluators note that this is in sharp contrast to what we observed in MNC and NNSW regions where LHD referral criteria information is not always uniform even within the same hospital and very often not available in HealthPathways. Moreover, sometimes referral information is available in HealthPathways, but does not align with hospitals' required referral forms.

Smart Referrals (an electronic referral management system) allows GPs' referrals to be submitted by secure electronic messaging to Queensland's largest public hospitals, replacing the old-fashioned paper referrals (i.e. through post or fax). Since Smart Referrals requires individual patient information, it is integrated into practice software, such as Best Practice and Medical Director, operating from within these applications rather than from within HealthPathways.

However, detailed information on Smart Referrals, including how to set it up, is available through HealthPathways with hyperlinks and direct phone and email contacts for enquiries and troubleshooting. Once the GP starts using Smart Referrals, the software flags that for each particular condition there is relevant information on HealthPathways that can be used by the GP.

Within Smart Referrals there is also a new application to be implemented in the coming year, which allows GPs to consult specialists online for advice. For example, if GPs are unsure about making a referral, they will be able to consult a specialist before making such decision. Even though at the time of this report eConsults with specialists are just a proof-of-concept trial for GPs who refer patients to the Department of Diabetes and Endocrinology at one of the hospitals, detailed information on this initiative is also available through the HealthPathways portal, including clear steps of how to request online advice and basic troubleshooting.

Smart Referrals is also integrated to the online service directory, which has detailed information on all the available specialists at public hospitals. This allows a GP to identify the individual specialist and hospital to refer the patient to.

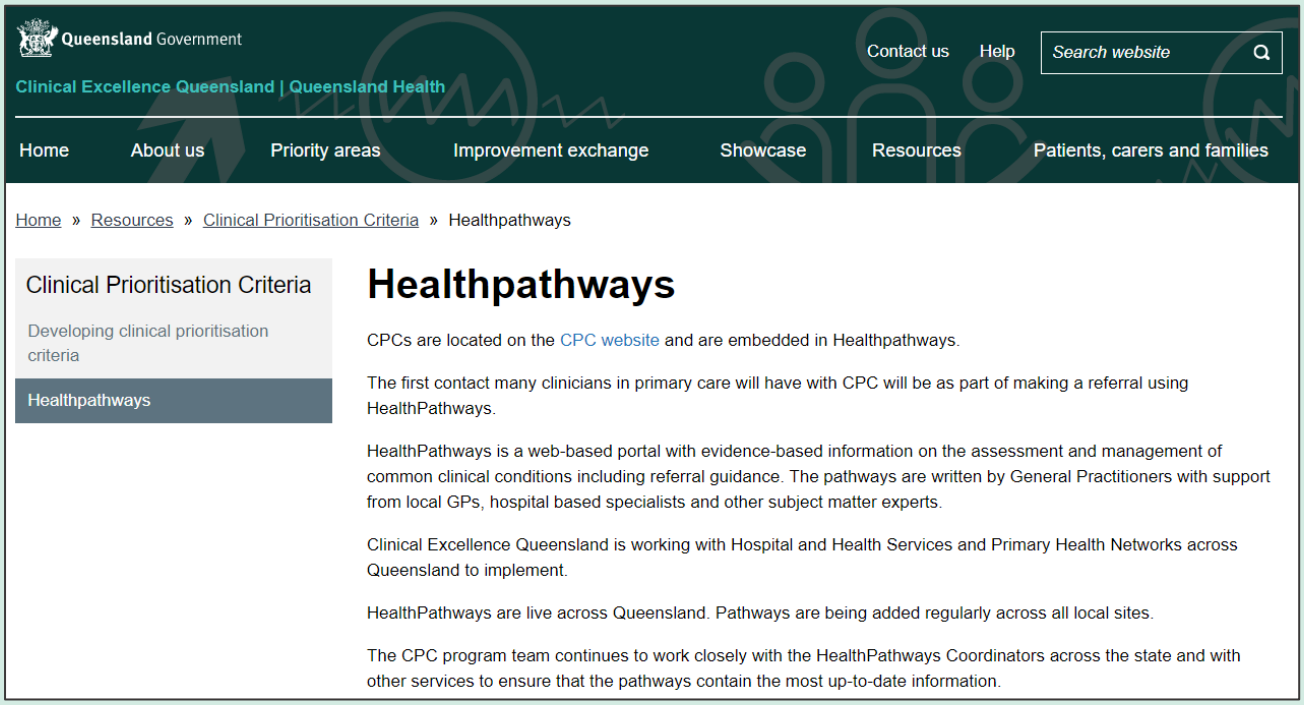
We note that this is in contrast to paper-based referrals still used across MNC and NNSW regions and the absence of a list of specialist services easily accessible by primary care practitioners. As we noted earlier, we suggest this information be made available through HealthPathways, while electronic referral systems are implemented.

Finally, within HealthPathways there is also a link for GPs to view online Queensland Health electronic records of their patients. This allows information sharing with GPs, so that they have access to relevant components of public hospital medical records for individual clients. Similar to other initiatives, key information is provided through HealthPathways, with hyperlinks to relevant training and support services. Since the lack of systems for information sharing was identified as a pain point of the system across the PHN by both GPs and LHD staff,

it seems worthwhile examining more closely the Queensland experience to inform future developments in this regard.

Even a rapid overview of Brisbane Metro South HealthPathways shows the richness of the information that GPs can access through the HealthPathways portal, which includes state-level initiatives as well as information on and hyperlinks to access relevant services that might be required by GPs, such as interpreter or client transport services.

Figure 14: HealthPathways as a key component of CPC



4.6.3 Leveraging HealthPathways during the COVID-19 response

COVID-19 has provided an ideal scenario to demonstrate the capacity of HealthPathways to be leveraged as a one-stop shop for clinical, up-to-date information. During 2020, PHNs across the country identified an opportunity to alter their GP communication strategies from static email and faxes to using HealthPathways as a communication tool. In such a changeable environment, PHNs required a way of continually disseminating clinical information to GPs in a format that could be easily and quickly updated. Emails require updating and re-sending and with that comes version control issues – never quite knowing if the information has changed or if the last email is actually the latest one. HealthPathways, on the other hand, is a single, living document/source of information that allows for regular updating.

The process of developing the pathways also involved collaboration between PHNs and state-based health departments.

The HNC HealthPathways program team identified a range of other benefits from using HealthPathways as part of their COVID-19 response, including:

- Identifying service gaps for specific population groups. For example, no specific response had been identified for GP management of COVID in children in the region. Once the gap was identified, the team contacted paediatric clinicians they already had relationships with, established a potential response,

and recommendations for GP care documented in HealthPathways. Those types of conversations between clinicians are more easily facilitated with HealthPathways.

- The need to rapidly develop COVID pathways fostered communication and collaboration with other PHNs in both NSW and Victoria. PHNs with high case numbers (i.e. in Sydney and Melbourne) took the lead in developing COVID-related pathways, which provided the initial content for HNC to adapt to their local context. This sharing process was reported as "invaluable, as impossible for one PHN to manage COVID pathway development and review. Massive strength is ability to share workload across regions."
- HNC and other NSW PHNs have used HealthPathways as part of their COVID-19 response. This uniformity across the state supported the engagement of specialists and RACGP to ensure that all organisations were sharing consistent information.
- Provided opportunity for the PHN to have discussions with LHDs about the region's response to COVID. This was critical in the early days when planning for how they would respond to an increase in cases in the region. The PHN CE's were able to inform the LHD what primary care was capable of doing and identify what the LHD would manage, then identify gaps.

Case examples

Queensland

Supported by the Clinical Excellence Division of Queensland Health, Queensland HealthPathways teams worked collaboratively to develop a suite of COVID-19 pathways in response to the pandemic.[1]

"I think HealthPathways should be commended for having very clear messaging, very clear links…there's some really clear guidance, localised around regions. I actually think HealthPathways is the clearest place to get everything you want."

New South Wales

The COVID-19 Vaccination HealthPathway was developed by the Nepean Blue Mountains HealthPathways Team, in consultation with NSW Health, the Australian Technical Advisory Group on Immunisation, and the National Centre for Immunisation Research and Surveillance.[3]

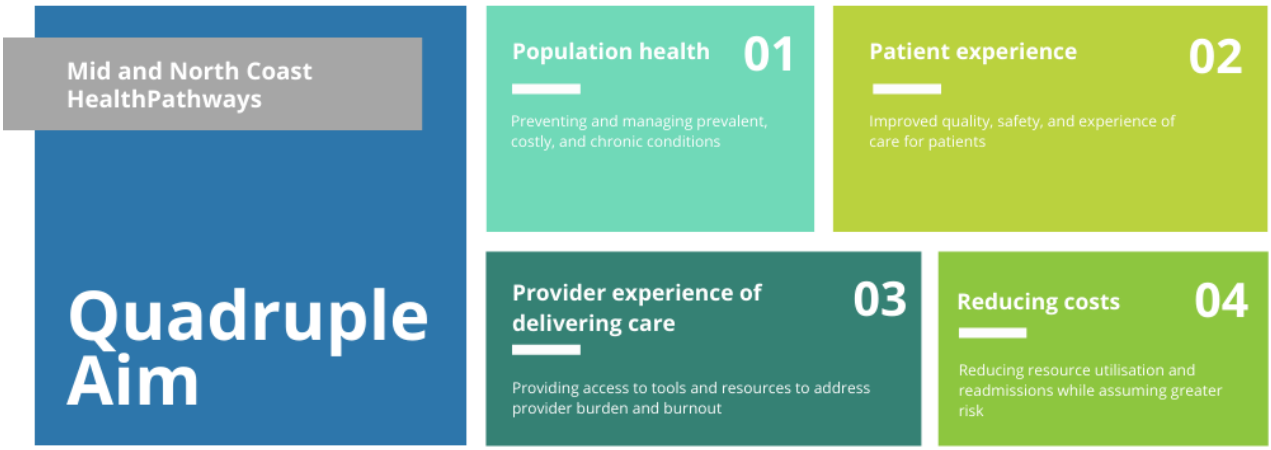
Victoria

The Victorian and Tasmanian PHN Alliance (VTPHNA) partnered with the Victorian Department of Health and Human Services (DHHS) to deliver up-to-date information on COVID-19, including the COVID-19 Positive Care Pathways program.[2]

4.6.4 HealthPathways' contribution to the Quadruple Aim

The Quadruple Aim, a framework to optimise healthcare system performance developed in 2014, incorporates four domains: reducing costs, population health, patient experience and provider experience.[49,56] As an integrated care tool, HealthPathways aims to contribute to the realisation of the Quadruple Aim, through improving overall **population health** (through localisation of regionally prevalent and costly conditions, reduced variations in care, improved quality of care), improved **patient experience** (via better communication between care providers, reduced waiting times, improved access to services), improved **provider experience** (via improved access to and flow of information, improved collaboration, and greater confidence), and **reducing costs** (via more efficient care pathways) (see Figure 15).

Figure 15: HealthPathways Quadruple Aim objectives



4.6.4.1 Provider experience of delivering care

This evaluation focused primarily on provider experience measures related to HealthPathways, including their usage of and satisfaction with the program and their opinions about HealthPathways' contributions to collaboration and their experience of care provision within the region. The evidence from the data collected suggests that HealthPathways is highly regarded within the HNC region by providers from various disciplines and that its implementation has produced many benefits, including addressing several 'pain points' that existed prior to its implementation.

Usage of HealthPathways in the region continues to increase over time and there is a very high level of awareness of the platform amongst GPs and GP Registrars. It is also clear that new pathways and requirements for up-to-date information amongst health professionals (e.g. COVID-19 pathways) can facilitate awareness and uptake of HealthPathways, and the team should continue to capitalise on these opportunities in the future. Continued usage and uptake of the platform is driven by its credibility and the data from this evaluation suggests that there is currently a high level of trust in the quality of the content provided in HealthPathways. Indeed, more than two-thirds of participants in the Health Professionals Survey indicated that using HealthPathways saved them time, improved their clinical management and improved the quality of their care to patients. These are clear indicators of the positive impact of HealthPathways on clinicians' experience of care.

Feedback provided during the evaluation also suggests that HealthPathways is being used as an effective education tool, both by the HealthPathways team and by GP Registrars.

There are, however, several areas where clinicians' experience of care could be enhanced through the continued development of HealthPathways in the region. For example, evidence suggests that, in addition to clinical information, users are often turning to HealthPathways for information on referral processes and local service information. This information must be current and accurate to maintain the credibility of the platform in the eyes of users and to eliminate existing frustrations. Streamlined referral and communication processes between healthcare practitioners is a key pre-condition for effective integrated care. Our discussions with other PHNs and jurisdictions revealed that HealthPathways can be an important contributor to these outcomes if implemented strategically and in an integrated way.

4.6.4.2 Population health

Although this evaluation did not directly measure the impact of HealthPathways on changes in regional population health indicators, there is evidence from this evaluation to suggest that the program is contributing to health system reforms, which has a long-term influence on population health outcomes.

In terms of implementation, the overarching framework for developing and operating HealthPathways has had several benefits in the NNSW and MNC region, including providing opportunities for improvements in regional models of care and system change. The evaluation also showed that these processes also facilitate relationship-building and collaboration across the different levels of healthcare. These outcomes are critical considering the complexity and chaotic nature of the health system.

The evaluation also highlighted HealthPathways' full scope as a series of processes and activities that can underpin, drive and enable system change, rather than simply an 'information sharing tool'. Ensuring that all key players in the region (i.e. Executive, HealthPathways team, health professionals) have a clear understanding of the scope of the HealthPathways program and how to optimise its use in regional integrated care initiatives will ensure its potential benefits across the Quadruple Aim can be fully realised.

4.6.4.3 Patient experience

This evaluation did not aim to measure the impact of HealthPathways on patient experiences in the region. However, there is existing evidence to suggest that improving provider experiences contributes positively to patient experiences, through improved quality of care, increased patient satisfaction and improved patient health outcomes.[49] Thus, continuing to use HealthPathways to address practitioner 'pain points' is likely to also improve patients' experiences of care in the region. Further, HealthPathways' capacity to enable health system changes may also lead to improved patient experiences, through reduced waiting times and improved access to services. Nonetheless, measuring the contribution of HealthPathways to patient experiences and outcomes will be critical in the future in demonstrating the program's overall effectiveness.

4.6.4.4 Reducing costs

This evaluation did not undertake an economic evaluation of HealthPathways in the NNSW/MNC region. However, evidence from this evaluation of the program's benefits and other published findings suggest that there are likely substantial economic gains from investing in integrated care activities, such as HealthPathways.

