



**Women & Babies
Hospital**

New Women & Babies Hospital Project

Clinical Consultation Report

November 2023

Contents

Executive summary	3
1.0 Background and context	8
2.0 Clinical consultation approach.....	10
3.0 Stage 1 – Identification of key clinical service delivery issues	12
3.1 Summary of issues	12
3.2 Summary of opportunities and benefits	27
4.0 Stage 2 – Clinical focus group workshops.....	29
4.1 Clinical focus group workshop outputs	31
4.2 Casemix and CSF activity outputs	57
4.3 Site based workshop activity outputs	59
5.0 Stage 3 - Executive consultation	73
6.0 Jurisdictional review and analysis	74
6.1 Summary of models in other Australian states	74
6.2 Colocated Women, Babies and Paediatric services	78
6.3 Non colocated Women, Babies and Paediatric services	78
6.4 Neonatal transfers.....	80
7.0 Key findings of the clinical consultation	82
8.0 Next steps.....	91
9.0 Appendices.....	93
10.1 Appendix A – Annual births in WA by public and private.....	93
10.2 Appendix B - Obstetrics and Gynaecology Emergency Department presentations.....	94
10.3 Appendix C – NETS WA priority classification	98
10.4 Appendix D - Number of selected individual major procedures performed on neonates admitted to PCH NICU by speciality (2018-2022)	99

Executive summary

The purpose of the Clinical Consultation Report (the Report) is to document the outcomes and key findings that arose from a series of clinician focused workshops related to the New Women and Babies Hospital Project (NWBHP) following the announcement to change the location of the Women's and Babies Hospital (WBH) from the Queen Elizabeth II Medical Centre (QEIIIMC) to the Fiona Stanley Hospital (FSH) precinct.

The workshops consisted of clinical and service-based representation from across King Edward Memorial Hospital (KEMH), Perth Children's Hospital (PCH), FSH and Osborne Park Hospital (OPH).

A summary of the engagement and analysis process undertaken, including key findings and next steps, are outlined below.

Background and context

On 11 April 2023, the State Government announced its intention to build the WBH on land at the FSH precinct, in addition to plans to expand obstetrics, gynaecology and neonatal services at OPH and neonatal services at PCH. This decision is a change from the original position, to tri-locate the WBH with paediatric and adult tertiary services at the QEIIIMC site, which is acknowledged as international best practice. The Business Case/Project Definition Plan process however highlighted significant challenges and risks, sequencing considerations, buildability constraints, extended timeframes and complexity for the other tertiary hospitals located within the QEIIIMC (Sir Charles Gairdner Hospital and PCH) affecting patients, staff and visitors to site.

The decision to change the location of the WBH has raised a range of issues, questions, and opportunities that need to be worked through with clinicians, management, and the executive. This is in the context that the anticipated planned tri-location model of care was no longer able to be adopted and as a result has created potential risks to clinical service delivery. In addition, the new dynamics presented by the expansions at OPH and PCH, also impacts activity and casemix distribution for maternity and neonatal services. These risks need to be carefully considered and appropriately mitigated as part of future planning and implementation, with genuine and meaningful clinical engagement and collaboration needed to develop potential solutions.

Approach to the consultation

The clinical consultation process undertaken was designed to actively seek the input and expertise of clinicians who run the services impacted by the State Government's decision. They are critical to identifying the key risks and issues to future clinical service delivery and developing suitable solutions and service models within the parameters of this decision. It is also important to consider the opportunities that arise as a result of the change in location and explore the potential for new service models and innovative service delivery alongside any mitigation strategies.

Representing an initial stage in the clinical consultation and engagement process, and in collaboration with the Department of Health (DoH) and Child and Adolescent Health Service (CAHS), the North Metropolitan Health Service (NMHS) engaged an independent facilitator to codesign and facilitate a range of clinical consultation activities outlined in this Report. The consultation was led by the NWBHP team and the process undertaken was approached in a staged manner during late May to late August 2023.

Stage 1 - Targeted small group meetings

- Meetings were held in small groups of up to three stakeholders and were completed between the 29 May and 9 June 2023.
- 41 stakeholders participated in 21 meetings, which consisted broadly of clinicians from Medical, Nursing and Midwifery, Medical Support Services, and Allied Health, with representation from across KEMH, FSH, OPH, and PCH.
- The meetings sought to explore potential clinical service delivery issues that had been previously raised through other forums, deemed to have occurred as result of the change in site of the WBH from QEIIIMC to the Murdoch precinct.
- The purpose of these meetings was to define, confirm and prioritise the key clinical service delivery issues for discussion at future workshops (Stage 2).

Stage 2 - Clinical focus group workshops

- Six workshops were delivered across three clinical specialty groups (Neonates/Paediatrics, Obstetrics/ Gynaecology, and Mental Health) and three site based groups (FSH, OPH, and PCH).
- A total of 138 stakeholders, out of 227 invited, participated in the workshops, which were held between 12 June and 26 June 2023.
- The workshops were designed to build on the clinical service delivery issues defined through the small-group meetings, with the aim of facilitating discussion with clinicians to generate a range of potential mitigations and solutions to these issues.
- The sessions were also used to explore a range of potential opportunities that were identified during the small group meetings, including the changes that may be required at existing hospital sites (i.e. FSH, PCH and OPH) to realise these opportunities.
- Outputs of the clinical speciality groups' workshop activities were provided back to participants for their review and feedback, with a final closing date of 28 July 2023.

Stage 3 - HSP executive consultation

- Preliminary key findings were presented to the relevant governance groups - NWBHP Control Group (PCG) and NWBHP Steering Committee (SteerCo) given the timing for the delivery of an updated PDP to inform the drafting of the updated content where relevant, and/or highlight key decision points required. These governance groups have senior executive representation from the relevant Health Service Providers (HSPs).
- Key draft preliminary findings were tabled and discussed at the SteerCo (27 July 2023) and PCG (10 August 2023).
- The Director General DoH consulted with senior clinicians and executive from CAHS (24 July 2023 and 3 October 2023), the Women and Newborn Health Service (WHNS) (7 August 2023 and 4 October) and FSH (25 August 2023) on the WBHP to hear their views, discuss the potential clinical service delivery issues, and explore mitigations, solutions and opportunities.

Identification of potential clinical service delivery issues

Over the course of stage one targeted stakeholder meetings a range of potential issues for clinical service delivery arising from the change in location of the WBH to the FSH precinct were discussed and identified by clinicians. These potential issues have been consolidated into 12 key themes, which were subsequently reflected back to stakeholders during the workshops (stage 2) and formed the basis for discussions aimed at exploring potential solutions, mitigation strategies and opportunities.

1. Obstetrics capacity and capability in the central corridor	2. Disruption to the Maternal Fetal Medicine relationship with PCH	3. Management of obstetric and gynaecological emergencies	4. Over-centralisation of maternity and neonate beds at nWBH at Murdoch
5. Increased transport time for neonates requiring time critical management at PCH	6. Capacity, demand and service delivery model for NETSWA	7. Access to specialist paediatric and supporting services for neonates including inpatient consultations	8. Duplication of higher acuity and/or highly specialised services over two sites
9. Availability of workforce with the required skills and expertise to deliver optimal and safe service across PCH and nWBH	10. Impacts to established specialist multidisciplinary team relationships	11. Fragmentation of perinatal and infant mental health services and access to care	12. Governance and accountability

Clinical focus group workshops

A series of larger clinical focus group workshops were held designed to engage with a broad range of senior clinical stakeholders to:

- Discuss and generate solutions and mitigations for the clinical service delivery issues identified during the stage one interviews.
- Identify and discuss potential opportunities arising from the proposed new location for the WBH, and OPH and PCH neonatal intensive care unit (NICU) expansion, that could be leveraged or further explored.
- Seek clarification and understand the opportunities and/or changes required at FSH, PCH NICU and OPH to support service delivery/operations and infrastructure planning.
- Discuss and explore a range of hypothetical service delivery models/scenarios, which were tested with stakeholders using a series of targeted questions to determine what specific benefits / opportunities and risks / issues existed for each scenario.

The outputs from all six of the clinical and site-based workshops were provided to attendees post workshop for their review and feedback. The workshop outputs are detailed in the Report.

Jurisdictional review

To support the assessment of opportunities and mitigations/solutions for the NWBHP and provide context to the potential clinical risks and issues raised during clinical consultations and workshops, a high-level jurisdictional review of neonatal and maternity service delivery models within other Australian states was conducted. The review was able to identify a range of service delivery scenarios representing varying degrees of alignment to tri-location. These examples may provide a useful benchmark to further explore how services are provided within these models, and whether there are any relevant opportunities or experiences that can be used as a part of planning, design, delivery and commissioning phases of the WBH.