The Mid and North Coast HealthPathways budget is around $1 million per annum. This includes salaries for GP clinical editors, coordinators and project staff, as well as program resources and the platform licence. This budget does not include the pro-bono contributions from medical specialists, GPs and other subject matter experts to review draft pathways. Each LHD contributes at least $132,500 to the program. HNC contributes at least $735,732.

The Productivity's Commission's 2017 report, *Shifting the Dial – 5 Year Productivity Review*, estimates the potential benefits from sustained investments in integrated care over 20 years, where integrated care is defined as the rate of adoption of health pathways initiatives by Local Health Networks, such as HealthPathways.[36,57] Indeed, the report explicitly mentions HealthPathways as an example of a *"proven integrated care solution"*, supporting its ongoing development, both within the HNC region and nationally (p.79).[57]

The report estimates a return on investment of $3.05 for each dollar invested in integrated care over an extended period.[36] Using this analysis and the program's current regional budget, estimates undertaken by Healthy North Coast suggest the Mid-North Coast program could be returning up to $3.05 million annually to the health system through improved efficiency and effectiveness of health service delivery. This assumes that the national projections calculated by the Productivity Commission can be reasonably applied at a regional level and that the assumptions and context underpinning their analysis exist in the Mid-North Coast region. Nonetheless, given the focus in the *Shifting the Dial* report on health pathways as a key integrated care strategy, it is reasonable to assume HealthPathways drives large efficiency gains and reduced costs to the healthcare system over time.

Obviously, realising a favourable return on investment from the HealthPathways program relies on effective implementation and the achievement (and measurement) of its intended outcomes. If these intended outcomes, such as reducing variations in care and improved referrals, are achieved, it's reasonable to expect important economic benefits, such as those associated with reduced unnecessary services leading to lower costs and reduced waiting lists leading to earlier detection of preventable conditions.

A recent example of an economic evaluation of HealthPathways in Mackay, Queensland used implementation data and found that HHS costs were substantially lower for clinical conditions with comprehensive clinical pathways that incorporated comprehensive referral information, while costs were slightly increased for conditions with no pathway implementation or with 'incomplete' pathways, such as those not including referral information.[20] The study authors note that the most important driver of the observed cost reduction seemed to be the referral component rather than the clinical component of the pathway. They however acknowledge that their study might not have captured the effects of the latter, such as improved quality of care. Nonetheless, this analysis highlights that the economic benefits associated with referral improvements may vary considerably between individual pathways and that the overall cost-effectiveness of HealthPathways may mask these nuances. It also illustrates the challenges in quantifying the benefits of HealthPathways and translating these into reduced system costs. Conversely, it is also difficult to attribute reduced costs directly to HealthPathways, as there are so many interconnecting parts within the healthcare system.

Nonetheless, our evaluation has found that the current HealthPathways program has important strengths that can be built on and has identified several practical recommendations, which are aimed at supporting performance improvements of HealthPathways in a continuous quality improvement framework. A clear strategic plan to direct areas for continuous improvement and an ongoing monitoring and evaluation framework to guide data collection will help to provide an accurate picture of HealthPathways' regional outcomes and economic benefits in the future. These documents were explored further at the February strategic planning workshop and provided in an Addendum to this report. If the proposed recommendations are implemented, HealthPathways has the potential to become the catalyst for delivering integrated care across the HNC footprint and a more effective engagement of general practice, leading to the realisation of the expected returns on investment previously estimated.

5. Recommendations

5.1 Overview

The recommendations below outline the administrative, operational and strategic needs of the program, and is accompanied by a Strategic Plan for the next three years, and a monitoring and evaluation framework.

There are 20 recommendations addressing six key areas (listed below). Many of the recommendations are explicitly linked to other recommendations demonstrating the importance of adopting all recommendations in their entirety to achieve the strategic potential of HealthPathways in the Mid and North coast region.

1. Awareness and uptake of HealthPathways
2. Workgroups
3. Technology barriers
4. Communication
5. Program processes, and
6. Coordination and system integration.5.2 Administrative and Operational recommendations

5.1.1 Improve awareness and uptake of HealthPathways

Findings from this evaluation and other HealthPathways evaluations have consistently identified that awareness of the platform and 'forgetting to use it' are the primary barriers to uptake and continual usage. Research suggests that *ongoing* efforts to promote HealthPathways is required to increase awareness and uptake.

Due to the ongoing impacts of COVID-19 and the sheer number of practices in the region, we recommend a strategic and targeted engagement approach to maximise GPs' awareness and use of HealthPathways. HNC should consider the following:

5.1.1.1 Improve data capture on who is and isn't using HealthPathways

Whilst login details remain universal, it is imperative that opportunities to record HealthPathways usage are taken. Opportunities include keeping records of who requests login details (who and where), and increased coordination with the PHN Engagement, Education and Communication teams and their interactions with practices to capture usage data from Practice Managers and/or GPs.

5.1.1.2 Ensure ongoing investment in promoting awareness and uptake at HNC and LHDs

Other HealthPathways evaluations have highlighted the importance of ongoing promotion and engagement activities to support HealthPathways. This is particularly important given GPs will move in and out of the region, and behavioural challenges, such as computer literacy, and ingrained practices may impact on their adoption of the platform.

5.1.1.3 Ensure direct engagement is targeted at low engaging general practices

In the past, practice visits involving setting up GPs' computers with quick access links and saving the HealthPathways login was a useful strategy for raising awareness of the platform and promoting continual usage. However, this type of activity is time-consuming and labour-intensive. Future engagement of this

nature should be targeted and based on data capture activities, as recommended above. For example, targeting geographic areas or specific practices where usage is found to be low.

5.1.1.4 Advocate for the adoption of HealthPathways as a universal education tool

A range of education and PD events are held across the region facilitated by both the PHN and LHDs. Google Analytics data suggests that using HealthPathways as an education tool during GP education events is a valuable awareness-raising strategy with spikes in pageviews often seen following events that coincide with the specific topic being discussed. There are opportunities to use HealthPathways as a mechanism for promoting new models of care, how to access new or existing services, and during education events.

Evidence from the Illawarra Shoalhaven LHD and COORDINARE evaluation (2017) found that LHD specialist-led demonstrations of HealthPathways to outline standard processes of providing care (e.g. chronic kidney disease) during GP cluster meetings were a meaningful way for GPs to gain awareness of HealthPathways.

5.1.1.5 Investigate other opportunities to promote HealthPathways, such as through education and quality improvement

The HealthPathways team should be strategic about engagement in the coming years while we continue to deal with COVID-19 (i.e. face-to-face engagement may continue to be a challenge). Are there other ways of engaging GPs beyond practice visits to promote HealthPathways? Again, improved coordination across HNC teams (i.e. the Engagement, Education and Communications team) may facilitate this. Better coordination with other PHN teams already working with GPs will facilitate improved awareness of HealthPathways amongst GPs without the need for duplication of effort (i.e., multiple emails, practice visits, events etc.). Can HealthPathways be included in general practice quality improvement activities, person-centred health care, clinical societies and professional development events? How could HealthPathways support all of these activities on an on-going basis?

5.1.1.6 Pursue customised login with Streamliners

Discussions with Streamliners suggest there could be opportunities to personalise login details and provide customised homepages for users. This change could provide a more detailed picture of who is and isn't using HealthPathways and specific geographic locations to focus promotional and awareness-raising activities on. This specific recommendation will directly support the implementation of Recommendation 1.

5.1.1.7 Embed HealthPathways in all engagement, education and promotional activities with GPs

Any engagement with GPs should be seen as an opportunity to promote HealthPathways as the 'single source of local truth'. HealthPathways should be embedded within all PHN programs. The platform needs to be adopted as an organisation-wide tool that is understood, updated and utilised by all program areas. This may require explicit noting in Activity work plans across the PHN, including KPIs specifying contribution to pathway updates and/or service directory and program changes in their particular area (e.g., mental health, alcohol and other drugs), and/or contribution to promoting the platform to other relevant health professionals.

5.1.1.8 Improve awareness of HealthPathways referral pages

Considerable time is invested in manually updating the service directory in HealthPathways; however, consultations identified that some GPs were not aware of its existence. Greater awareness of the service directory would provide good incentives for more GPs to use HealthPathways and to use it more often. It will

be important that the HealthPathways team also look for opportunities to streamline service directory updates. There may be technological solutions to link the HealthPathways service directory with LHD and other stakeholder's directories, which is discussed further in Recommendation 17.

5.1.2 Re-establish structured workgroups

5.1.2.1 Re-establish structured workgroups to support clinical redesign and health system integration

Overtime, the need for workgroups to review pathways has reduced as the process became more streamlined and required less time to develop and review pathways. As a result, opportunities to discuss pain points and drive LHD engagement in the program was reduced without a mechanism for ongoing connections and discussions. The program would benefit significantly from workgroups that aim to address pain points, as well as ensuring that the content that is currently available in HealthPathways is accurate (i.e. specifically referral forms). The capacity of the HealthPathways team to coordinate and facilitate these groups may need to be reviewed (i.e. adequate time allocated to manage workgroups, and capability to facilitate workgroups to achieve the best possible outcomes). This could be addressed by analysing and reworking the HealthPathways team structure, with the potential to introduce a new role focussing on strategic workgroup opportunities.

5.1.3 Explore technology barriers

5.1.3.1 Maximise technological capability of HealthPathways

International and national evidence demonstrates the strategic potential and capacity to deliver better patient outcomes through the use of digital technology. Time should be invested to explore current technological barriers and solutions that could be leveraged through HealthPathways. For example, eReferrals, shared electronic medical records (EMR), linkages with other electronic service directories, secure messaging, and admission and discharge summaries. Technological capabilities of HealthPathways itself should also be reviewed where there are opportunities improve GPs experience of providing care, such as login challenges, and ability to SMS/email patient information directly from HealthPathways.

5.1.4 Consistent and targeted communication

5.1.4.1 Develop a joint Communication Plan that outlines a consistent and tailored engagement approach that promotes the benefits of HealthPathways to GPs, LHD clinicians and other health professionals.

Initially, the focus should be on health professionals who are not aware of HealthPathways, such as specialists, pre-GP Registrars and LHD senior management. A consistent communication plan should also aim to address the difficulties recruiting SMEs across different department/specialities. At the moment, SME engagement is heavily reliant on existing, often personal relationships between HNC personnel and LHD specialists and clinicians. The Queensland experience and evidence from this evaluation showed that HealthPathways is one of those rare programs that has meaning and buy-in from GPs. GPs actively choose to use HealthPathways due to its ability to improve their experience of delivering care and patient outcomes. This is a key message worth leveraging in a joint communication plan.

5.1.5 Formalise program processes

5.1.5.1 Formalise pathway prioritisation process, with consideration given to health needs, clinician feedback and program priorities.

For the past few years, the HealthPathways team have followed an informal process for identifying and prioritising new pathways for localisation. At the time of the evaluation, this process had not been formally approved or documented; however, there was a documented process for updating *existing* pathways. The pathway prioritisation process has been outlined in Appendix B and would benefit from being formally discussed with program partners and documented. Formal processes assist with program governance, decision-making and overall accountability for time invested in both new pathway development and existing pathway reviews. It is also recommended that a strategic lens is applied to new pathway development with consideration given to health needs, clinician feedback and program priorities across acute and primary health care.

5.2 Strategic recommendations

The recommendations below outline a way forward for the HealthPathways program at the micro, meso and macro levels.

5.2.1 Micro-level: Improving clinician experience of care: Information exchange about individual patients

5.2.1.1 Explore innovative technology solutions to enable clinicians to work collaboratively to deliver higher quality patient centred care.

A suite of digital tools and mechanisms are required for adequate exchange of information between providers. This is required if collaboration and care coordination/integration is to be improved (macro). This was not available in HealthPathways but was cited by clinicians as being needed. Without that basic exchange of information on an individual client, it is hard to talk about clinicians working together. And the fact that some information is much more easily collected from the patient themself, shows that patients need to tell their story several times. Some GPs and LHD staff had the expectation that HealthPathways could help with this exchange. Electronic referrals are not the intended purpose of HealthPathways but had been adopted by the Hunter New England Central Coast region.

5.2.2 Micro-level: Shared understanding of Models of Care

5.2.2.1 Explore the expansion of HealthPathways into hospitals, aged care and allied health.

There are opportunities to broaden the scope of HealthPathways. The purpose of HealthPathways is as relevant for aged care as it is for general practice. Illawarra Shoalhaven LHD hospitals are piloting the Hospital HealthPathways initiative focussing on ten emergency care pathways. One of the identified pain points was junior doctors working in the ED not being able to access senior staff (i.e. at 2am), leading to unnecessary tests and less than optimal care. Hospital HealthPathways provides clinical guidelines and other relevant information to support those junior doctors. Hunter New England and Central Coast PHN have introduced Aged Care emergency guidelines to support staff of Residential Aged Care Facilities (RACF) avoid unnecessary transfers to hospital. Expanding the scope of HealthPathways brings a potential to improve the experience of care and patient outcomes for other clinicians/health professionals and patients, as well as promoting the benefits of HealthPathways to a broader audience.

5.2.3 Micro-level: Referral processes and availability of services

5.2.3.1 Use HealthPathways with LHD staff and GPs to discuss referral process pain points and address them.

HealthPathways is an enabler for system and service re-design, and should be leveraged, where possible. Many pain points of referral processes were identified during consultations and HealthPathways had not been effectively used to facilitate solutions. HealthPathways could be used to address these many referral pain points identified and standardise processes and criteria.

5.2.3.2 Develop efficient processes to improve quality of LHD service information.

The MNC and NNSW LHDs should require all outpatient services to update all service information, including forms and requirements, in the HealthPathways referral pages. Consultations identified that sometimes referral information is not available on HealthPathways or referral information available does not match exactly the forms required by hospitals. Due to differing requirements between specialists within the same department/hospital this may require LHDs to mandate staff provide adequate information and required forms to the HealthPathways team to ensure consistency. Ensuring consistent referral information and forms will also be supported by the implementation of structured workshops as identified in Recommendation 9.

5.2.3.3 Explore technology options to integrate, automate and promote referral information and service directories with HealthPathways.

At present, updates to the referral pages are manual and time-consuming to undertake and maintain. Opportunities to automate updates should be explored, including mandates for LHD clinics to update the HealthPathways referral pages as part of service changes. At present, the service directory is named as '*Service Provider Directory*' and '*Summary of Referral Pages*' depending on where the user clicks on the webpage, which may create confusion. Increasing awareness, accuracy and user-friendliness of the service directory is directly related to Recommendation 17.

5.2.4 Meso-level: HealthPathways as an enabler of system change and proactive GP engagement

5.2.4.1 Develop and adopt improved planning and governance for HealthPathways, inclusive of a strategic plan and a monitoring and evaluation framework.

What is the perceived added value in the current context? What are the mutual expectations? Is the program well-resourced including at LHD level, to achieve its strategic objectives? Improved planning and governance of HealthPathways will ensure that *the vision of HealthPathways as an enabler to system improvements* and the desire for HealthPathways to act as 'the single source of truth' will be regularly reviewed at an operational and strategic level. At present, the platform is still viewed as a clinical tool, and not the first point of call to negotiate system improvements. An overarching strategic plan for the program and an ongoing monitoring and evaluation framework will assist to ensure the program continually improves. It will also assist in identifying future areas of research such as the benefits of the program in reducing clinical variation and the impact of this on improving quality of care and efficiency of health funding.

5.2.5 Macro-level: Leveraging HealthPathways for wider system improvements

5.2.5.1 Explore how lessons from Queensland with the NSW Ministry of Health can be utilised in NSW.

HealthPathways can become a critical tool to support system-wide reforms. The Queensland case study highlights many opportunities for LHDs and NSW Health to be more engaged with HealthPathways and the added value the program has for them operationally, for improving patient care and contributing to reduced system costs.

5.2.5.2 Pursue high-level integration of HealthPathways into LHD and HNC strategic objectives, policies and processes.

Until HealthPathways is recognised as a system improvement tool and this is reflected in HNC and LHD organisational policies and processes, the program team will continually need to "sell" HealthPathways to new management and staff (all partners), and recruit SME to support pathway development and reviews. In the meantime, focus should be on existing relationships where opportunities to explicitly embed the program in state-wide initiatives could be achieved, such as the LBVC program and other integrated care initiatives where buy-in already exists. HNC should look to embed HealthPathways across all program areas rather than maintaining it as a single, siloed program area.

5.3 Recommendation 18 and future evaluation opportunities

As part of this evaluation, the HealthPathways team, HNC Executive Director and representatives from MNC LHD and NNSW LHD participated in a Strategic Planning session to progress conversations around the strategic vision of HealthPathways. This responds to *Recommendation 18: Develop and adopt improved planning and governance for HealthPathways, inclusive of a strategic plan and a monitoring and evaluation framework*. Whilst the key outcome of the session was a draft Strategic Plan (Attachment 1) it will be imperative that all three partners continue the conversation and consider:

- If and what changes they would like to make to the Plan
- Discuss resourcing and commitment to the Plan, and
- Agree to and formally 'sign-off' on the Plan to secure commitment and buy-in from all three partners.

An ongoing monitoring and evaluation (M&E) framework (Attachment 2) was also developed in consultation with the HealthPathways team and evaluation findings. The framework includes key indicators of success for HealthPathways, including short, medium and long-term indicators.

The M&E framework ties together the KPIs from the Strategic Plan and the program strategies, as some of the indicators overlap. Whilst there is some overlap, KPIs from the Strategic Plan are intended to be 'high-level' or more permanent changes to the program. KPIs in the M&E framework focus on the 'nitty gritty' of program delivery – keeping implementation on track/ongoing. The framework aims to provide sufficient data to understand if the program is on track and achieving its goals in the most efficient way possible (only measuring what you need to know).

The M&E framework covers the following:

1. Process evaluation: Is the program being implemented as planned? Measuring how each strategy is 'going'.

2. Outcome evaluation: Is the program achieving the change or outcomes we expected it to deliver? Note: Examples are provided here of how this might be measured in future evaluations.
3. Investment: Is the program providing good value for money? Are we operating efficiently?
4. Learnings: What is working well or not so well? Why?
5. What next? What other opportunities exist for the program? What ongoing investment is required in the program?

The process evaluation and learnings can be undertaken by the HealthPathways program team; however, the outcome and investment evaluations may require the support of an external evaluation provider. Outlined below are some future evaluation opportunities aimed at measuring whether HealthPathways has had an impact on longer-term outcomes and return on investment.

5.3.1 Measuring long-term impact

Measuring the longer-term impact of HealthPathways may involve determining whether or not the program has delivered on its vision - *Pathways to better local health care*. Based on the Strategic Planning session discussions we will know that HealthPathways has achieved it vision when there is evidence of:

- Quality health care for patients with reduced unwarranted variations in care (Improved patient health outcomes, standardised care provided across the region, evidence informed decision making)
- Improved patient flow through the health system (Improved patient experience, Increase in accuracy, quality and completeness of referrals)
- Improved clinician experience of care (Improved communication between levels of the health service, clinicians engaged as part of a multilevel team), and
- Health system reform and innovation that support quality patient care and improved referral processes and communication (Pain points addressed, technological solutions implemented).

Some options for measuring these indicators of success, include:

- Clinical audits of set conditions measuring unwarranted variations in care, referral quality and completeness between GPs who use and do not use HealthPathways
- Patient experience questionnaires to measure patient satisfaction in their experience of care/referral processes for set conditions
- Case/control study measuring patient outcomes for those who are cared for by GPs who do and do not use HealthPathways.

5.3.2 Measuring return on investment

There are a number of ways that your return on investment in HealthPathways can be measured. Whilst an extremely worthwhile process, there are a number of pre-conditions to consider, including costs to undertake, and ensuring program implementation is optimal, so estimated benefits can be confidently attributed to HealthPathways. Some further information on future opportunities are included below.

- Staff performance management – How well is this currently being undertaken? Are staff working efficiently? Do they receive the line management support they need? Does the team have the appropriate skill mix and flexibility to respond to requests for engagement in integrated care

activities? High staff performance will impact optimal program delivery, and is one of the largest program expenses. This is an immediate analysis that can be undertaken without external support.

- Value for Money – Examining the costs and benefits delivered by a particular initiative with a view to answer the question of whether or not resources invested delivered what is considered to be 'good value'. This could include looking at the overall costs of HealthPathways implementation, PHN and stakeholders' views of the expected vs. realised efficiencies of the program, and identifying barriers and catalysts for those efficiencies. Would require external economic consultant.
- Cost-benefit analysis (CBA) – compares the expected costs and benefits (both in monetary terms) of an investment.
    - Would require substantial budget and external economic consultant.
    - Involves collecting costing data, such as staff time (requires a detailed survey of PHN and LHD staff).
    - To estimate benefits, quantifiable outcomes are monetised. This requires clinical audits to examine pre & post, or pathways with HP vs those without, and outcome measures, such as number of preventable hospitalisations.
    - After estimating those quantifiable outcomes and asserting HealthPathways led to a reduction of XYZ, then outpatient cost data from hospitals and primary care would be applied to those outcomes.
    - Cost-benefit ratios would be estimated based on those costings.

6. References

1. Brisbane North PHN. HealthPathways praised for clarity during COVID-19. July 13, 2020; https://brisbanenorthphn.org.au/news/healthpathways-praised-for-clarity-during-covid-19.
2. North Western Melbourne PHN. Primary care management of COVID-19 patients in our region. 10th Nov 2021; https://nwmphn.org.au/for-primary-care/covid-19/covid-19-care-pathways/.
3. Healthy North Coast. COVID-19 Vaccination HealthPathways Update. 25th Feb 2021; https://hnc.org.au/news-story/covid-19-vaccination-healthpathways-update-xhp/.
4. Gill SD, Mansfield S, McLeod M, Von Treuer K, Dunn M, Quirk F. HealthPathways improving access to care. *Australian Health Review.* 2019;43(2):207-216.
5. Goddard-Nash A, Makate M, Varhol R, et al. Evaluation of HealthPathways: an appraisal of usage, experiences and opinions of healthcare professionals in Australia and New Zealand. *Australian Health Review.* 2020;44(4):590-600.
6. McGeoch G, McGeoch P, Shand B. Is HealthPathways effective? An online survey of hospital clinicians, general practitioners and practice nurses. *The New Zealand Medical Journal (Online).* 2015;128(1408):36.
7. Coughlan A. *Evaluation of the Murray HealthPathways program.* Murray PHN;November 2020.
8. Andrews S, Appleton-Dyer S, Henderson G. *Evaluation of 3D HealthPathways: A process and outcome evaluation for the 3D HealthPathways Steering Group.* Synergia;2018.
9. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Annals of family medicine.* 2014;12(6):573-576.
10. Healthy North Coast. What we do. https://hnc.org.au/about-us/. Accessed 24th May 2021.
11. Healthy North Coast. Our key priority areas. https://hnc.org.au/priority-areas/. Accessed 24th May 2021.
12. Healthy North Coast. *Request for proposal Section A: To develop and conduct a process and outcome evaluation of HealthPathways Mid and North Coast (a web based clinician support platform).* North Coast PHN;2020.
13. Northern NSW Local Health District. About the NNSWLHD. https://nnswlhd.health.nsw.gov.au/about/northern-nsw-local-health-district/.
14. Mid North Coast LHD. About us. https://mnclhd.health.nsw.gov.au/about/.
15. Mid North Coast LHD. *Caring for our community: Mid North Coast Local Health District 2020-21 Year in Review.* https://mnclhd.health.nsw.gov.au/wp-content/uploads/MNCLHD-2020-2021-Year-in-Review.pdf: NSW Government;2021.
16. HealthPathways Program Team. *Mid and North Coast HealthPathways Evaluation Proposal.* [Internal document]: Prepared for North Coast Primary Health Network;September 2020.
17. HealthPathways Community, Canterbury District Health Board, Streamliners NZ. What is HealthPathways? https://www.healthpathwayscommunity.org/About.
18. Mansfield S, Quirk F, von Treuer K, Gill G. On the right path? Exploring the experiences and opinions of clinicians involved in developing and implementing HealthPathways Barwon. *Australian Health Review.* 2016;40:129-135.
19. Gray JS, Swan JR, Lynch MA, et al. Hunter and New England HealthPathways: a 4-year journey of integrated care. *Australian Health Review.* 2018;42(1):66-71.
20. Blythe R, Lee X, Kularatna S. HealthPathways: An Economic Analysis of the Impact of Primary Care Pathways in Mackay Queensland. In: Australian Centre for Health Services Innovation, Queensland University of …; 2019.
21. McDonald B. Process evaluation of the Hunter and New England HealthPathways. *Newcastle: BMcD Consulting.* 2013.
22. NSW MInistry of Health. *Options Paper: HealthPathways for NSW - an equitable approach.* NSW Government;2021.
23. HealthPathways Community. HealthPathways Mid & North Coast of NSW - Pathway Progress Mid & North Coast. Accessed November 2021;

https://admin.healthpathwayscommunity.org/Secure/SitePathwaysPublicView2.aspx?show=803b1954-6991-428e-8c7c-1c7a76e09022.

24. AIHW. *Feature Article 4.2 Chronic disease—Australia's biggest health challenge. Australia's health series no. 14. Cat. no. AUS 178.* Canberra: Australian Institute of Health and Welfare;2014.
25. NSW Government. Natural disaster declarations. 2021; https://www.nsw.gov.au/topics/disaster-relief-and-support/natural-disaster-declarations.
26. Bonevski B, Magin P, Horton G, Foster M, Girgis A. Response rates in GP surveys: Trialling two recruitment strategies. *Australian family physician.* 2011;40(6):427.
27. ARTD, The University of Melbourne. *OCP HealthPathways (Tranche 4) Evaluation - Final Report.* North Western Melbourne Primary Health Network;March 2021.
28. Love T. *Implementing HealthPathways across Queensland: a case study. Prepared for Streamliners, Canterbury DHB and Queensland Health.* Sapere Research Group;2019.
29. Fischer F, Lange K, Klose K, Greiner W, Kraemer A. Barriers and Strategies in Guideline Implementation—A Scoping Review. *Healthcare.* 2016;4(3):36.
30. Evans-Lacko S, Jarrett M, McCrone P, Thornicroft G. Facilitators and barriers to implementing clinical care pathways. *BMC health services research.* 2010;10(1):1-6.
31. Murray PHN. Murray HealthPathways Newsletter. Friday 5th November 2021; https://www.murrayphn.org.au/information-and-resources-for-health-professionals/pathways/.
32. Evans J, Guthrie B, Pagliari C, et al. Do general practice characteristics influence uptake of an information technology (IT) innovation in primary care? *Journal of Innovation in Health Informatics.* 2008;16(1):3-8.
33. Illawarra Shoalhaven LHD and COORDINARE. *HealthPathways Illawarra Shoalhaven Short Term Evaluation.* Available at https://illawarrashoalhavenproject.healthpathways.org.au/Portals/32/HPWIS%20Docs/HPW%20Evaluations,%20Surveys%20&%20Papers/HPWIS%20Short%20Term%20Evaluation%20Report%20-%20FINAL%20070918.pdfSeptember 2018.
34. NSW Health. *Leading Better Value Care booklet: Improving the health outcomes and experiences that matter to patients.* NSW Government;2019.
35. Northern NSW Local Health District and North Coast Primary Health Network. *Northern NSW Winter Strategy 2018: Interim Evaluation Report.* https://hnc.org.au/winter-strategy-2020/wp-content/uploads/2019/05/20190426-WS18-Eval-Report-Long-FINAL.pdf2018.
36. Productivity Commission. *Integrated Care: Shifting the Dial: 5 year Productivity Review, Supporting Paper No. 5.* Canberra2017.
37. Valentijn PP, Boesveld IC, van der Klauw DM, et al. Towards a taxonomy for integrated care: a mixed-methods study. *International journal of integrated care.* 2015;15:e003-e003.
38. Banfield M, Jowsey T, Parkinson A, Douglas KA, Dawda P. Experiencing integration: a qualitative pilot study of consumer and provider experiences of integrated primary health care in Australia. *BMC family practice.* 2017;18(1):2-2.
39. Schot E, Tummers L, Noordegraaf M. Working on working together. A systematic review on how healthcare professionals contribute to interprofessional collaboration. *Journal of Interprofessional Care.* 2020;34(3):332-342.
40. Pervaz Iqbal M, Manias E, Mimmo L, et al. Clinicians' experience of providing care: a rapid review. *BMC Health Serv Res.* 2020;20(1):952.
41. O'Daniel M, Rosenstein AH. Professional communication and team collaboration. *Patient safety and quality: An evidence-based handbook for nurses.* 2008.
42. WHO. *Framework on integrated, people-centred health services - Report by the Secretariat.* Geneva: World Health Organization;2016.
43. Reddy S. Towards better healthcare integration. *The Health Leader.* 2015;2.
44. Marjot J, Haysom G, Browne P. Medico-legal risks associated with fragmented care in general practice. *Medical Journal of Australia.* 2021;215(5):203-205.e201.