Key findings

Based on the clinical consultation process the Report outlines 19 key findings. It is acknowledged that this process was intended to be the start of these discussions, which will continue throughout the life of the project with ongoing clinician and consumer engagement and input to further investigate, analyse, refine, prioritise and recommend mitigations and solutions for implementation to address the potential clinical service delivery issues raised, and leverage opportunities identified.

Summary of key findings

1. Clinicians remain strong in their view that tri-location for the three tertiary services is the optimal service delivery model
2. The potential clinical service delivery issues raised by clinicians are genuine and need to be considered during decision making throughout the life of the project and beyond
3. There is acknowledgement that colocation of the WBH with FSH will result in significant benefits for women.
4. The increase in the neonatal transfer period for time critical cases between WBH to PCH requires a multifaceted solution.
5. Investment in neonatal and obstetric bed capacity and capability at general hospitals is needed to support management of local demand, in line with service planning principles.
6. The Mother Baby Unit planned for the original WBH at QEIIIMC should be located north of the river.
7. Capital and recurrent operational investment needs to be considered for OPH to move from a Level 3 to a Level 4 obstetrics, gynaecology and neonatal service.
8. Key decisions are required on the vision, scope and staging of the OPH redevelopment. Fundamental is a determination on a transition to a general hospital.
9. FSH paediatrics should increase from a Level 4 to a Level 5 service under the Clinical Services Framework.
10. Highly specialised surgical and medical services for neonates currently provided at PCH should not be replicated at the WBH.
11. The option for women with babies who have antenatally diagnosed anomalies which require time critical intervention, to birth on the QEIIIMC, should continue to be further explored.
12. There is an opportunity to:
 - (a) implement a state-wide perinatal mental health model of care
 - (b) enhance the state-wide gynaecological oncology model of care
13. Planning and investment into workforce development and recruitment needed for 2030 is a priority.
14. Clarity on the future operational and clinical governance will enhance clinician engagement and decision making in the planning, design and commissioning of the WBH and OPH.
15. There are significant clinical and non-clinical support service integration opportunities between the WBH and FSH.
16. The use, integration and alignment of technology is critical and will assist in the mitigation of some distance-based clinical service delivery issues.
17. Concerted and strategic efforts are needed to maintain, build and define relationships between specialties across service, hospital and HSP levels, prior to transition and/or expansion.
18. A strategic approach to change management is needed to ensure all HSPs and service locations are sufficiently engaged.
19. Facilitated engagement with national and international colleagues will further assist clinicians to develop solutions and mitigations based on others experiential learning.

Next steps

The completion of activities undertaken as part of this consultation process represent initial steps only and should be viewed from the perspective of supporting a much broader and ongoing formal process of engagement with clinicians, as well as consumers. Decisions and approvals related to content provided in the Report will be made through the appropriate governance pathways. With regards to the key findings (KF) from this Report, the following six next steps are proposed.

Next Steps

1. Present the draft Clinical Consultation Report to NWBHP governance groups – Project Control Group and Project Steering Committee for review and feedback.
2. NWBHP governance to consider as a priority three key decisions for the PDP including:
 - a. Osborne Park Hospital vision, scope and staging (KF 7, 8)
 - b. Location of Mother Baby Unit originally planned for QEIIIMC (KF 6)
 - c. Position on a Maternity Unit at QEIIIMC. If not proceeding, then stakeholders to develop the optimal solution to time critical neonatal transfers within the current Project parameters for consideration by the NWBHP governance groups (KF 11).
3. In the short term, the NWBHP Executive Review Group be tasked with engaging transparently with all stakeholders to further explore, analyse, refine, prioritise and recommend to the Project Control Group solutions and mitigations for implementation. This will build on the work done to date and require the establishment of distinct Working Groups with broad clinical representation including subject matter experts, and actively involve consumers (KF 2,4,10).

This process should include the exploration of service delivery models identified by the current and future jurisdictional reviews, including site visits to see alternative modes in action, to develop clinician-led solutions and mitigations based on broader experiential learning (KF 19).

4. In the medium term, the NWBHP Team should ensure there is sufficient focus on:
 - Planning and investment in workforce development and recruitment (KF 13)
 - Opportunities for clinical, clinical support and non-clinical integration between WBH and FSH (KF 15)
 - Use, integration and alignment of technology for the WBH (KF 16)
 - Strategic approach to change management (KF 18)

Key Finding 13 and 18 will be critical as part of the NWBHP's organisational change and redesign program which will include workforce, organisational development/change and clinical commissioning.

5. In the short term the System Manager/DoH, as part of its update to the Clinical Service Framework and development of the State Health Plan and State Health Infrastructure Plan, consider:
 - Increasing paediatrics at FSH from a Level 4 to a Level 5 service to provide enhanced support to the WBH (KF 9)
 - Expansion of neonatal and obstetric capacity at WA general hospitals (KF 5)
 - Development of state-wide models of care for:
 - Peri-natal Mental Health (KF 12a)
 - Gynaecological Oncology (KF 12b)
6. In the medium term the System Manager/DoH confirm the future operational clinical governance for the WBH and OPH to enhance clinician engagement and decision making in the planning, design and commissioning of the new hospital and expanded services (KF 14).

This decision is a precursor to establishing an overarching governance forum between hospitals and HSPs to support the delivery of safe high-quality services in a reconfigured environment (KF 17)

1.0 Background and context

The Women and Newborn Health Service (WNHS) provides clinical care to women and families, with the aim to improve the quality, safety, accessibility and continuity of care and services for all women and newborns in Western Australia (WA) under the broader governance of the North Metropolitan Health Service (NMHS). At the hub of the WNHS network is King Edward Memorial Hospital (KEMH), which is the state's largest maternity hospital and the only referral centre for complex, high acuity pregnancies in WA. In addition to comprehensive maternity services, KEMH also includes a 92-bed neonatal intensive care nursery (NICU), which is governed by the Child and Adolescent Health Service (CAHS), WA's only Health Service Provider (HSP) dedicated to newborns, children and young people.

In 2020, an Application for Concept Approval (ACA) examined options for WNHS to be relocated to the Queen Elizabeth II Medical Centre (QEII MC) and integrated with Sir Charles Gairdner Hospital (SCGH), with strong links to Perth Children's Hospital (PCH). Since the release in 2004 of A Healthy Future for Western Australians – Report of the Health Reform Committee (Reid Report) and reinforced by the Sustainable Health Review Final Report in 2019, the relocation of WNHS tertiary services to the QEII MC site had been supported. In December 2020, an investment decision of \$1.787 billion was made by the State Government, for the funding of the new Women and Babies Hospital (WBH). In recognition of the need to deliver the project in a timely manner, and noting the Government's commitment to the asset investment, a decision was made in July 2021 to expedite project planning and definition phases, through development of a combined Business Case / Project Definition Plan (BC/PDP). The combined BC/PDP for the WBH was provided to the State Government in March 2023.

Following the completion of the BC/PDP for the proposed QEII MC site, the State Government concluded that construction on the proposed QEII MC site posed too many risks, in terms of unacceptable disruption to services at SCGH, impacts to patients and staff, higher build costs, extended timeframes, and delayed opening, due to the complex nature of the build. On 11 April 2023, the State Government announced its intention to build the WBH on land within the Fiona Stanley Hospital (FSH) precinct, colocated with that hospital. FSH already has a vibrant and high-quality obstetrics, gynaecology and neonatal service within the main hospital. In addition, it announced that Osborne Park Hospital (OPH) will undergo expansion of its obstetrics, gynaecology and neonatal services, including birthing suites, a family birth centre and theatres, and that neonatal services at PCH will also be expanded.

The decision to change the location of the WBH to the FSH precinct has raised a range of issues, questions, and opportunities that needed to be worked through with clinicians, management, and the executive. This is in the context that the planned tri-location model of care was no longer able to be adopted and as a result has created potential risks to clinical service delivery. In addition, the new dynamics presented by the expansions at OPH and PCH, also impacts activity and casemix distribution for maternity and neonatal services. These risks need to be carefully considered and appropriately mitigated as part of future planning and implementation, with genuine and meaningful clinical and consumer engagement and collaboration needed to develop potential solutions.

The clinical consultation process undertaken was designed to actively seek the input and expertise of clinicians who run the services impacted by the State Government's decision. They are critical to identifying the key risks and issues to future clinical service delivery and developing suitable solutions and service models within the parameters of this decision. A similar process is currently in development tailored for consumers and those with lived experience, acknowledging that their involvement and partnership is essential in ensuring the provision of patient centred health care. It is also important to consider the opportunities that arise as a result of the change in location and explore the potential for new service models and innovative service delivery alongside any mitigation strategies.

In parallel to this distinct clinical consultation process, the Department of Health (DoH) Clinical Excellence Division are leading the component of the Clinical Services Framework (CSF) update related to Obstetrics, Gynaecology and Neonates, including future proposed role delineation levels to 2024/25 and 2029/30 and a revision to the neonatal service definitions assigned to role delineations. It is anticipated that this will be updated and approved through the required governance by November / December 2023. This process will include consultation and engagement with all metropolitan HSPs, clinicians and executives.

Commencing in 2024, further clinical consultation will take place led by the DoH regarding system wide planning for obstetrics, gynaecology and neonates on the future configuration of these services which align with the principles of (1) Keeping the mother and baby together, (2) Care close to home and, (3) Care in the most appropriate setting. These will be developed within the framework of the NWBHP Cabinet endorsed plan.

2.0 Clinical consultation approach

Representing an initial stage in the clinical consultation and engagement process, and in collaboration with CAHS and DoH, NMHS engaged an independent facilitator to codesign and facilitate a range of clinical consultation activities outlined in this Report. The consultation was led by the NWBHP team and the process undertaken was approached in three stages during late May to late August 2023. These stages are outlined below in Figure 3.

Figure 3 – Clinical consultation approach

Stage 1 - Targeted small group meetings

- These meetings were held in small groups of up to three stakeholders and were completed between the 29 May and 9 June 2023.
- 41 stakeholders¹ participated in 21 meetings, which consisted broadly of clinicians from Medical, Nursing and Midwifery, Medical Support Services, and Allied Health, with representation from across KEMH, FSH, OPH, and PCH.
- The meetings sought to explore potential clinical service delivery issues that had been previously raised through other forums, deemed to have occurred as result of the change in site of the WBH from QEIIIMC to the Murdoch precinct.
- The purpose of these meetings was to define, confirm and prioritise the key clinical service delivery issues for discussion at future workshops (Stage 2).

Stage 2 - Clinical focus group workshops

- Six workshops were delivered across three clinical specialty groups (Neonates/Paediatrics, Obstetrics/ Gynaecology, and Mental Health) and three site based groups (FSH, OPH, and PCH).
- A total of 138 stakeholders¹, out of 227 invited, participated in the workshops, which were held between 12 June and 26 June 2023.
- The workshops were designed to build on the clinical service delivery issues defined through the small-group meetings, with the aim of facilitating discussion with clinicians to generate a range of potential mitigations and solutions to these issues.
- The sessions were also used to explore a range of potential opportunities that were identified during the small group-meetings, including the changes that may be required at existing hospital sites (i.e. FSH, PCH and OPH) to realise these opportunities.
- Outputs of the clinical speciality groups workshop activities were provided back to participants for their review and feedback, with a final closing date of 28 July 2023.

1. A detailed list of stakeholders consulted as part of the engagement process, including information outlining groupings, dates and times of interviews is available.

Stage 3 - HSP executive consultation

- The original intention was to hold a series of sessions in Stage 3 with HSP executive groups - WNHS, CAHS, South Metropolitan Health Service (SMHS) and NMHS.
- The proposed purpose of the sessions was to present, test and refine the findings and solutions generated by the clinical focus groups, to consider the practicality of proposed solutions and how they could be implemented from an HSP perspective, including consideration of any resourcing and infrastructure implications.
- At the end of stage 2, however, it was evident that the preliminary key findings should instead be presented to the relevant governance groups (WBHP Project Control Group (PCG) and WBHP Steering Committee (SteerCo) given the timing for the delivery of an updated PDP to inform the drafting of the updated content where relevant, and/or highlight key decision points required. These governance groups have senior executive representation from the HSPs.
- Key draft preliminary findings were tabled and discussed at the SteerCo (27 July 2023) and PCG (10 August 2023).
- The Director General consulted with senior clinicians and executive from CAHS (24 July 2023 and 3 October 2023), WHNS (7 August 2023 and 4 October) and FSH (25 August 2023) on the WBHP to hear their views, discuss the potential clinical service delivery issues, and explore mitigations, solutions and opportunities.

In addition to the activities outlined above and at the request of the DoH, the consultation process also sought to socialise, test and validate with stakeholders the volume, casemix and complexity of services proposed to be delivered across the key hospital sites involved and the broader WA health system at the time of the WBH opening (proposed for 2030). The inclusion of this in the workshops was used to assist DoH with initial thinking into requirements for determining the optimal configuration and future service delivery model for obstetrics, neonatal and gynaecology services across the metropolitan area (including CSF levels) and understanding what supporting enablers are needed for this to occur. It is important to note though, that this was an adjunct exercise and not intended to replace the formal CSF update process related to obstetrics, gynaecology and neonates led by DoH as described in section 1.

The overall outputs from the clinical consultation process, in addition to capturing key clinical service issues articulated by clinical stakeholders, will also be used to inform the initial development and/or revision of Service Delivery Models (SDMs) and Functional Briefs (FBs) for the WBH, PCH and OPH, with further work and stakeholder consultation planned to assist in the development of updated Functional Briefs for integration into the revised PDP. Information collected will also greatly assist with schematic design, clinical commissioning and operational planning for the future hospital and should be reviewed during those phases of the project.

3.0 Stage 1 – Identification of key clinical service delivery issues

The ‘tri-location’ of tertiary services for women and newborns in WA, along an adult tertiary hospital in SCGH and a tertiary paediatric service in PCH, was seen as a significant opportunity to improve timely access for women and newborns to a comprehensive range of clinical services in one location. Clinicians are clear that this approach is now considered national and international best practice.

Over the course of stage one targeted stakeholder meetings a range of potential issues for clinical service delivery arising from the change in location of the WBH to the FSH precinct were discussed and identified by clinicians. These issues have been consolidated into 12 key themes, which were subsequently reflected back to stakeholders during the workshops (stage 2) and formed the basis for discussions aimed at exploring potential solutions, mitigation strategies and opportunities. A summary of the 12 issues key is provided in Figure 4, with detailed discussion on each provided subsequently below to provide insights into the potential challenges associated with the relocation of the WBH to the FSH precinct and loss of tri-location, as articulated by clinical stakeholders.

Figure 4 – Potential clinical service delivery issues as identified by stakeholders

1. Obstetrics capacity and capability in the central corridor	2. Disruption to the Maternal Fetal Medicine relationship with PCH	3. Management of obstetric and gynaecological emergencies	4. Over-centralisation of maternity and neonate beds at nWBH at Murdoch
5. Increased transport time for neonates requiring time critical management at PCH	6. Capacity, demand and service delivery model for NETSWA	7. Access to specialist paediatric and supporting services for neonates including inpatient consultations	8. Duplication of higher acuity and/or highly specialised services over two sites
9. Availability of workforce with the required skills and expertise to deliver optimal and safe service across PCH and nWBH	10. Impacts to established specialist multidisciplinary team relationships	11. Fragmentation of perinatal and infant mental health services and access to care	12. Governance and accountability

3.1 Summary of issues

1. Obstetrics and gynaecology capacity and capability in the central corridor

The relocation of the WBH to the FSH precinct will see WA’s only Level 6 obstetrics and gynaecology service move away from a central metropolitan location (QEIIIMC) and be based up to 20 kilometres away in the southern corridor. The move will also see a convergence with the Level 5 maternity service currently provided by FSH into single service at the WBH based in the south metropolitan area, resulting in an overall net reduction in maternity facilities in metropolitan Perth and diminished redundancy in the system. This is partially offset by the expansion and increase in acuity planned for OPH.

The concern from clinicians is the reduction in equity of access and/or continuity of care for women and babies who need maternity services within the central and northern corridor. This includes access to essential women’s services such as:

- Inpatient services
- Emergency obstetrics and gynaecology services
- Abortion and perinatal loss services (PLS)
- Outpatient services (e.g. women’s health physiotherapy)
- Community services - especially for complex consumers (e.g. Alcohol and other drugs (AOD), homelessness and domestic violence).

This concern is exacerbated in the context of growing gynaecology outpatient appointment and elective surgery wait lists across the health system, in addition to placing increased pressure on public maternity and neonatal services provided at Joondalup Health Campus (JHC) under a Public Private Partnership (PPP), which operates within its contractual guidelines.

2. Disruption to the Maternal Fetal Medicine (MFM) relationship with PCH

The MFM team at WNHS provides care for complex high-risk pregnancies, including maternal and foetal disorders / disease for pregnancies from across WA requiring tertiary care, providing care for approximately 1,300 women annually. The data in Table 2, shows the number of MFM outpatient occasions of service provided to KEMH, broken down by clinic category and mode through which it was delivered.

Table 2 – MFM clinics and service delivery modes at KEMH in 2022

Clinic Type	Mode delivered by 2022	
	F2F	Telehealth
Anaesthetics	57	-
Antenatal	1,831	317
Obstetrics	4,321	2
Total	6,209	319

Source: NMHS extracted 29 May 2023

The MFM service is a highly collaborative service that engages with a range of other specialities and departments. The provision of MFM at KEMH is intrinsically linked with paediatric and neonatal services provided at both KEMH and PCH. The main clinical concern with the change in location is the impact on neonatal care, as MFM services are bound to NICU and paediatric services, with service provision and outcomes deeply interwoven with neonatal and paediatric care and support (both antenatally and postnatally). The availability of MFM specialists is limited, and service provision to patients has often been made possible due to the close geographic proximity between PCH and KEMH, which allows MFM specialists and supporting staff/services to rapidly travel between sites to provide face to face consultations to patients, provide high quality clinical guidance and expertise, and support the training and mentoring needs of junior staff. In addition, the MFM team also provides state-wide services to the other HSPs, with 155 consultation requests from EMHS, NMHS and SMHS in 2022.