45. Van Houdt S, Heyrman J, Vanhaecht K, Sermeus W, De Lepeleire J. Care pathways across the primary-hospital care continuum: using the multi-level framework in explaining care coordination. *BMC Health Services Research.* 2013;13(1):296.
46. Radwin LE, Castonguay D, Keenan CB, Hermann C. An Expanded Theoretical Framework of Care Coordination Across Transitions in Care Settings. *Journal of nursing care quality.* 2016;31(3):269-274.
47. Guagliardo S, Dheret C. *Policy brief: Integrating is caring: A paradigm shift in health.* European Policy Centre;2019.
48. Janssen M, Sagasser MH, Fluit CRMG, Assendelft WJJ, de Graaf J, Scherpbier ND. Competencies to promote collaboration between primary and secondary care doctors: an integrative review. *BMC Family Practice.* 2020;21(1):179.
49. Australian Digital Health Agency. My Health Record in the hospital setting. 2021; https://www.myhealthrecord.gov.au/for-healthcare-professionals/hospitals.
50. Abrahamsen C, Nørgaard B, Draborg E, Nielsen D. Reflections on two years after establishing an orthogeriatric unit: a focus group study of healthcare professionals' expectations and experiences. *BMC health services research.* 2017;17(1):602-602.
51. Dickins E, Altman L, Woolfenden S, Zurynski Y. An evaluation of HealthPathways and its impact upon quality of referrals received by a tertiary paediatric allergy and immunology service. *International Journal of Integrated Care.* 2018;18(S1):26.
52. Blythe R, Lee X, Simmons T, et al. Economic Analysis of Specialist Referral Patterns in Mackay, Queensland Following HealthPathways Implementation. *Journal of Primary Care & Community Health.* 2021;12:21501327211041489.
53. Looman W, Struckmann V, Köppen J, et al. Drivers of successful implementation of integrated care for multi-morbidity: Mechanisms identified in 17 case studies from 8 European countries. *Social Science & Medicine.* 2021;277:113728.
54. Queensland Heath. *Specialist Outpatient Strategy: Improving the patient journey by 2020.* Brisbane: Queensland Government;May 2016.
55. Queensland Health. Clinical Prioritisation Criteria. 2021; https://cpc.health.qld.gov.au/.
56. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health affairs.* 2008;27(3):759-769.
57. Productivity Commission. *Impacts of Health Recommendations, Shifting the Dial: 5 year Productivity Review, Supporting Paper No. 6.* Canberra2017.

7. Appendices

Appendix A: Evaluation Plan

the science of knowing

Research that matters

Milestone 1: Mid and North Coast HealthPathways Evaluation Plan

FINAL - 20th May 2021

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About us

The Science of Knowing Pty Ltd is a strategic insight consultancy that specialises in research, policy and evaluation. A full-service, independent company, we maintain a history of success for our clients and projects through a professional, ethical and scientific approach to our work. Our aim is to deliver research that matters, which provides tangible benefits for our clients and contributes to a fair and healthy society.

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The key to successful research, policy and evaluation is reliably sourcing and understanding the correct information. Making the knowledge process easy, accurate and cost-effective truly is a science – the science of knowing…

Contents

Evaluation Plan

Evaluation background

HealthPathways is a web-based platform designed for use during a consultation to offer clinicians locally agreed information to make the right decisions, together with patients, at the point of care.[1] Each pathway provides clear and concise guidance for assessing and managing a patient with a particular symptom or condition, and localised information to enable appropriate referrals to services.[1]

It is a key hypothesis of the HealthPathways program team that HealthPathways provides a process by which different parts of the health system can collaborate to develop or improve a shared approach to patient care.[1] Shared care approaches facilitate the Quadruple Aim by providing a scaffold for improved communication and integration between levels of the health service, enabling clinicians to work as a team to provide a standardised level of care that is based on shared understanding of the evidence base while maintaining the flexibility to respond to an individual patient's needs.[1]

The Science of Knowing Team was commissioned on 25th March 2021 to undertake an evaluation, involving a process and outcomes evaluation that included all health pathways for the process evaluation and a case study of Antenatal Care for the outcome component. This document outlines our proposed HealthPathways Evaluation Plan (Project Milestone 1). We first describe our overall evaluation approach.

Evaluation approach

Our evaluation approach is grounded on lessons learned from the literature on evaluating HealthPathways in New Zealand and Australia.[2-7] Our experience evaluating complex health system level intervention, such as those aimed at integration of services and improving the Quadruple Aim, suggested early involvement of key stakeholders to refine the scope of the evaluation and identify those evaluation questions that were critical to examine both the extent to which the program has achieved its intended goals and unpack what has been working in terms of project design and why. Our first step was thus to examine lessons learned from previous evaluations and brainstorm the evaluation scope and approach with key stakeholders at a virtual 'brainstorming' meeting attended by representatives from Healthy North Coast, Mid North Coast LHD and Northern NSW LHD, held on 1st April 2021.

The literature examined at the meeting highlights the methodological challenges that even evaluations much larger in scope, both in terms of resources and time, face to capture adequate metrics of Quadruple Aim outcomes and to plausibly attribute any high-level outcomes to the program itself.[3,4] However, the reviewed studies highlight that a program that succeeds in achieving its intermediate outcomes, such as acceptability and use, provides strong foundations for collaboration and integration of services. In today's world of fragmented delivery of health services,

achieving these intermediate outcomes, especially improved collaboration, are a key pre-condition for the program to improve the high-level outcomes set by the Quadruple Aim.

These findings reflected the views of stakeholders operating on the ground and so it was agreed at the brainstorming meeting that the evaluation should focus on tangible, intermediate outcomes that could be realistically leveraged by the program.

The meeting also provided the evaluation team with an invaluable opportunity to hear firsthand what stakeholders expected the program to achieve and how the evaluation could contribute to further efforts to improve program performance. We have taken to heart the interest of stakeholders to use the evaluation process and findings to support program performance in a quality improvement framework that can provide guidance as to what needs to change and what needs to be monitored for a continuous improvement of HealthPathways across the Mid and North Coast (MNC) footprint.

We have thus designed an evaluation framework that includes an outcomes and process evaluation as well as a dedicated chapter to drill on lessons learned from both the literature and the actual evaluation to look prospectively at what would need to happen in the next three years to leverage current resources and ensure they deliver the best possible value to stakeholders, as examined below.

Evaluation scope and design

We have reframed our evaluation scope in line with the brainstorming discussions to ensure evaluation findings are robust and useful for future program improvements. Similar to the tender document, we have maintained a case study of Antenatal Care and a broader evaluation for the program itself.

Specifically, we have designed a staged evaluation design that allows us to use findings from our Antenatal Care case study to inform the evaluation of the overall program itself. We acknowledge the limitations of undertaking only one case study to generalise to other health pathways, which have led to larger evaluations, including for example three case studies elsewhere. However, to ameliorate the potential biases of one single case study, we are drawing on the current literature to triangulate the case study results.

Also, in line with the tender document, we include an outcomes and process component, although with two distinctive modifications. First, as suggested by the recent literature, our outcomes evaluation will focus on intermediate rather than high-level outcomes. Second, we propose to measure intermediate outcomes for ANC, but also for all health pathways, although as expected the latter will involve a less detailed examination.

Outcome evaluation: Collaboration

The **outcomes evaluation** will examine the extent to which the current program design, including the adoption of the Streamliners platform has led to higher usage of HealthPathways (HP) and the impact it has had on **collaboration between primary and tertiary care staff**.

Specifically, we will examine the following key evaluation question:

ANC Case Study and All Health Pathways:

1. Has HP implementation contributed to improved collaboration between primary and tertiary care staff?

In the absence of secondary data that can be used to proxy the extent of collaboration (i.e., warm hand-offs, attendance at multi-disciplinary team reviews), our evaluation will focus on subjective metrics of collaboration. Specifically, we will include in our survey questions aimed at capturing the extent to which GPs have perceived HP to contribute to improved collaboration. To capture LHD staff's point of view we will draw on qualitative evidence gathered through our focus groups/interviews. For these purposes and to ensure robust metrics, we will draw on the extensive literature on teamwork and collaboration (see a summary in Table 1) as well as our previous work on integrated care programs.

Table 1: Examples of team work and collaboration themes that could be explored

Themes	Summary
Communication[8]	• Communication can be viewed in terms of formality, facilitators that support it, frequency, and degree that it occurs.
Trust[8]	• Levels of trust or distrust between organisations/colleagues, such as nature and quality of previous experiences of collaboration or lack of confidence in the other's skills
Power[8]	• Power struggles present in the relationships between healthcare actors from different hierarchical, social, and economic levels within an organisation and across organisational boundaries.
Consensus[8,9]	• The extent to which each organisation agrees or disagrees with a specific set of goals, tasks, and issues, and how each individual/team contributes.
Accountability[9]	• Mutual understanding and agreement about who is responsible specific care tasks and goals.
Formalisation[8]	• Level of formalisation using tools, such as policies and procedures, or through established collaborative processes.
Professional role clarification[8]	• Clear role description, a definition of task characteristics such as the scope and complexity of each actor or agency, a definition of practice parameters, and awareness of other organisations' resources, goals, and capacities.
Predictability[9]	• Shared understanding of key tasks, timing, and what "should" happen to identify the need to adapt. Involves having a sense for what subtasks make up larger tasks and in what sequence tasks will be performed.
Environment[8]	• The context and external factors that either enhance or constrain collaboration efforts, including organisational scope, geographic location of organisations, and resourcing.

Clinician experience of care

The outcome evaluation will also examine how HealthPathways has contributed to improved clinician experience of care. This will be addressed through the Health Professionals survey and explored in further detail during the focus groups. As 'other' non-antenatal care related health professionals are not included in the qualitative components of this study, we will focus on the experience of GPs.

Specifically, we will aim to answer:

ANC Case Study and All Health Pathways:

2. Has HealthPathways contributed to improved experience of care for GPs?

Process evaluation

The main objective of the **process evaluation** will be to unpack what has worked/has not worked in terms of the HealthPathways program and implementation contributing to increased uptake and improved collaboration. In other words, this component of the evaluation will address *the 'how'* and the '*why*', that is how has the program worked and contributed to expected outcomes as well as 'why' specific elements of the program have/have not worked as expected.

The process evaluation will thus address the various issues related to how the program has been designed and implemented as well as questions related to elements of the program itself (i.e., educational workshops that facilitate collaboration), the health system (i.e., unavailability of local services) and the overall context (i.e., demographic profile of GPs in the region) that have acted as catalysts or hindrances for the program to achieve its expected outcomes.

The process evaluation will also cover a measurement of uptake and usage of HealthPathways amongst health professionals in the footprint. Specifically, the following questions will be answered:

Antenatal Care Study:

3. What is the current uptake and trends since the start of the program for ANC HP in the MNC footprint? Note: In addressing this question we will include analysis of individual ANC pathways, as required.
4. What proportion of GPs in the HNC footprint used ANC HealthPathways during a pre-determined period prior to the evaluation? Note: As discussed by stakeholders, due to COVID-19, the past 12 months might not be representative.

All Health Pathways:

5. What is the current uptake and trends since the start of the program for HP in the MNC footprint? Note: In addressing this question, we will include an analysis of specific groups of pathways to identify similarities/differences in uptake and trends. Pending available data, we might be able to examine other issues relevant to HP uptake, such as those related to GPs' interactions with the program, such as submitting feedback.
6. What proportion of GPs and other health professionals in the HNC footprint used HealthPathways during a pre-determined period prior to the evaluation? Note: As

discussed by stakeholders, due to COVID-19, the past 12 months might not be representative.

For both the ANC Case Study and the All HealthPathways evaluation, Google Analytics will be used to examine Q2, while Q3 will be addressed via the electronic Health Professionals survey. Other issues related to uptake such as those regarding the number of GPs submitting feedback or attending education sessions might be addressed through program data, if available.

The broad evaluation questions included in the original tender document have been grouped and reframed as follows:

Overall HealthPathways Program Design and Implementation:

7. What were the main characteristics of the referral, collaboration and shared care system before the HP implementation?
8. What were the key problems/pain points that the HP program aimed to address?
9. How does the program work on the ground? This includes issues such as the main activities/strategies undertaken by HealthPathways to engage clinicians, build and maintain relationships as well as the triggers for new pathway development, pathway review or partial update?

These questions will be addressed through our environmental scan of program documentation as well as focus groups and stakeholder interviews.

ANC Case Study:

10. What are the patterns of use for ANC pathways amongst both primary care and tertiary clinicians? This will cover issues of a) timing, such as usage during consultations, pre-post, when teaching students/registrars or while developing clinical procedures; and b) frequency of use, e.g., most sessions or only if required.
11. What are the key drivers and barriers of HP usage/uptake amongst primary care and tertiary care clinicians? Note the individual issues to be addressed under this question will be informed by our review of the literature on HealthPathways.
12. What are the key drivers and barriers for HP to contribute to improved collaboration between primary and tertiary care staff? Note the individual issues to be addressed under this question will be informed by our review of the literature on care coordination/collaboration.

We will address all the above questions through mixed methods drawing on the Health Professionals survey and our focus groups/key stakeholder interviews. For these purposes we will draw on the literature on HP and collaboration to identify the specific indicators that can be included for measurement in the Health Professionals Survey (e.g., the perceived value of specific elements/strategies, which provides a good proxy for whether they facilitate/hinder usage and collaboration) vs. those that are better addressed through qualitative methods (e.g., to unpack how a specific strategy, such as educational sessions, facilitates future collaboration).

We should also note that to ensure completion of the survey by GPs, we will aim at an efficient survey design with a reduced number of questions and simple questionnaire flow, which will require a careful pre-selection of indicators to be included in the survey.

All HealthPathways:

13. What are the key drivers and barriers of HP usage/uptake amongst primary care and tertiary care clinicians?
14. What are the key drivers and barriers for HP to contribute to improved collaboration between primary and tertiary care staff?

Note that we have excluded patterns of use from the evaluation of all health pathways because they are pathway specific and given the sheer number of pathways, they cannot be addressed through the current evaluation.

We also acknowledge that some drivers/barriers of use are system level, while others are pathway specific or a mix of both. For example, the demographic profile of GPs is likely to affect HP usage across the board, while bottlenecks to access specialist services might be pathway specific. Therefore, we plan first to undertake our ANC study and triangulate findings with those from the literature to inform our focus group discussions and key stakeholder interviews for all health pathways. This will ensure a rich discussion that can draw general conclusions when feasible and highlight individual pathway specificities as required.

Towards future best value for health system resources

In the context of a quality improvement approach for the program, our process evaluation will identify barriers and catalysts of program improvement, including those related efficiencies which can be used to inform future program adjustments and monitoring and evaluation (M&E) exercises aimed at improving both sides of the Value for Money equation: Value in terms of the system outcomes that the program aims to achieve and the system resources invested.