During the consultations, stakeholders have suggested that relocation of KEMH based MFM services to the WBH at the FSH precinct may risk fragmentation of established MFM relationships and reduce access to specialist MFM services for patients at PCH. Without mitigation, this could reduce opportunities to access specialist MFM services, and separation of mothers and their babies.

3. Management of obstetric and gynaecological emergencies

Across metropolitan WA there are over 9,000 obstetric presentations/year to Emergency Departments (ED) each year. Of these cases, KEMH saw 4,131 presentations in the 2022 calendar year which accounts for 45% of all metropolitan cases. In relation to acuity, KEMH received 424 of the 1,283 triage 1 and 2 obstetric emergency presentations in 2022 which was the highest and equates to 33% of all high acuity metropolitan presentations (Appendix B, Table 38).

In terms of metropolitan gynaecological presentations to EDs, there are over 17,000/year. Of these cases, KEMH saw 2,038 presentations in 2022, which accounts for 12% of all metropolitan cases. In relation to acuity, however KEMH received 301 of the 2,059 triage 1 and 2 gynaecological emergency presentations which was the second highest (after FSH which received 338), equating to 15% of all high acuity metropolitan presentations (Appendix B, Table 39). Please see Appendix B for summary data relating to the provision of obstetrics and gynaecology ED presentations in WA over the past 5 years.

As such, it can be seen that a significant proportion of obstetric (and to a lesser degree gynaecological) emergencies are currently managed at KEMH, with presentations occurring either via direct patient arrival to ED or transfer from other hospital locations not equipped to manage higher complexity cases. In the current environment where KEMH is centrally located within the metropolitan area, clinicians expressed their concern as to the risk that women living in the central or northern corridor will not have the same level of equitable access to local obstetric and gynaecological emergency care, and will be required to travel considerable distances in emergency situations. Clinical indications that this applies to includes scenarios such as ectopic pregnancies (~200 ED presentations/year, ~30% across all WA), miscarriages (~545 ED presentations/year, ~70% across all WA) including those which may involve heavy blood loss and antepartum haemorrhages.² These often require time critical intervention.

4. Over-centralisation of higher acuity maternity and neonate beds at WBH at Murdoch

The decision to relocate KEMH maternity and neonatal services to Murdoch and amalgamate these services with those currently provided at FSH, was viewed by a number of clinicians as an over-centralisation of highly specialised services in a single location. It should be noted however that the proposed current total of beds proposed for the WBH at the FSH precinct is slightly less than what was originally planned at the QEIIIMC. Therefore the greater issue perceived by clinicians was the fact that the Level 6 KEMH service and Level 5 FSH service were combined into a single service, and hence there was one less high acuity service location available although the total number of beds in the system will not diminish.

There is a view amongst some clinicians that there is a case to decentralise maternity and neonatal services and invest in increased capacity and capability of the outer metropolitan sites. While expansion has been applied to OPH as part of the NWBHP, there are other opportunities at Armadale Health Service (AHS), Joondalup Health Campus (JHC), Rockingham General Hospital (RGH) and St John of God Midland Public Hospital (SJGMH), and to re-establish maternity services at the Bentley Health Service (BHS).³ This would enable those sites to provide more locally orientated and comprehensive maternity and neonatal services, delivering care closer to home, in the appropriate setting, and keeping mother and babies together.

Concerns were also raised that the size and scale of the NICU planned for the WBH is significantly larger (estimated ~60 NICU beds excluding Special Care Nursery (SCN) beds) when compared to units currently in service within other Australian jurisdictions. That said, it is important to note that the number of planned NICU beds at the WBH at Murdoch is slightly less than what was proposed for the WBH at QEIIIMC, so this is not an issue that can be attributed to the change in location.

2. Source: DoH Emergency Episode Collection, Jan 2018 – Dec 2022, ICD codes: 002.1, 000.0 – 000.2, 000.8 – 000.9. Extracted 09/08/2023.

3. On 26 August 2023 the Minister for Health announced A new Midwifery Birth Centre is being developed at BHS, which will offer women in the Bentley Hospital catchment area the option of care by the same Endorsed Midwife for the duration of their pregnancy.

For comparison, Table 3 below provides a summary of Level 5 and 6 NICU capacities in other Australian states.

Table 3 – Summary of Level 5 and 6 neonatal unit capacities in other Australian states

State	Location	Level of care	Number of beds ⁴
NSW	Royal Hospital for Women	Level 5	16
	Westmead Hospital	Level 5	24
	Children’s Hospital Westmead	Level 6	23
	John Hunter Children’s Hospital	Level 6	19
	Liverpool Hospital	Level 5	15
	Nepean Hospital	Level 5	12
	Royal North Shore Hospital	Level 5	16
	Royal Prince Alfred Hospital	Level 5	22
VIC	Mercy Hospital for Women	Level 6	28
	Monash Children’s Hospital	Level 6	32
	Royal Children’s Hospital	Level 6	22
	Royal Woman’s Hospital	Level 6	28
QLD	Royal Brisbane and Woman’s Hospital (RBWH)	Level 6	30
	Mater Mother’s Hospital (MMH)	Level 6	47
	Gold Coast University Hospital	Level 6	16
SA	Women’s and Children’s Hospital	Level 6	14
	Lyell McEwin Hospital	Level 6	2
	Flinders Medical Centre	Level 6	16

Source: Service websites including various other online sources, June 2023

At 116 neonatal beds in total (including SCN beds), the neonatal service at the WBH will remain substantially larger than other neonatal services across Australia. The nearest comparison would be the RBWH (30 NICU, 42 SCN; total 72 beds) and MMH (47 NICU, 32 SCN; total 81 beds)

From a neonatology perspective, a large centralised neonatology unit may impact on clinical service delivery including:

- Greater demand on high acuity units to care for babies who do not require intensive interventions aligned with that level of care.
- Reduced ability for local maternity services to birth mothers closer to home whose babies may/will require neonatal care.
- Reduced system redundancy to manage and absorb impacts from emergencies and other unforeseen events (e.g. fire or biomedical contamination etc) which may affect the operational capacity of a facility to deliver services.

It is important to note that some issues above would also have applied to the original plan at QEII MC. As mentioned earlier the main difference is the amalgamation of a Level 5 (FSH) and Level 6 (KEMH) obstetrics and neonatal service into a single service, which diminishes higher acuity redundancy in the system.

4. Data in Table 3 does not include special care nursery (SCN) beds.

5. Increased transport time for neonates requiring time critical management at PCH

The British Association of Perinatal Medicine Service and Quality Standards for Provision of Neonatal Care in the UK, November 2022, states:

- Neonates requiring surgical care should be managed in a combined medical/surgical NICU, ideally colocated with maternity services to minimise unnecessary mother-baby separation and predictable early neonatal transfers; and
- Where possible, neonatal surgical services should also be colocated with children's specialised services.

On average, KEMH transfers approximately 175 neonatal patients a year to PCH for further treatment, investigation and management. This is in the context of over 1,000 NETS WA retrieval in 2022 across all of WA. In the previous scenario where the WBH was to be constructed on the QEIIIMC site, there would be no requirements for road transfers of neonates from the WBH to PCH. Clinicians have therefore identified that this new announcement not only removes this scenario but increases the risk to clinical outcomes for neonates arising from the increased time needed to transport babies from the WBH at Murdoch to PCH for time critical surgery or interventions.

Although already considered by clinicians as a suboptimal scenario, transfers from KEMH to PCH are currently provided in a median time of 15 minutes (interquartile range 10-20 minutes; maximum 30 minutes) and is enabled by the relatively close geographic relationship that exists between the sites, which stands at approximately 3 kilometres. Travel time between the two sites is relatively stable, especially given the fact that if there are road hazards identified there are many alternative roads connecting the hospitals that can be utilised.

The move to the FSH precinct will see this distance increase to approximately 20 kilometres. The current transfer times between FSH and PCH by comparison are a median of 30 minutes (interquartile range 25-40 minutes; maximum 2 hours) based on current NETS WA data 2018-2022 (n=268). The large range is the result of the impacts of significant fluctuations in traffic volume experienced on the Kwinana Freeway, which is the only major traffic artery between the sites. On average however the median travel time will increase from 15 to 30 minutes for neonatal transfers.

Clinicians have expressed concerns that the impact of this additional travel distance (and resulting transport times) can result in an increased risk of:

- Neonatal destabilisation enroute, with reduced ability to provide comprehensive intervention within the constraints of an ambulance.
- Extended delays in accessing time critical specialist services and interventions (e.g. cardiac interventions/surgery).
- Preventable poor clinical outcomes for neonates, with associated long term clinical, social and economic impacts, due to the extended delay in management and/or treatment, compared to the current state.

To provide context regarding the volume of patients that required time critical NETS WA transfer for immediate intervention, Table 4 provides a summary of this subset of NETS WA retrievals from KEMH to PCH, in addition to providing information on the clinical indications.

Table 4 – NETS WA retrievals KEMH to PCH for timely intervention by reason

Category	Reason	2018	2019	2020	2021	2022
Cardio-respiratory	Respiratory failure (For proximity to Extracorporeal Membrane Oxygenation (ECMO))	1	4	3	2	2
	Cardiac	33	26	28	24	27
Surgical	Possible malrotation and/or severe necrotising enterocolitis	27	31	45	24	27
	Gastroschisis	15	10	13	7	13
	Tracheal atresia +/-oesophageal fistula	7	7	6	4	2
	Other congenital anomalies e.g. congenital diaphragmatic hernia, anorectal malformation etc.	14	15	11	20	22
Total # requiring immediate intervention		97	93	93	81	93
Total # transferred from KEMH to PCH		153	171	207	165	170

Source: NETS WA, June 2023

From the above information, it can be seen that an average of 91 retrievals deemed as requiring ‘immediate intervention’ as defined by NETS WA from KEMH to PCH are provided each year (93 in 2022). CAHS Neonatologists have noted that of the remaining transfers (approximately 80/year) from KEMH to PCH, the vast majority have a clinical condition whereby they should spend as short a time as possible enroute travelling between hospitals.

Additional information and context regarding the volume and profile of patients receiving time critical specialist surgical services at the PCH NICU is provided below, which is a portion of the NETS WA urgent transfers.

Between 2018 and 2022, a total of 895 neonates were admitted to PCH NICU, primarily for surgical investigations and/or procedures (1,386 in total) and represents an average of 179 patients per year. Of the 1,386 procedures identified, 49% (684) were for general surgery, and 15% (214) were for cardiac surgery / intervention. Table 5 outlines this in more detail.

Table 5 – PCH NICU surgical procedures by speciality (2018 – 2022)

Speciality	Sub-specialty	# procedures
General surgery	GI	372
	Thoracic	96
	Inguinal/ Testicular	137
	Other	79
Cardiac	Cardiothoracic	154
	Interventional cardiology	60
Other	ENT	260
	Neurosurgery	66
	Urology	53
	Interventional radiology	50
	Ophthalmology	38
	Gastroenterology	12
	Plastics	7
	Dental	1
	Orthopaedics	1
Total		1,386

Source: PCH NICU Surgical 1/1/2018 to 21/12/2022, received 12 June 2023 from CAHS

Surgical procedures for neonates are classified as either:

1. **Emergency – time critical:** which means they require the surgery within minutes to hours.
2. **Emergency:** which means they require the surgery within hours to days.
3. **Urgent:** which means they require the surgery within days to two weeks.
4. **Elective:** which means they require the surgery before going home.
5. **Elective – ward:** which means they require a minor elective procedure on the NICU ward.

Of the 895 patients previously identified requiring surgery, 237 were ‘emergency - time critical’ (i.e. needed to be performed within minutes or hours), which equates to an average of 47 time critical neonatal surgeries each year. Of these 47, an average of 32 (68%) were referred from KEMH for admission to PCH, 12 are from other metropolitan areas, three are from regional areas and one is typically referred from within PCH each year (Table 6a).

Table 6a – Time-critical procedures and source of neonatal referrals (2018 – 2022)

Hospital / Region	# patients	# time critical procedures	Average # time critical procedures / year
KEMH	519	160	32
South Metropolitan	103	26	5
North Metropolitan	98	24	5
Regional	71	15	3
East Metropolitan	51	9	2
PCH/PMH	51	3	1
Interstate	2	0	0
Total	895	237	47

Source: KEMH transfer data, received 2 June 2023 from CAHS

As can be seen from Table 4 and 6a respectively, there is a range of transfers that may be considered ‘time critical’ (neonatal surgery; immediate to within a few hours = 32) or requiring ‘timely intervention’ (91) of the average 175 transfers/year from KEMH to PCH. Given the range there was considerable discussion as to what constituted a “time critical” transfer in the absence of a strict definition.

Additional analysis was performed on the mode of birth, time of delivery and gestation for patients born at KEMH transferred to PCH for time critical procedures over the past 2 years (2021 and 2022):

Of the 58 patients:

- Mode of birth
 - 30 (52%) caesarean sections
 - 8 (14%) elective
 - 22 (38%) emergency
 - 29 (48%) vaginal delivery
 - NB: data unable to determine the number of births that were induced
- Time of delivery
 - 0:00 – 08:00 = 9 patients (16%)
 - 08:00 – 16:00 = 35 patients (60%)
 - 16:00 – 24:00 = 14 patients (24%)
- Gestation
 - < 32 weeks = 11 patients (19%).
Of those 10/11 (91%) delivered by caesarean
 - 32-36+6 weeks = 17 patients (29%).
Of those 6/17 (35%) delivered by caesarean
 - > 37 weeks = 30 patients (52%).
Of those 14/30 (47%) delivered by caesarean

Routine antenatal scans of foetuses enables antenatal diagnosis of congenital anomalies. This early diagnosis allows for preparation and planning for the place of birth and immediate neonatal management, to ensure that neonates receive the type of care they require in the correct location to give the best chance of survival without morbidities. In WA, neonatal patients with congenital anomalies that need timely surgical or cardiac intervention are planned to be born at KEMH. As per Table 6b below, 91% (89/98) of neonatal patients with a congenital anomaly ‘often / sometimes diagnosed antenatally’ that requires time critical intervention after birth, are born at KEMH. In addition, 58% (37/64) of neonatal patients ‘often/sometimes diagnosed antenatally’ requiring time critical intervention after delivery, also birth at KEMH.

Table 6b – Time-critical procedures often and usually / sometimes diagnosed (2018 – 2022)

Hospital / Region	# patients	# time critical procedure	# time critical procedure for lesion usually diagnosed antenatally	# time critical procedure for lesion often / sometimes diagnosed antenatally	# time critical procedure anticipated to not be detected	Average / year # time critical procedure anticipated to not be detected
East Metropolitan	51	9	0	4	5	1
Interstate	2	0	0	0	0	0
KEMH	519	160	89	37	34	7
North Metropolitan	98	24	4	10	10	2
PCH/PMH	51	3	0	0	3	1
Regional	71	15	2	4	9	2
South Metropolitan	103	26	3	9	14	3
Total	895	237	98	64	75	15

Source: KEMH transfer data, received 2 June 2023 from CAHS

6. Capacity, demand and service delivery model for NETS WA

In 2022, NETS WA provided transfers to over 1,000 babies for intensive care at either KEMH or PCH. These babies were born with a range of specific clinical indications and as such were prioritised as needing either a level 1, 2 or 3 transfer (see Appendix C for definitions on NETS WA priority classification parameters).

Clinical stakeholders interviewed suggested there may be significant risks to the ability of NETS WA to sustain their current volume of patients/retrievals within an environment of increased travel time (based on current resource profile). As a result of the change in location of the WBH, some of the potential impacts to NETS WA service delivery identified by stakeholders included:

- Reduced capacity of NETS WA, with potential reduction in the number of transfers able to be provided by crews in a shift. This would result in reduced flexibility to respond to changing patient priorities (including urgent retrieval requests) and transport of additional patients.
- Increased wait times for patients and NICU staff for NETS WA crews to become available, with the former potentially impacting clinical outcomes.
- Potential increase in the volume of non-urgent transfers needed to support access to PCH based specialist services (input/assessment/review), whereas they may currently be seen in situ by PCH staff at KEMH due to the short travel distance. In the original plan of colocation of WBH, many of these infants would have avoided transfer altogether as these specialist assessments would have been able to occur at WBH on the QEIIIMC site. The flow-on impact of this is possible extended waitlists for general and non-urgent transport.
- Additional workforce requirements needed to meet escalating service demand within an environment of professional scarcity.
- Impacts to the current service delivery model for NETS WA, in terms of the location and distribution of base(s) across the metropolitan areas, including proximity relationships with HSPs.

To provide additional context regarding how changes in patient volumes/demand might impact on NETS WA service delivery, Table 7 shows the number specific transports provided by NETS WA from across the state.