Our approach will not aim at quantifying the monetary costs incurred by stakeholders and the economic benefits that can be expected from improved collaboration, which are outside the scope of the current evaluation. Instead, we will drill down on lessons learned from this evaluation and the literature to provide guidance on priorities for program change if uptake and collaboration are to be improved.

We will spell out the key pre-conditions under which HP uptake and improved collaboration can be effectively translated into the Quadruple Aim of better health outcomes, client experience of the service, staff satisfaction and system efficiency. This will allow a realistic and targeted approach for improving program performance.

To inform strategic decision-making and planning, we will examine the experience of selected PHNs in leveraging other technologies, such as e-referrals and API, to support uptake and usage of HealthPathways. We will not attempt to benchmark HNC against all 31 PHNs, rather narrow our focus to those that are already investigating and/or implementing complementary technologies with the HealthPathways platform. This will be conducted through a desktop review and conversations with relevant representatives at PHNs, such as Hunter New England and Gold Coast PHNs. We note that

ours is not a technology review or assessment, which is out of scope. Our focus will be a preliminary assessment placed on what has worked, has not worked so well in terms of leveraging specific technological developments to support HP.

Specifically, we will address the following questions:

15. How does a successful HP program look like in three years? And ten years?
16. What are the key success factors that stakeholders can build on for future program improvements?
17. What needs to change, and what are the key barriers to achieve the required change for improving uptake, collaboration and clinician experiences of care?
18. What are the key system and contextual pre-conditions that are required for effectively translating HP uptake and improved collaboration into the outcomes of the Quadruple Aim?
19. What other technologies and/or systems/processes are being used elsewhere that could assist Healthy North Coast in achieving their HP objectives?
20. What are the key indicators to be including in a routine M&E of the program?

These questions will be used to frame a stakeholder consultation workshop where findings from the outcomes and process evaluations are examined in detail and taken forward to adjust the program implementation in the context of a quality improvement framework.

Evaluation methods

For both our outcomes and process evaluation we will draw on a mixed-methods approach that includes a quantitative component focused on a detailed descriptive statistical analysis of Google Analytics data and a Health Professionals Survey to be undertaken as part of the evaluation, as well as a qualitative component that includes virtual focus groups and individual stakeholder interviews.

Our quantitative approach will draw on Google Analytics and the Health Professionals survey. We will undertake a descriptive statistical analysis in Excel/SPSS, which will include data analytics and infographics. Provided data are available, sample weights will be used to control for potential biases in the representativeness of the Health Professionals survey. Our qualitative approach will include an environmental scan of the literature and program documentation as well as focus group discussions and key stakeholder interviews detailed below. Information will be examined through thematic analysis to identify key themes and infer causal mechanisms. We will use appropriate coding/analytical tools**,** including NVivo**.**

Data collection activities

Activities listed in Table 2 below are those that involve collating and reviewing existing data and insights to support the preparation of the ethics application. These activities have already commenced with the exception of the HealthPathways program team meeting.

The data collection activities listed in Table 3 cannot commence until ethics approval is received. It is anticipated that this will not occur until mid-late June (at the earliest). The ethics application and all documentation were submitted on the 10th May to be reviewed at the 20th May North Coast HREC Meeting. It can take an additional two weeks after this meeting to receive approval or requests for further information.

Conversations with Hunter New England and Gold Coast PHNs were not included in the ethics application. These will be covered under the current interview allocation in Table 3.

All data collection activities are to be completed by the 30th September as per the contract. The final stakeholder consultation workshop is to contextualise findings to date, and therefore not considered a data collection activity.

Table 2: Data collation activities

Data collection activity	Description	Timeframe
Desktop review and collation	- Includes reviewing all available program materials, Streamliners analytical data, and Google analytics data, where available to inform the evaluation plan.	**Commenced**
HealthPathways Program team meeting	- Involves articulating all the activities and strategies involved in delivering the HealthPathways program. This task needs to be completed prior to ethics submission as it will inform survey and focus group protocols. To be scheduled as soon as possible.	**April 2021**

Table 3: Data collection activities

Data collection activity	Data source/sample	Number	Format/ additional details	Recruitment	Timeframe
Online Health Professionals survey	All **GPs** and **Registrars** (approx. 659 across 178 practices) within the HNC footprint.[1] All other health professionals listed within the ChilliDB database, including allied health professionals, nurses, hospital staff	One survey	- Administered via Qualtrics - Survey to be piloted with small number of GPs (3-5) to test for coherence and acceptability. Suitable participants to be identified by HNC.	- To be supported by HNC Primary Care Coordinators and promoted at GP events/engagement activities. - May require high level of email and phone support/reminders - A prize draw will be provided to boost participation.	**As soon as ethics approval is received** **June-July 2021**
Online focus group	**HealthPathways program team**, former and current clinical editors, subject matter experts and specialist medical advisors involved in the review of antenatal care pathways.	Up to 3 focus groups	- Facilitated online via Teams/Zoom - Maximum of 8-10 participants	- To be supported by Evaluation Working Group and HNC HealthPathways program staff - Non-salaried staff to be reimbursed	**Aug-Sept 2021**

[1] These figures were sourced from the North Coast Primary Health Care Workforce Project – Summary Report Feb 2018. Figures may need to be updated to reflect changes over past few years.

Data collection activity	Data source/sample	Number	Format/ additional details	Recruitment	Timeframe
Online focus groups	**Clinicians** involved in delivering shared antenatal care, such as antenatal clinic clinicians, antenatal care coordinators, community midwives, and public hospital obstetricians. This group will exclude any primary care or HNC personnel to ensure participants speak candidly about the program	Up to 5 focus groups to cover Tweed, Byron, Lismore, Grafton, Port Macquarie Network and Coffs Harbour Network	- Facilitated online via Teams/Zoom - Maximum of 8-10 participants - These focus groups will exclude any HNC personnel to ensure participants speak candidly about the program.	- To be supported by Evaluation Working Group and HNC HealthPathways program staff - Non-salaried staff to be reimbursed	**Aug-Sept 2021**
Online focus groups	**GPs** involved in delivering shared-antenatal care	Up to 2 Focus groups to cover each LHD within the MNC footprint	- Facilitated online via Teams/Zoom - Maximum of 8-10 participants - These focus groups will exclude any LHD or HNC personnel to ensure participants speak candidly about the program.	- To be supported by Evaluation Working Group and HNC HealthPathways program staff - Non-salaried staff to be reimbursed	**Aug-Sept 2021**
Online interviews	Stakeholders who are unavailable or uncomfortable sharing experiences in a group setting, and Hunter New England and Gold Coast PHN HealthPathways representatives	Up to 4 interviews to capture insights and feedback	- Facilitated online via Teams/Zoom - Interviews are sometimes a requirement of ethics committees to ensure participants are provided an appropriate setting to share their experience when related to their work environment and/or colleagues.	- No recruitment required for stakeholders - Provided only as an option to capture key stakeholder insights not able to be collected through a focus group - Contact details for HNE and GC PHNs to be provided by HNC, where available	**Aug-Sept 2021**
Stakeholder consultation workshop	Relevant stakeholders and HealthPathways program staff	One full -day workshop	- Facilitated face-to-face - Final workshop to discuss findings in regard to a three-year and ten-year quality improvement framework	- To be supported by Evaluation Working Group and HNC HealthPathways program staff	**October 2021**

References

1. HealthPathways Program Team. *Mid and North Coast HealthPathways Evaluation Proposal.* [Internal document]: Prepared for North Coast Primary Health Network;September 2020.
2. Mansfield S, Quirk F, von Treuer K, Gill G. On the right path? Exploring the experiences and opinions of clinicians involved in developing and implementing HealthPathways Barwon. *Australian Health Review.* 2016;40:129-135.
3. Gill SD, Mansfield S, McLeod M, Von Treuer K, Dunn M, Quirk F. HealthPathways improving access to care. *Australian Health Review.* 2019;43(2):207-216.
4. Gray JS, Swan JR, Lynch MA, et al. Hunter and New England HealthPathways: a 4-year journey of integrated care. *Australian Health Review.* 2018;42(1):66-71.
5. Blythe R, Lee X, Kularatna S. HealthPathways: An Economic Analysis of the Impact of Primary Care Pathways in Mackay Queensland. In: Australian Centre for Health Services Innovation, Queensland University of ...; 2019.
6. McDonald B. Process evaluation of the Hunter and New England HealthPathways. *Newcastle: BMcD Consulting.* 2013.
7. McGeoch G, McGeoch P, Shand B. Is HealthPathways effective? An online survey of hospital clinicians, general practitioners and practice nurses. *The New Zealand Medical Journal (Online).* 2015;128(1408):36.
8. Karam M, Brault I, Van Durme T, Macq J. Comparing interprofessional and interorganizational collaboration in healthcare: A systematic review of the qualitative research. *International Journal of Nursing Studies.* 2018;79:70-83.
9. Weaver SJ, Che XX, Petersen LA, Hysong SJ. Unpacking care coordination through a multiteam system lens. *Medical care.* 2018;56(3):247-259.

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Appendix B: Pathway localisation process

The process for identifying new pathways for localisation consists of the following stages, and has been implemented by the HealthPathways team over the last few years.

1. The HealthPathways team maintain a list of pathways for consideration of localisation. Pathways are identified for inclusion in the list in a range of ways, including:
    - Identification of a useful pathway by CEs through the course of their work
    - Feedback from HealthPathways users about pathways they would like
    - Request for new pathway development by the LHD, HNC, LBVC working groups, or HealthPathways working group
    - Feedback from Streamliners (e.g. through the 'top 200 pathways to be localised' list), or from the feedback sessions we undertake at our 6 monthly planning session
    - Discussion at the pathways sharing meetings
    - As a result of system changes, or significant events (e.g. COVID, bushfires, major new medication made available, such as HIV post exposure prophylaxis) where a new pathway is identified that could support GPs respond to these changes/events
    - As part of strategic prioritisation meetings with LHD (this route is underutilised but has potential for development)
2. The new pathways list is reviewed at regular intervals to identify and decide priorities for pathway development.
    - At minimum at the 6 monthly team meetings; however, there have been times that it is reviewed more often, usually in a CE meeting though sometimes a decision is made out of session through discussion between a CE or PC and the clinical lead
    - When the list is reviewed, priorities are identified by the team and then a collaborative approach is taken to rank the highest priorities for pathway development
    - The basic principles for deciding on the priorities is based on a prioritisation and assessment tool, however, during a recent 6 monthly meeting it was decided by the team that formally using the tool was inefficient and a consensus seeking conversation undertaken instead
3. Depending on team capacity and perceived urgency, higher ranked pathways are then allocated for development.
4. Sometimes allocated pathways are returned to the list when other priorities arise before work is started, or during the localisation process if major hurdles are encountered. This decision is usually made by consensus at a CE meeting.

Appendix C: Google Analytics

Pathways that support shared antenatal care

The Routine Antenatal Care Pathways include:

- Antenatal Care - Routine Mid North Coast
- Antenatal Care - Routine Northern NSW
- Antenatal Shared Care Services (ANSC)
- Antenatal Shared Care Schedule - Coffs Harbour
- Antenatal Shared Care Schedule - Hastings Macleay (previously named Antenatal Shared Care Services - Hastings Macleay)
- Antenatal Shared Care Schedule - Northern NSW (Previously named Northern NSW Antenatal Checks Schedule)
- Screening for Fetal Anomalies (previously supported by Nuchal Translucency Scan sub-pathway)
- Routine Antenatal Check
- First Presentation Antenatal Blood and Urine Tests
- Medical, Obstetric, Psychosocial Risk Factors in Obstetrics
- Pre-conception Assessment.

These are supported by an additional suite of pathways that address specific health problems in pregnancy:

- Anaemia in Pregnancy
- Asthma in Pregnancy
- Epilepsy in Pregnancy
- Factor V Leiden (FVL) in Pregnancy
- Gestational Diabetes
- Gestational Diabetes Management Schedule
- Heart Conditions in Pregnancy
- Hypertension in Pregnancy and Pre-eclampsia
- Immunisation - Pregnancy
- Medications in Pregnancy and Breastfeeding
- Vomiting and Hyperemesis in Pregnancy
- Palpitations in Pregnancy
- Perinatal Mental Health
- Pertussis Vaccine in Pregnancy

- Renal Disease in Pregnancy
- Skin Conditions (Rash and Itch) in Pregnancy
- Thyroid Disease in Pregnancy
- Termination for Fetal Anomalies or Genetic Disorders
- UTIs in Pregnancy

Health conditions in pregnancy

Timeframes on the graphs below start at the month and year when the particular pathway went live. In most cases, this was January 2016.