Table 7 – NETS WA retrievals by region / hospital

Region / Hospitals	2018	2019	2020	2021	2022
Airport ⁵	13	19	25	15	26
East Metropolitan Hospitals	175	174	152	160	162
Goldfields Hospitals	18	18	19	34	22
Great Southern Hospitals	21	27	27	38	35
Kimberley Hospitals	19	21	25	35	25
Mid-West Hospitals	19	15	29	24	26
North Metropolitan Hospitals	154	194	157	187	195
KEMH	153	172	207	165	170
Peel Hospitals	44	52	43	44	40
Pilbara Hospitals	13	19	23	39	26
South Metropolitan Hospitals	129	120	102	158	214
South-West Hospitals	88	64	58	80	81
Wheatbelt Hospitals	9	4	13	19	17
Total	855	899	880	998	1,039⁶

Source: NETS WA, received 7 June 2023 from CAHS

Analysis of the above data shows that NETS provides an average of 934 transfers per year to PCH. Of these transfers an average of 175 originated from KEMH each year, which equates to 18.5% of the total patients serviced by NETS WA and thus represents the size of the patient cohort that may be impacted as a result of the WBH relocation where additional resourcing may be required as a mitigation.

7. Access to specialist paediatric and supporting services for neonates, including inpatient consultations

The delivery of tertiary neonatal and paediatric clinical services at both KEMH and PCH are underpinned by a network of established multidisciplinary team (MDT) relationships between the two sites, often enhanced by proximity-based workflows and arrangements. These relationships include medical and surgical sub-specialists, nursing, allied health, medical imaging, pathology and other services. Staff at PCH have developed significant experience in the management of neonates over many years to ensure their expertise and competency (e.g. anaesthetics, imaging, electroencephalograms (EEG), echocardiograms (ECHOs)).

5. Babies transported from the airport are infants likely transported from the Kimberley or Pilbara. These infants are transported by the local paediatric team and Royal Flying Doctor Service (RFDS) by air to Jandakot airport and then picked up by NETS WA for road transfer. Babies picked up from Perth Domestic Airport are likely from interstate and are being repatriated to KEMH.

6. Total number of retrievals in 2022 was 1,169. This table excludes back transfers from KEMH to PCH, interstate and 3A PICU.

Table 8 shows the number of KEMH inpatient consultations provided by PCH clinicians, which totalled 194 e-referrals for 133 patients during 2022. It must be noted, however, that there are limitations when using e-referral data as clinicians do not always use this system, at times opting instead to contact the PCH units directly. Therefore, the number of e-referrals in Table 8 is likely to be under-represented, and the true volume of KEMH inpatient consultations provided by PCH higher. This assumption was validated through the clinical consultation process.

Cardiology was the service with the highest number of e-referrals, with 66 e-referrals for transthoracic echocardiograms received in FY22. The discrepancy between e-referral volume and actual inpatient consultations is revealed when examining how many transthoracic echocardiograms were actually performed at KEMH for the same time period, which was 156 or approximately 2.5 times the number captured as e-referrals.

Table 8 – KEMH inpatient consultations by PCH clinicians in FY22

Specialty	KEMH inpatient consultations FY22	
	# patients	# e-referrals
Cardiology	63	66
Speech Pathology	26	26
Neurology	20	21
Respiratory Medicine	13	16
Endocrinology	11	12

Source: Pulse Data Warehouse linking a KEMH inpatient stay with an inpatient e-referral to any PCH Unit 2020-21 and 2021-22, received 12 June 2023

The relocation of KEMH to the FSH precinct will potentially result in reduced access to PCH-based services due to the increased physical distance between patients at Murdoch and specialists at PCH, and may result in reduced clinical outcomes for neonates, arising from:

- Reduced access to tertiary specialist and supporting services only available at PCH, with subsequent increased patient wait times.
- Increased risk of unnecessary transport and/or potential admissions to PCH for access to specialist consultation and supporting services, that would otherwise have been provided onsite at QEIIIMC by PCH clinicians.
- Increased need to separate mothers and babies in order to gain access to critical services only available at PCH.
- Need for specialists to allocate time to travel extended distances with subsequent impacts to productivity and capacity.

8. Duplication of higher acuity and/or highly specialised services over two sites

As a result of the increased distance between the WBH and PCH, there is a risk that critical subspecialist and clinical support services located at PCH and providing proximity-based services to KEMH, will not be able continue to provide services to patients at the WBH under the current service delivery model.

Due to the highly specialised nature, it is common for specialist tertiary services to consist of small teams (sometimes relying on one or two individuals), which could not be split to physically service the clinical requirements of patients across both PCH and the WBH. This is particularly evident with respect to specialist neonatal services, ranging from medical subspecialities (e.g. cardiology, neurology, gastroenterology, haematology, infectious diseases, anaesthetics) surgical subspecialities (general, thoracic, urology, cardiothoracic, ENT, neurosurgery) to clinical support services (e.g. echocardiology, EEG, medical imaging, laboratory services, allied health).

Should there be a requirement to duplicate these services currently provided by PCH (or part thereof), the potential impacts to service delivery and hospital operations include:

- Dilution of skills needed to maintain exposure, clinical competency and efficacy in low volume, highly complex tests, procedures, surgery or casemix (also leads to staff dissatisfaction).
- Risk of competition (as opposed to collaboration) arising between rival services for access to services, casemix, training and/or staff/skillset. This low volume/high acuity activity is best served through a single unified centre as typically evidenced in other Australian jurisdictions.
- Reduced overall service availability/readiness with the introduction of clinical risk/exposure to one site if staff are unable to cover dual sites simultaneously (e.g. resource division if a team is required to attend/ service WBH for an emergency thus leaving PCH unattended).
- Workforce risk to fill the positions due to low volumes of specialists being trained.
- Increased operational costs arising from duplication (e.g. staffing, equipment, training, on-call requirements etc.).

The specific potential risks resulting from attempting to duplicate complex neonatal surgery across both PCH and WBH were particularly highlighted in discussions with the clinicians. Between 2018 and 2022, 1,386 surgical procedures were performed on 895 neonates admitted to the PCH NICU, which equates to an average of 277 procedures on 179 patients/year. 260 (29%) patients required more than 1 procedure during their neonatal stay. Of the 895 patients, the median birth weight was 3006 grams (range 490 – 4920 grams) and median gestational age 38.3 weeks (range 23 - ≥42 weeks).⁷

There were 12 specialities that performed the 1,386 surgical procedures, with the top three being: general surgery (684; 49.4%), ENT (260;18.8%) and cardiac (214; 15.4%). The full breakdown is summarised in Table 9. The majority of neonates (560; 60%) who underwent surgical procedures were born at KEMH. The source of admission was similar, with 519 (56%) referred from KEMH but 47 (5%) referred from within PMH. The next highest source and place of birth, but significantly fewer, was FSH (6%).⁸

Table 9 – Procedures performed on NICU patients by speciality (2018-2022)

Speciality	# of procedures ⁹	# of patients ¹⁰
General Surgery	684	521
- Gastrointestinal	- 372	
- Thoracic	- 96	
- Inguinal/Testicular	- 137	
- Other	- 79	
ENT	260	197
Cardiac	214	159
- Cardiothoracic	- 154	
- Interventional Cardiology	- 60	
Neurosurgery	66	41
Urology	53	44
Interventional Radiology	50	41
Ophthalmology	38	38
Gastroenterology	12	9

7. Neonatal database. Provided by CAHS 9 June 2023.

8. Ibid.

9. Based on distinct count of procedures per patient per speciality. A baby may have multiple procedures in one theatre admission (i.e. operation); in such scenarios each unique procedure that is assigned per speciality is counted.

10. Based on unique number of patients.

Speciality	# of procedures ⁹	# of patients ¹⁰
Plastics	7	7
Dental	1	1
Orthopaedics	1	1
Total	1,386	895

Source: Neonatal Database, received 9 June 2023 from CAHS

The procedure itself is only a part of the needs of these infants. They are cared for in a specialised intensive care unit with neonatologists, nursing and allied health staff who have undergone specialised training to care for these complex surgical infants. The skills and knowledge required to look after these neonates are different from those required for a preterm neonate and are paramount for high quality care and good patient outcomes.

To maintain clinical competency, surgeons performing these highly complex but low volume procedures on neonates, and the extended teams looking after the patient (including specialist neonatal nurses, neonatologists, anaesthetists etc.), need to manage a minimum number of cases per year. As evidenced in Appendix D, some of these major neonatal procedures performed on NICU patients average between 1-10 per year, and these are distributed amongst the current clinicians.¹¹ The clinical risk identified, therefore, is if this activity was split across two sites with lower volumes at both, the annual number of cases will be diluted across an increased number of surgeons, which may compromise competency and ultimately the quality of surgical outcomes for neonates both sites.

The current paediatric teams at PCH have emphasised that providing additional or a satellite surgical service at WBH involves more than simply sending the surgical specialist across from PCH. For example, in Cardiology it also includes the supporting specialist staff (cardiac nurses and cardiac scientific officers etc) and required infrastructure (biplane cardiac catheter laboratory) and surgical/technical equipment. Providing paediatric cardiac services over more than one site has been a source of significant tension and competition in the eastern states resulting in clinical, jurisdictional and reputational risks. Any surgical procedure performed in neonatology at the Murdoch site would require an associated increase in local specialisation of theatre staff (including nursing), anaesthetic services, recovery, trained post-surgical NICU staff (including nursing, allied health, etc).

To further demonstrate the multidisciplinary and subspecialty involvement in surgical care for neonates, an analysis undertaken by PCH Neonatology on 56 patients who underwent a major surgical procedure between January to June 2023, found that there was a median of 6 subspecialties involved in their care (range 2-14, IQR 4-7). In total, 32 different subspecialties (including surgical - 10, medical - 14, anaesthetics, interventional radiology, paediatric critical care and allied health) engaged in the care of these 56 neonates.¹² The ability to care for the most complex of patients currently managed at PCH, at a separate site, would require duplication/movement of not only the primary caring team, but the extensive number of multidisciplinary teams that underpin their care. This would require significant upskilling in low volume/high complexity caseloads and result in staffing challenges for a large number of subspecialties across two sites.

11. Note: some rarer cases are performed by a smaller number of surgeons only, with often two surgeons needing to be present at complex procedures to maximise exposure to these rare conditions.

12. Email from Dr Rebecca Thomas (Consultant Neonatologist, Head of Department PCH NICU) dated 13 July 2023

9. Availability of workforce with the required skills and expertise to deliver optimal and safe services across PCH and WBH

As articulated under Issue 2, 7 and 8, and further below under Issue 10, a significant component of the ability for PCH to provide specialist services to KEMH patients relies on the collaborative MDT relationships and relative short distance between the sites that support crossover of services. In the new environment, there is a risk that this relationship-based service delivery model will be less viable.

As such, stakeholders anticipate there will need to be some level of duplication of services to support service delivery at the WBH. The ability to replicate these services depends on the availability of skilled specialist and allied health/support staff, who are experienced in delivering high quality care to neonates. This has been identified as a key issue, with stakeholders reporting an existing and long standing supply shortage of skilled staff able to provide these services. As such the following risks have been identified:

- Potential for reduced service availability, quality and longer-term sustainability, including potential impacts to patient clinical outcomes and service reputation.
- Impacts to system redundancy of service delivery and reduced ability to build and succession plan for specialist expertise.
- Reduced ability to recruit and attract new staff (locally, nationally and internationally) for high demand specialties/staff, when operating within a service model that is not considered best practice (i.e. tri-location).

10. Impacts to established specialist multidisciplinary team relationships

Established and trusted MDT relationships, developed over an extended period of time, exist between KEMH and PCH. These specialist relationships are currently supported by close physical proximity which enables the provision of flexible and integrated service delivery. As a result, a significant portion of these services are dependent on 'goodwill' provided by staff, who compensate for existing limitations in service capacity to meet demand and maintain service quality, often traveling between sites at short notice.

While this type of affiliation isn't exclusive to KEMH and PCH in the WA context, the displacement of these relationships through the relocation of WHNS services to the FSH precinct, may cause service delivery within the current format to fracture, and result in:

- Reduced service flexibility and redundancy to support high quality and sustainable service delivery.
- Bidirectional reliance on limited resources to support clinical care and clinical management decisions/interventions from a distance.

11. Fragmentation of perinatal and infant mental health services and access to care

There are a range of established mental health services provided from KEMH that are dependent on strong relationships with, and in some instances in-reach into, infant mental health services and the KEMH/PCH NICU. Similarly, mothers with babies at PCH may attend appointments at KEMH and babies from the MBU will attend appointments at PCH. The close collaboration ensures the provision of effective statewide services and support to families. Services include (among others); Psychological Medicine, the Mother and Baby Unit (MBU), Childbirth and Mental Illness (CAMI), and the Women and Newborn Drug and Alcohol Service (WANDAS).

The concern articulated by clinicians is the potential risk of care fragmentation for babies and mothers (especially for high-risk families) as a result of the increased physical separation of the WBH and PCH. As one stakeholder acutely noted, "the relationship is the intervention tool", and face to face/direct interaction with consistent clinicians is critical to optimise outcomes for babies and their mothers. In an environment of constrained resources, any increased travel will result in less time allocated for clinical intervention, management and multidisciplinary collaboration.

Basing the state-wide perinatal mental health services in the southern corridor will improve access in that region but reduce equity of access to critical perinatal mental health to women, babies and families across the northern corridor if unmitigated. It is recognised that the families with the most complex psychosocial situations find it difficult to travel to appointments, especially where the travel time is lengthy and/or complicated. It is therefore likely that high risk families in the northern and north-eastern corridor will not engage with critical mental health care. This will impact on parental and infant mental health outcomes, which places both mother and child at acute and chronic risk of poor mental health. This will also mean the developing child is at significant risk of life long physical and emotional morbidity.

Specifically in regard to the MBU, these are currently provided at two locations (FSH and KEMH). Both units consist of eight beds and specialise in the support and treatment of mothers with postnatal depression and anxiety, and other perinatal psychiatric conditions. Service data for both the KEMH and FSH MBUs is provided in Table 10 and outlines the volume of patients currently accessing these services, and the catchment in which they reside. There are important differences in the two services mainly due to their configuration with other services. The MBU at FSH is colocated with a large hospital with an ED and large inpatient mental health service which drives a different service model to the MBU at KEMH.

Table 10 – KEMH and FSH MBU admissions and LoS by HSP

HSP	2019		2020		2021		2022	
Admissions	#	LoS	#	LoS	#	LoS	#	LoS
KEMH MBU								
EMHS	50	17	51	14.4	61	14.8	47	16.1
NMHS	64	13.4	63	13.3	70	14.4	45	13.9
SMHS	28	11.8	15	13.7	8	14.0	7	25.1
WACHS	15	9.8	14	15.1	12	17.2	14	18.4
Other	5	13.2	1	8.0	-	-	1	11
Total	162	N/A	144	N/A	151	N/A	114	N/A
FSH MBU								
EMHS	32	24.6	40	16	35	14.9	44	14.3
NMHS	3	10	4	36.8	7	15.4	11	13.3
SMHS	60	21.2	66	16.3	79	14.8	93	12.2
WACHS	16	26.3	17	21.9	27	13.9	21	12.2
Other	2	13	-	-	3	14.7	5	14.2
Total	113	N/A	127	N/A	151	N/A	174	N/A

Source: Email correspondence from CAHS received 2 June 2023 and SMHS received 28 June 2023

As can be seen from Table 10, the NMHS and SMHS residents predominantly access the MBU in their catchment (KEMH and FSH respectively), with EMHS residents spilt relatively equally between both (but slightly higher at KEMH MBU). In the original plan for the WBH on the QEIIIMC site, the MBU was included in the new build. The relocation of the current MBU at KEMH to the FSH precinct of the former KEMH MBU would result in 16 MBU beds on the same site. Stakeholders all acknowledged that this would not be equitable from an access perspective and that a 16-bed unit (if combined into the WBH build) is larger than the clinically accepted/consensus size for an MBU, which is typically suggested as a 6-8 bed unit (and a maximum of 12 beds), to maximise the therapeutic benefits of the environment. ^{13,14,15}

12. Governance and accountability

Currently, and as outlined in the original BC/PDP to build the WBH on the QEIIIMC site, the WBH resides under the governance structure of NMHS. As a result of relocation to the FSH precinct, clinicians expressed a strong desire to understand the future operational governance structure planned for the WBH, which now falls within the geographical remit of SMHS. Additionally, and representing an added layer of complexity, the governance for both the KEMH neonatal service (which will relocate to the WBH) and NETS WA is currently provided by CAHS, and the maternity and neonatal service at OPH sits within the governance of the Obstetrics and Gynaecology Directorate at KEMH. Clarification has been sought as to whether all the current relationships will continue at the WBH and OPH post opening, or if there will be a transition to a new governance structure.

Clinicians articulated that an early decision is needed to ensure clear lines of authority and accountability are confirmed/updated to support robust decision making throughout the planning, design, delivery and commissioning phases of the WBH and OPH expansion. This will ensure that there is alignment between activities such as clinical planning, service model redesign, infrastructure determinations, workforce planning and ongoing operational service delivery. The future operational governance across all sites will also significantly impact the degree of integration required between WBH with the existing FSH, clinical and corporate governance, and change management strategies.

3.2 Summary of opportunities and benefits

Throughout the stage one engagement process, a number of clinically focussed potential opportunities and benefits from the decision to relocate the WBH to the FSH precinct were identified by stakeholders. These have been captured and summarised in Table 11, noting the order in which they are presented here is not reflective of their level of priority or importance.

13. National Institute for Health and Clinical Excellence (NICE) Clinical Guideline 2007, 45: antenatal and postnatal mental health clinical management and service guidance.