Figure 16: Anaemia in Pregnancy – Pageviews per month Jan 2016-May 2021

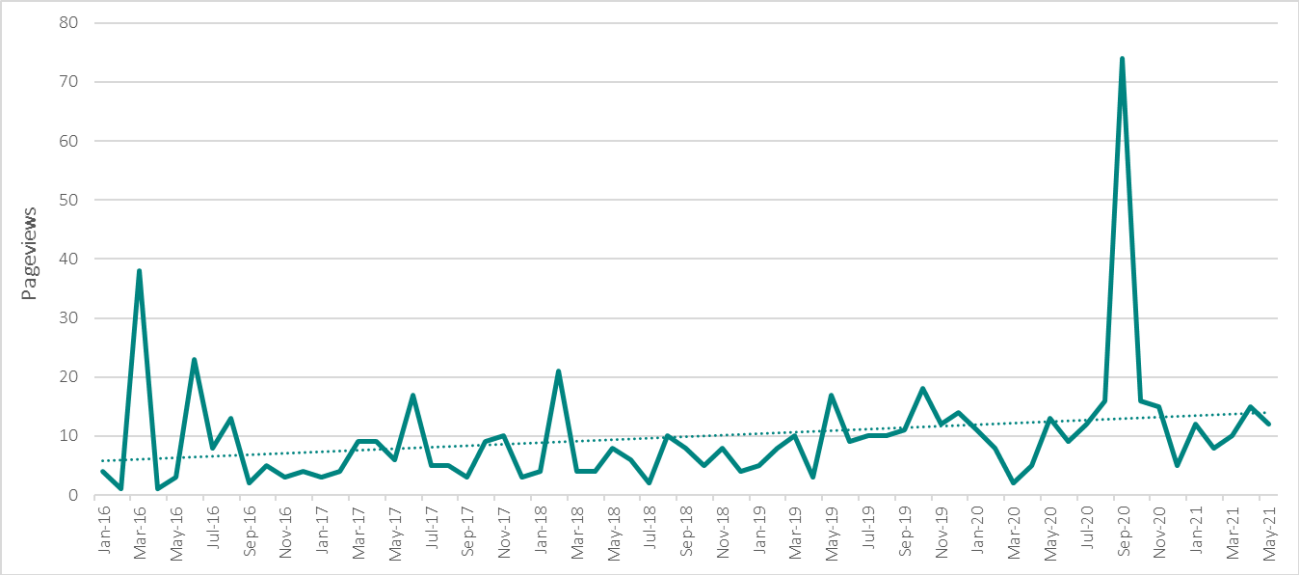


Figure 17: Asthma in Pregnancy - Pageviews per month Jan 2016-May 2021

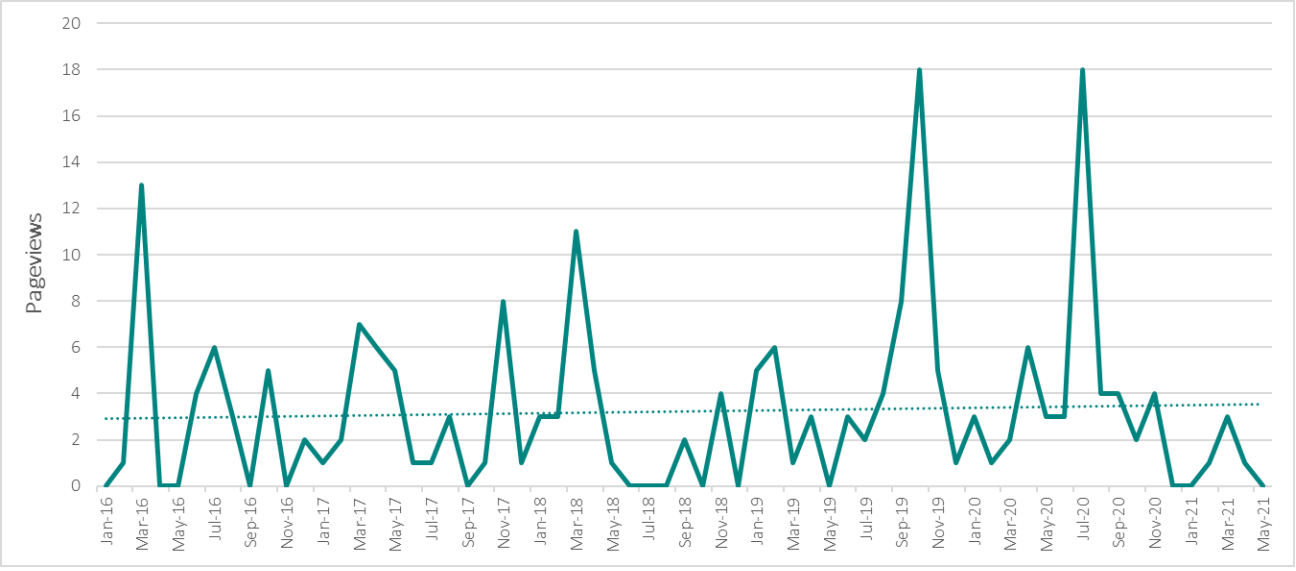


Figure 18: Factor V Leiden (FVL) in Pregnancy - Pageviews per month Jan 2016-May 2021

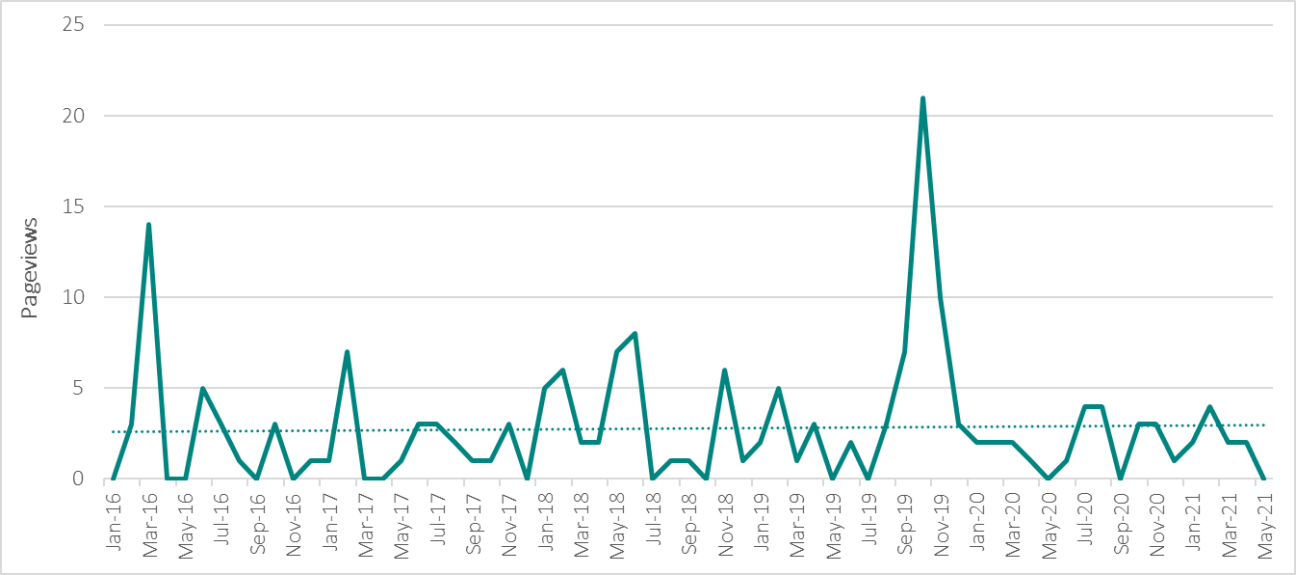


Figure 19: Gestational Diabetes - Pageviews per month Jan 2016-May 2021

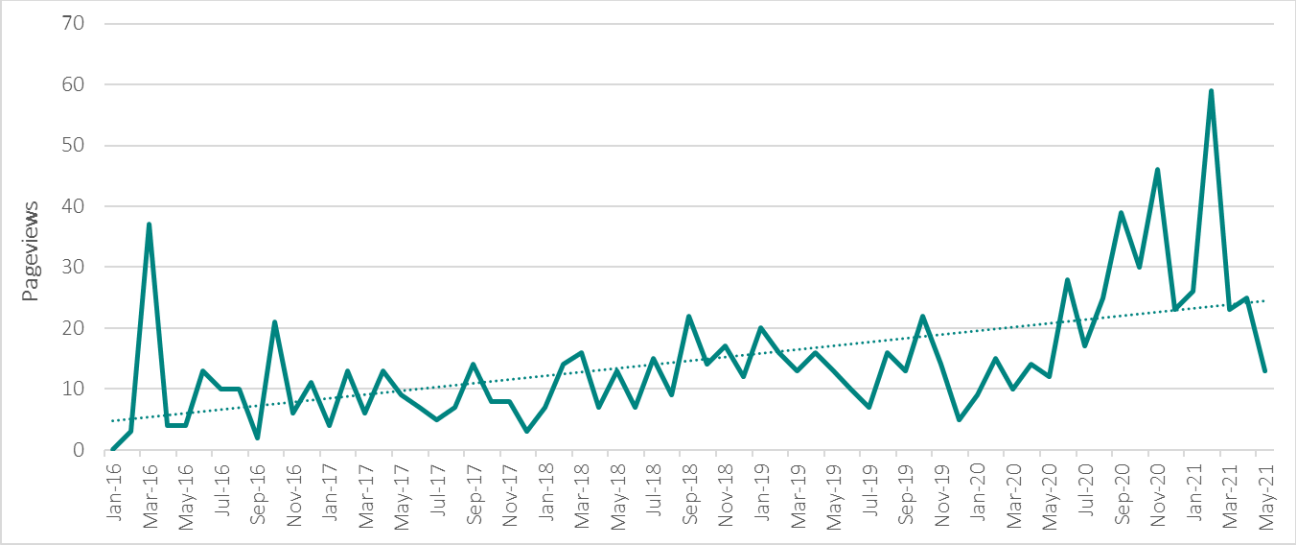


Figure 20: Gestational Diabetes Management Schedule – Pageviews per month Jan 2016-May 2021

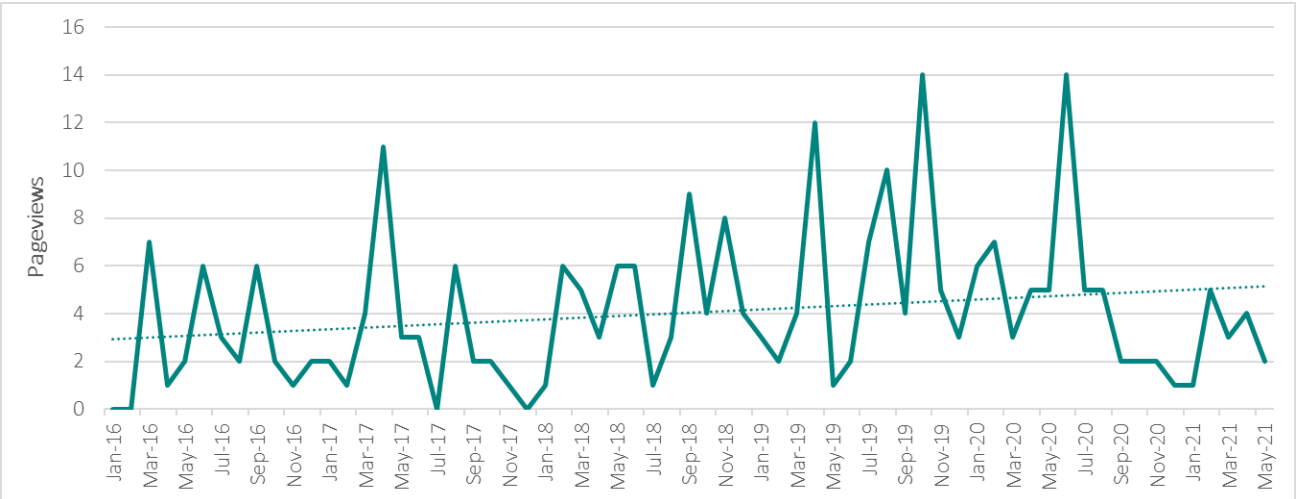


Figure 21: Heart Conditions in Pregnancy - Pageviews per month Jan 2016-May 2021

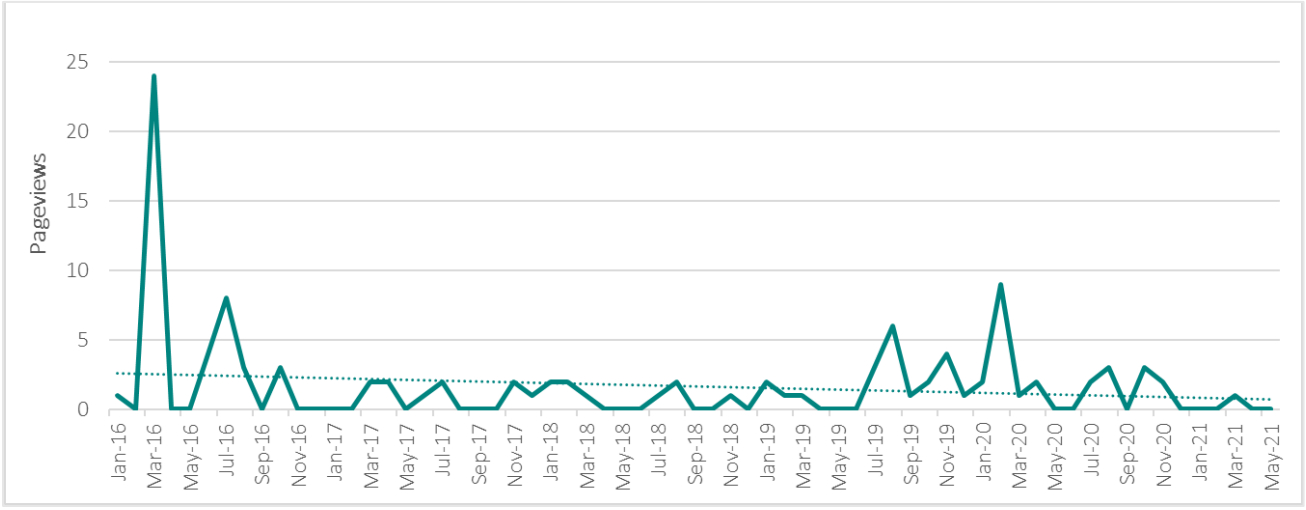


Figure 22: Hypertension in Pregnancy and Pre-eclampsia - Pageviews per month Jan 2016-May 2021

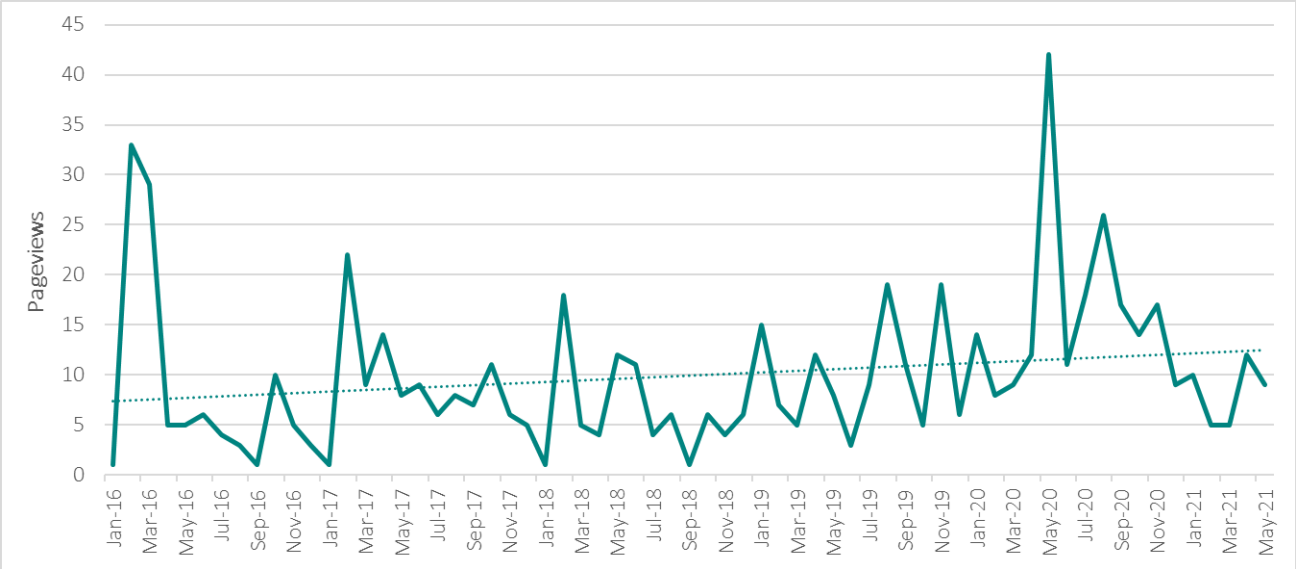


Figure 23: Immunisation – Pregnancy - Pageviews per month May 2017-May 2021

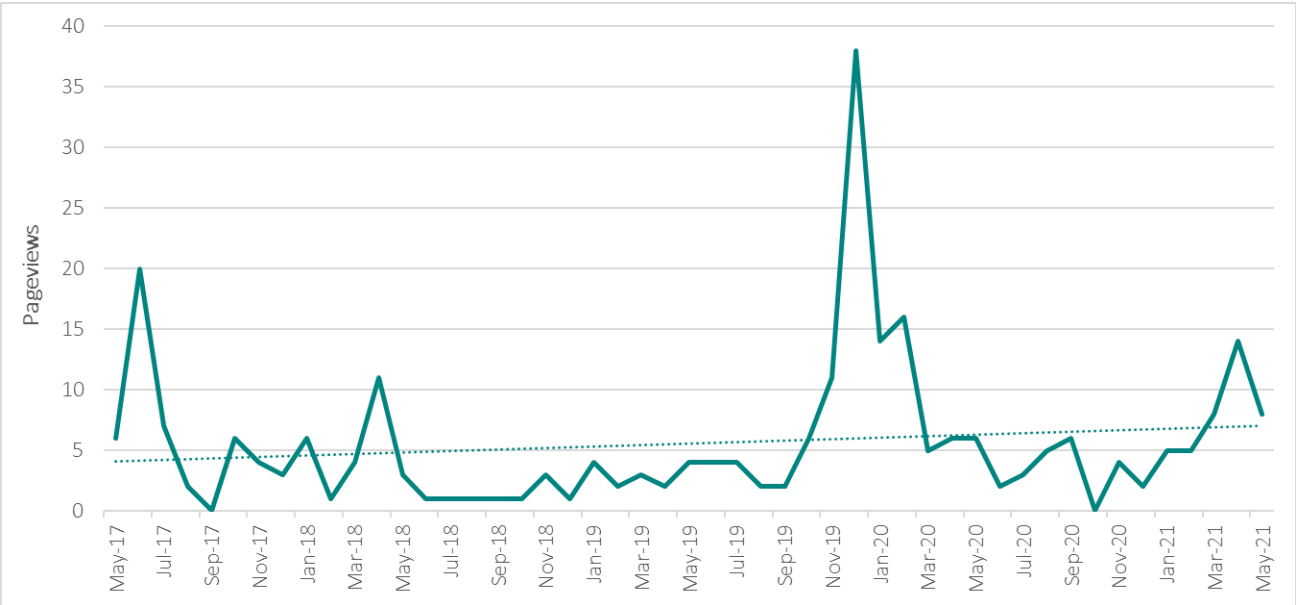


Figure 24: Medications in Pregnancy and Breastfeeding - Pageviews per month Jan 2016-May 2021

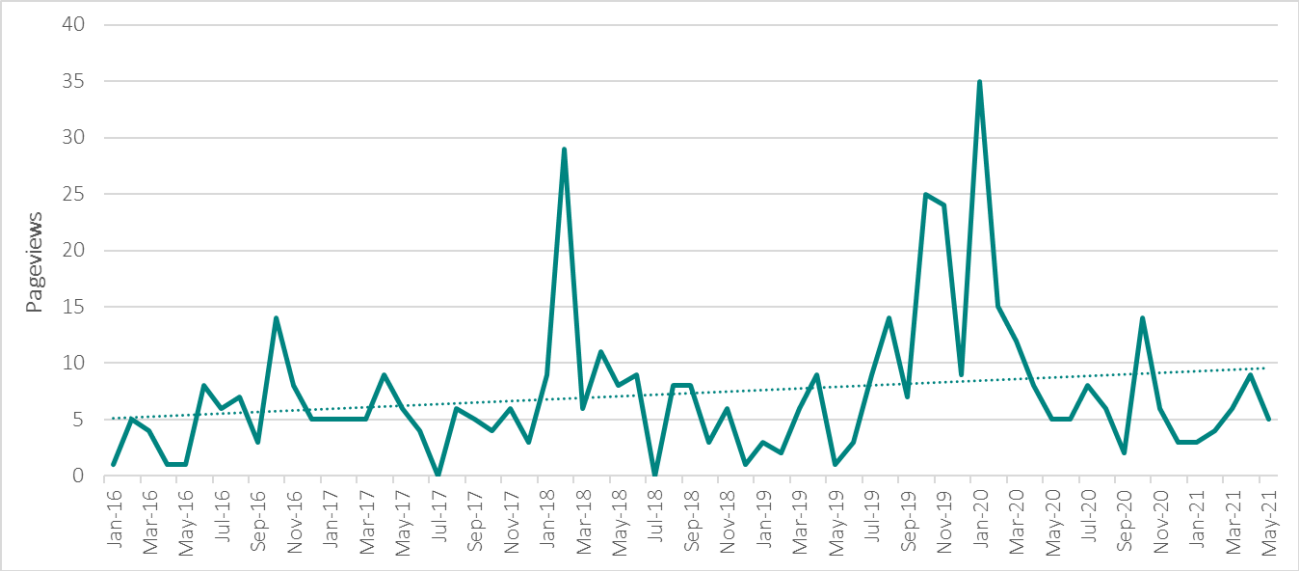


Figure 25: Vomiting and Hyperemesis in Pregnancy - Pageviews per month Sept 2020-May 2021

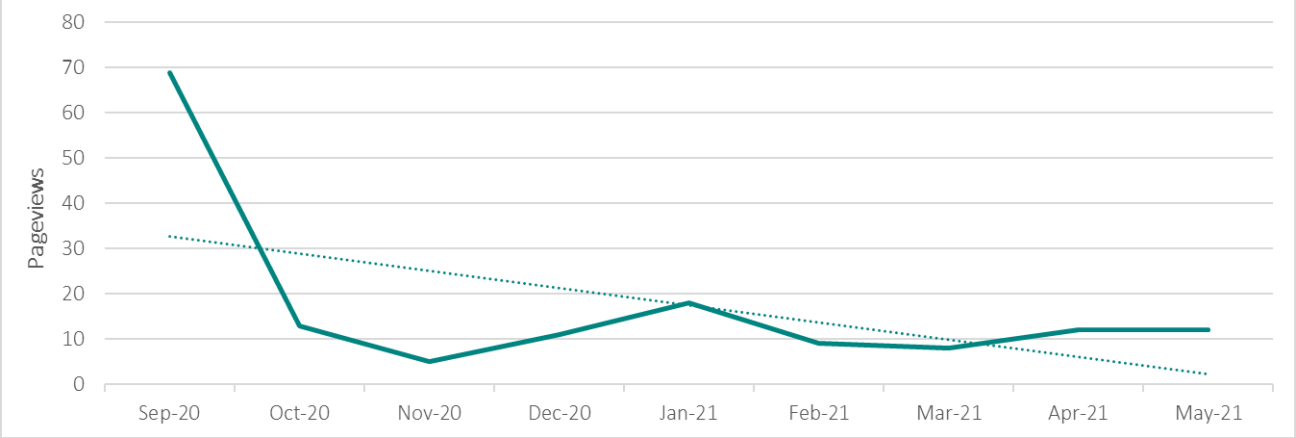


Figure 26: Palpitations in Pregnancy – Pageviews per month Jan 2016-May 2021

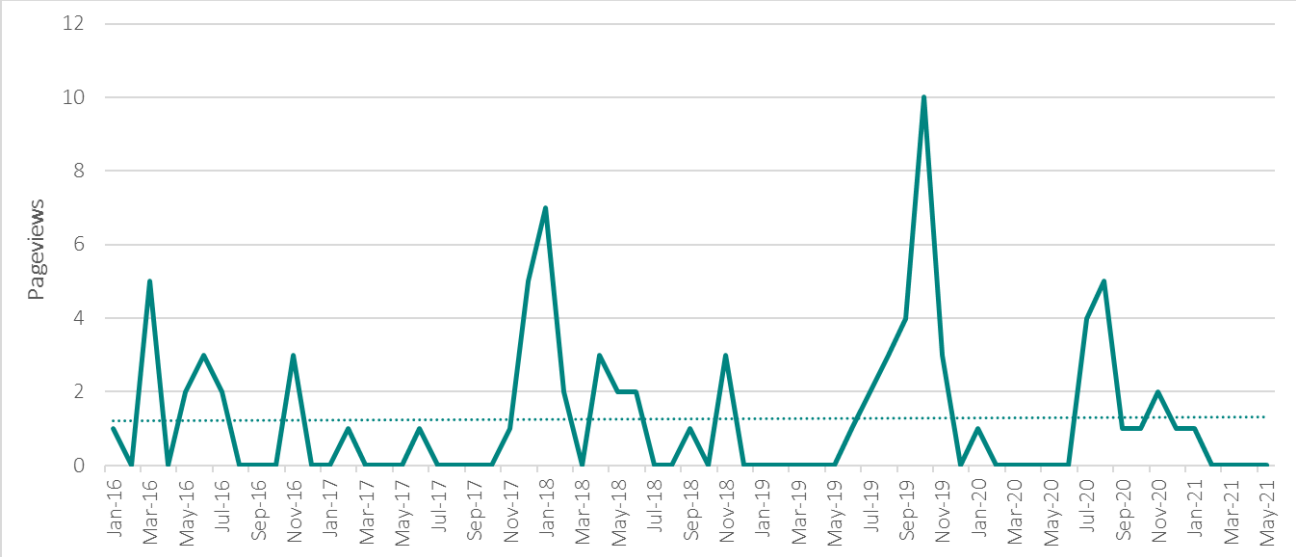


Figure 27: Perinatal Mental illness – Pageviews per moth Jan 2018-May 2021

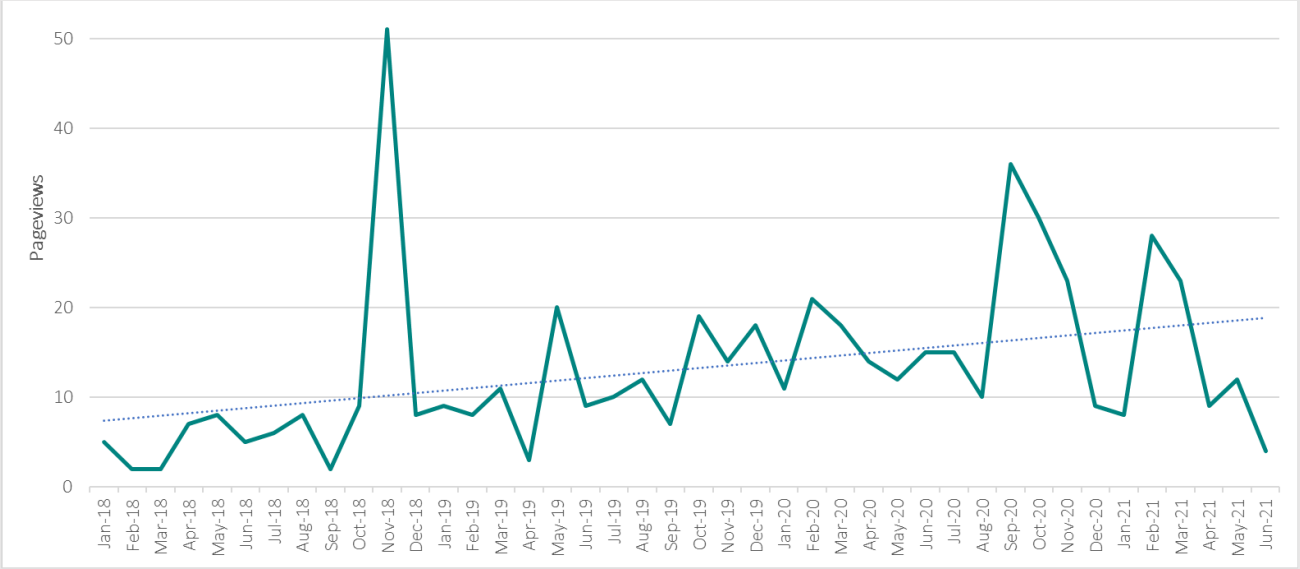


Figure 28: Pertussis Vaccine in Pregnancy – Pageviews per month Jan 2016-May 2021

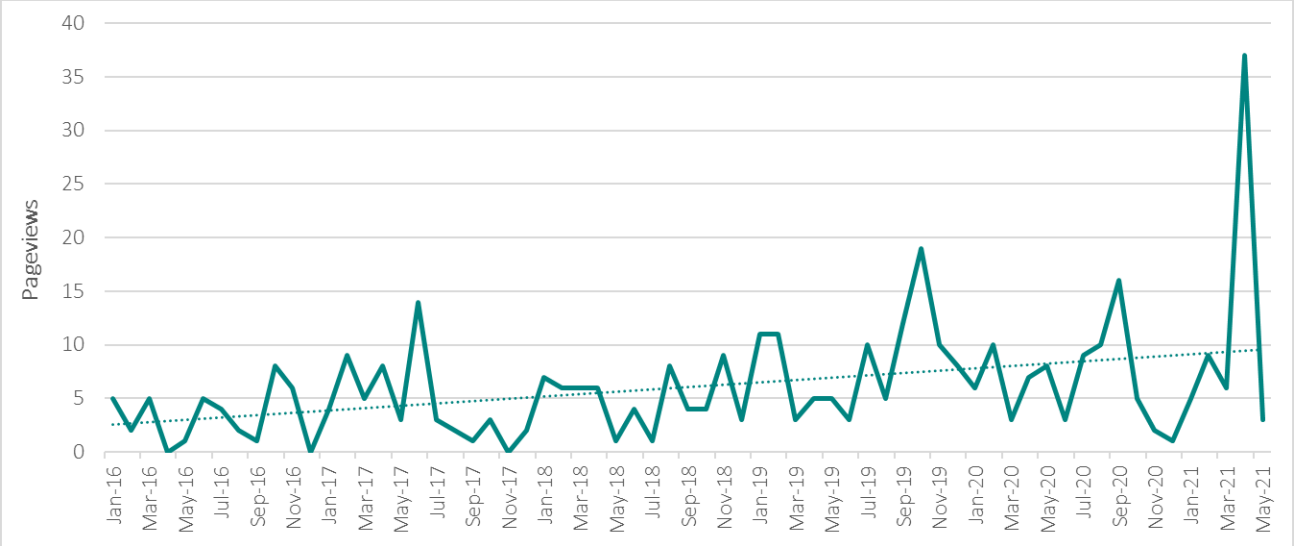


Figure 29: Renal disease in Pregnancy – Pageviews per month Jan 2016-May 2021

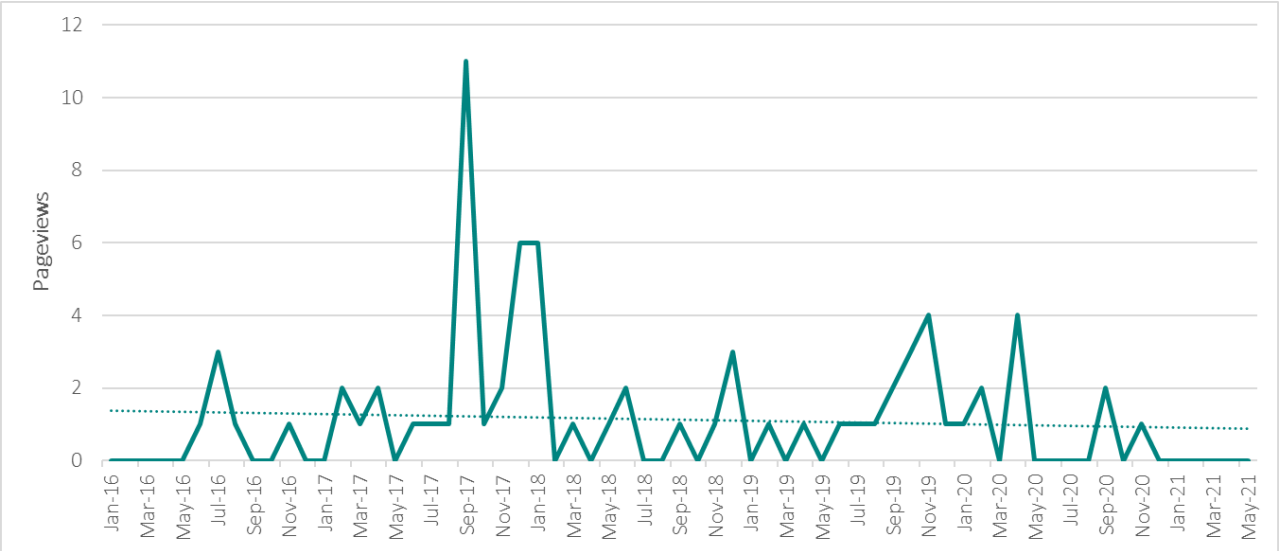


Figure 30: Skin Conditions (Rash and Itch) in Pregnancy – Pageviews per month Jan 2016-May 2021

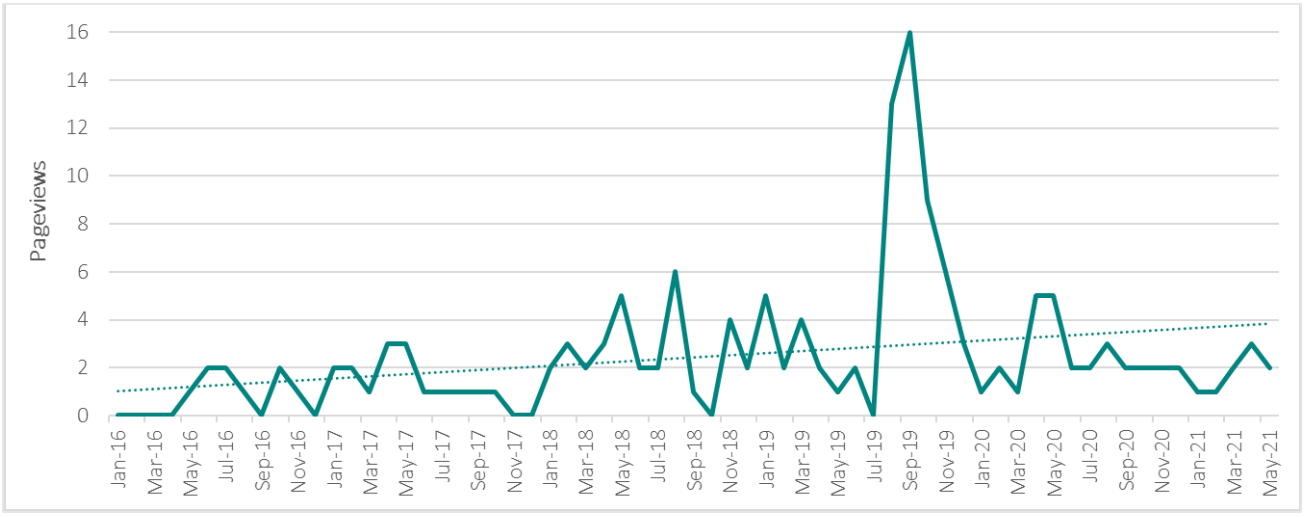


Figure 31: Thyroid Disease in Pregnancy – Pageviews per month Jan 2016-May 2021

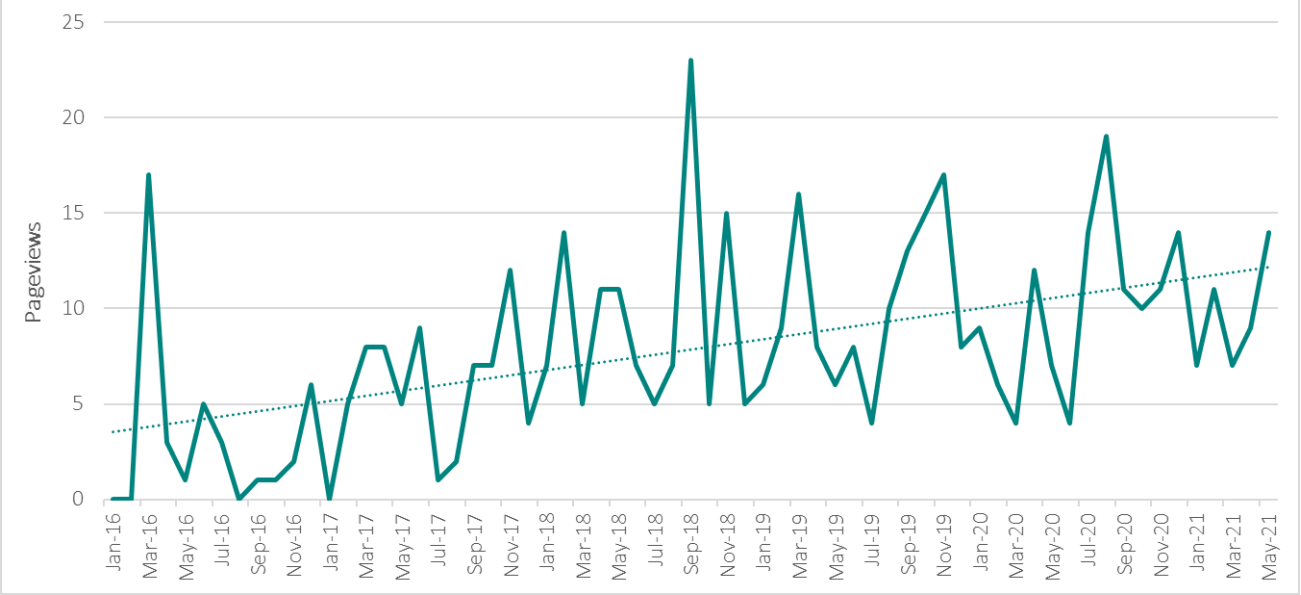


Figure 32: Termination for Fetal Abnormalities or Genetic Disorders Jul 2016-May 2021

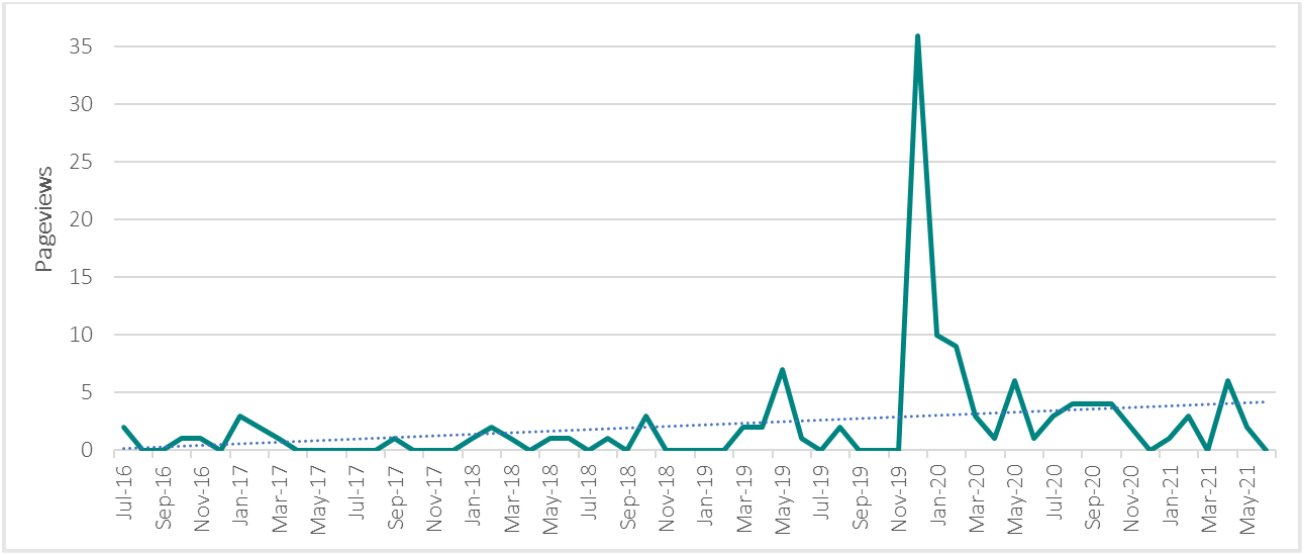
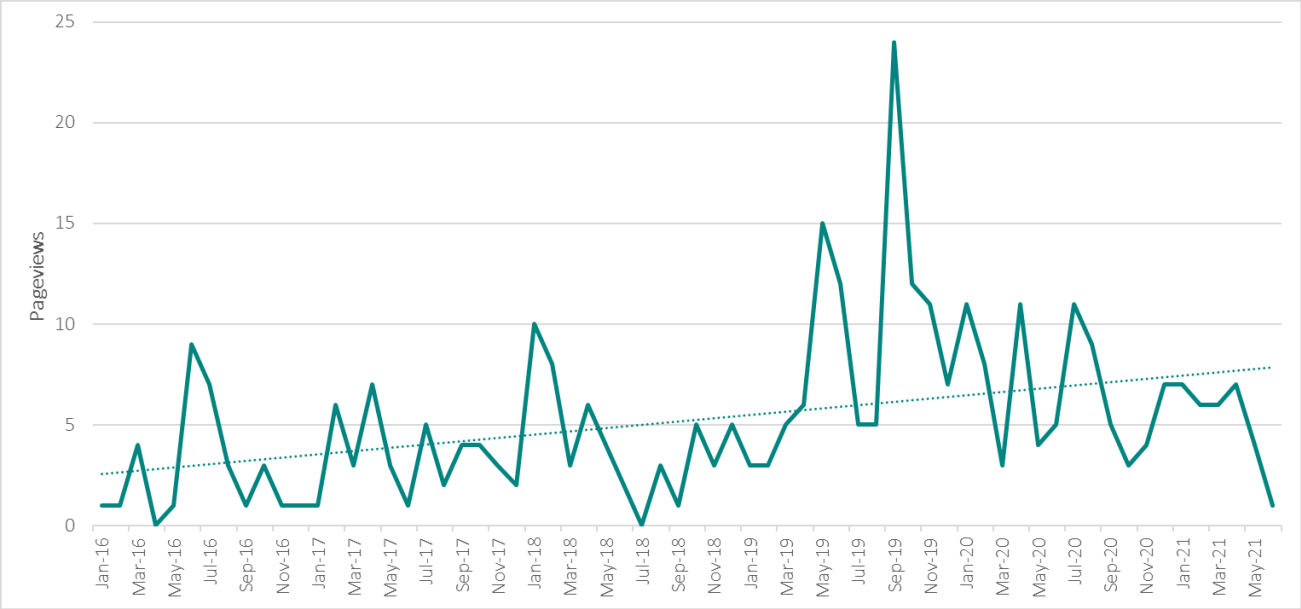


Figure 33: UTIs in Pregnancy



Appendix D: HealthPathways Evaluation Working Group Membership

Name	Title	Organisation
Catherine Adams	Clinical Midwifery Consultant	Northern NSW Local Health District
Kate Allen	HealthPathways Clinical Editor	Healthy North Coast
Debbie Banovic	Integrated Care Manager	Northern NSW Local Health District
Zita Burt	Acting Nurse Unit Manager, Antenatal Clinic, PMBH	Mid North Coast Local Health District
Marilyn Clarke	Obstetrician	Mid North Coast Local Health District
Frances Guy	Clinical Midwifery Consultant, Maternity Services	Mid North Coast Local Health District
Linda Kay	Health Reform Manager	Mid North Coast Local Health District
Kerrie Keyte	Northern NSW HealthPathways Lead	Northern NSW Local Health District
Fiona Leslie	Head of Obstetrics and Gynaecology, Hastings Macleay Network	Mid North Coast Local Health District
Grace Lueng	Clinical Editor	Healthy North Coast
Mahmoud Mahmoud	Integrated Primary Care Manager	Mid North Coast Local Health District
Michelle Mitchell	Midwifery Clinical Nurse Consultant	Northern NSW Local Health District
Sarah Mollard	HealthPathways Clinical Editor	Healthy North Coast
Shannon Morris	Midwife	Northern NSW Local Health District
Claire Remond	Coffs Harbour Pregnancy Care Coordinator	Mid North Coast Local Health District
Vicki Rose	Integrated Care Director	Northern NSW Local Health District
Fiona Ryan	Integrated Primary Care Program Coordinator	Mid North Coast Local Health District
Renee Strazarri	HealthPathways Clinical Lead	Healthy North Coast
Olivia Tierney	District Midwife Manager	Mid North Coast Local Health District
Monika Wheeler	Executive Director, Wellness	Healthy North Coast
Jill Wong	District Director of Integrated Care, Allied Health and Community Services	Mid North Coast Local Health District

HEALTHY NORTH COAST

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Healthy North Coast is an independent, not-for-profit organisation proudly delivering the PHN program in North Coast NSW. We are committed to improving the health of our communities through quality primary health care.

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