14. Glangeaud-Freudenthal, N and Howard LM et al, (2014) Treatment – Mother-infant inpatient units, Best Practice and research Clinical Obstetrics and Gynaecology 28, p151

15. Royal College of Psychiatrist (United Kingdom). Perinatal Quality Network for Perinatal Mental Health Services. Standards for Inpatient Perinatal Mental Health Services (2019). 7th Edition.

Table 11 – Opportunities and benefits identified during stage one consultations (clinical focus)

#	Opportunities identified
1	Potential expansion in capacity of paediatric services at FSH, through the relocation of maternity services currently provided by FSH (on Level 3) to the WBH. This could potentially include an adolescent ward. The coalescence of the maternity and neonatal services will also free up theatre and outpatient capacity to manage other significant activity demands at FSH.
2	If FSH paediatrics was increased from a Level 4 to a Level 5 under the CSF, it would allow for the diversion of appropriate activity from PCH to reduce bed pressure on that site (hub and spoke model), create greater capability (and redundancy) in the system, and open up additional trainee opportunities.
3	Ability to build the WBH Family Birth Centre connected to the WBH and not necessarily on the ward (as per current FSH model), to create a more home-like feel in line with the model of care.
4	Reduce fragmentation of care for some gynaecological oncology patients, with the Comprehensive Cancer Centre located at FSH along with supporting medical and radiation oncology. Opportunity to strengthen the state-wide model of care for gynaecological oncology and peri-operative care.
5	Catalyst to redesign the service delivery model for peri-natal mental health services, utilising a hub and spoke approach for better distribution and access of services across the northern, southern and eastern corridors.
6	An increase in capability for neonatal and maternity services at OPH to a Level 4 service, will provide existing staff with prospects for upskilling and access to training and development opportunities. Similarly, these opportunities will also be available to FSH staff working in the current level 5 neonate and maternity service, which is planned to be merged with the relocating KEMH service into the WBH.
7	Leverage current on-site developments at Murdoch such as the Murdoch Health and Knowledge precinct, Medi-hotel, urgent care clinic, day surgery clinic, medical imaging, pathology and medical suites.
8	Establish clinical partnerships with the colocated St John of God Murdoch Private Hospital, educational providers such as Murdoch University and South Metropolitan TAFE, and research institutions including Harry Perkins Institute for Medical Research.
9	Close proximity to Jandakot airport to support rapid transfers of regional and remote patients (dependant on location of NETS WA).
10	Colocation of the WBH with a modern and technologically advanced adult tertiary hospital (FSH) when compared to the aging infrastructure at SCGH.
11	Clinical and clinical support service integration between the two tertiary hospitals (FSH and WBH) to enhance patient access, continuity of care and experience, facilitate clinical service delivery efficiencies, and encourage collaboration. The main benefit is in the field of maternal medicine, with ready access to existing medical, surgical and critical care services, as well as advanced imaging who are experienced in providing these services to the existing Level 5 maternity and neonatal services.

4.0 Stage 2 – Clinical focus group workshops

Following completion of the stage one small group consultations, a series of larger clinical focus group workshops were held. These were designed to engage with a broad range of senior clinical stakeholders to:

- Discuss and generate solutions and mitigations for the clinical service delivery issues identified during the stage one interviews - outlined in section three of this Report.
- Identify and discuss potential opportunities arising from the proposed new location for the WBH, OPH expansion, and PCH NICU expansion, that could be leveraged or further explored.
- Discuss and explore a range of hypothetical service delivery models that arose during stage one interviews (outlined below).
- Obtain key insights on current and potential future case-mix and complexity to inform DoH modelling and future service configuration.
- Seek clarification and understand the opportunities and/or changes required at FSH, PCH NICU and OPH to support service delivery and infrastructure planning (e.g. integration optimisation at FSH and the future services and facilities at OPH).

The workshops were delivered over six instalments between 12 and 26 June 2023, with each targeting a specific stakeholder group. Sessions were each scheduled for two hours, with approximately 100 minutes allocated to solutions focussed facilitation, and the remaining 20 minutes for a discussion on casemix and service configuration.

Groups and their respective workshop dates and times are provided below in Table 12. A detailed list of participants invited and attended, including positions held and organisations represented, was recorded.

Table 12 – Stage two workshop groups and schedule

Area of focus	Target group	Workshop date	Workshop time
Clinical	Obstetrics and Gynaecology	12 June 2023	1700 – 1900 hours
	Mental Health	14 June 2023	1700 – 1900 hours
	Paediatrics and Neonates	15 June 2023	1600 – 1800 hours
Site-based	Perth Children’s Hospital	20 June 2023	1500 – 1700 hours
	Fiona Stanley Hospital	22 June 2023	0700 – 0800 hours
		23 June 2023	1530 – 1630 hours
Osborne Park Hospital	26 June 2023	1700 – 1900 hours	

Service delivery option scenarios

As outlined above, and as part of stage one consultations, stakeholders were able to identify two theoretical service delivery models/scenarios (Option 2 and 3), that sought to mitigate in part, some of the clinical issues identified (Table 13).

- Option 1 represents the current Government announcement and aligns with colocation of a tertiary maternity hospital with a tertiary adult hospital, although not tri-location.
- Option 2 and 3 represent models which aim to provide a level of tri-location.

During the stage two workshops, options 1, 2 and 3 were tested with stakeholders using a series of targeted questions to determine what specific benefits / opportunities and risks / issues existed for each option.

The two models representing tri-location (QEIMC and Murdoch respectively) were displayed at each of the workshops, noting the following:

- Tri-location @ QEIMC - aligns with the original plan for the WBH and is documented in detail in the previous combined BC/PDP. On this basis, and the fact that the State Government has indicated it does not intend to build the WBH on the QEIMC site, it was not workshopped as part of the activity.
- Tri-location @ Murdoch - would involve not only building the WBH at Murdoch but also a new PCH at the site as well. This was similarly not workshopped as part of the activity given it does not align to the Government parameters. It has however been included for completeness of the Report noting it was mentioned in a number of forums by clinicians as a potential option for consideration.

Table 13 – Summary of identified service delivery option scenarios (Options 1 - 3)

#	Description	Details
Tri-location at QEIMC (BC/PDP)	The WBH is built on the QEIMC site	The WBH is built on the QEIMC site, colocated with paediatric and adult tertiary medical services at PCH and SCGH. This is the original proposal that was developed as part of the Business Case and Project Definition Plan.
Option 1	The WBH is built on the Murdoch site	The WBH is built at the Murdoch precinct, supported by expanded neonatal capacity at PCH and expanded obstetric, gynaecological and maternity services at OPH. This aligns with the current Government announcement.
Option 2	The WBH is built on Murdoch site, with a small maternity and neonatal service at QEIMC	The WBH is built at the Murdoch precinct, with a small obstetric and neonatal unit on the QEIMC site, either within PCH or SCGH on the QEIMC site (noting there is a planned neonatal expansion for PCH). (+ expanded obstetric, gynaecological and maternity services at OPH and expanded NICU at PCH).
Option 3	The WBH is built on the Murdoch site, colocated with increased neonatal subspecialties at Murdoch	The WBH is built at the Murdoch precinct, with increased paediatric / neonatal sub-specialties also at the Murdoch precinct, either integrated with the WBH or within FSH. (+ expanded obstetric, gynaecological and maternity services at OPH and expanded NICU at PCH).
Tri-location at Murdoch site	The WBH is built on the Murdoch site, colocated with a relocated PCH at Murdoch	The WBH is built at the Murdoch precinct and colocated with PCH, which would be relocated to the Murdoch precinct from the QEIMC site.

Workshop attendees however did raise the query as to whether a smaller WBH (tertiary) but without the associated expansion and refurbishment of SCGH acute critical care services, and an expanded FSH Maternity and Neonatal Service (remaining Level 5) would be a feasible option and potentially the reduce the time, cost, buildability and accessibility issues that were associated with the decision to change the WBH location. This was not further explored during the workshop as it did not align with the Government parameters, however the request was made to document this option within this Report given it was raised in the workshops.

Guiding principles

As a further output from stage one consultations, a number of guiding principles aligned to best practice service delivery and patient centered care were developed. These were used as a reference during workshop discussions, to assess potential solutions and/or options in terms of their alignment to high quality, patient centered care and reducing clinical risk. The guiding principles (non-prioritised) used during the workshops are listed in Table 14 below.

Table 14 – Guiding principles identified by stakeholders

#	Guiding principle
1	Provide person-centred, equitable and seamless access to health services, by giving care closer to home.
2	Preserve family units, by keeping mothers and babies together while receiving care.
3	Maximise quality of outcomes for babies/neonates.
4	Maximise quality of outcomes for mothers/women.
5	Reduce duplication, leverage efficiencies and build redundancy within the health system to minimise risks.
6	Implement a clinical governance model that has clear accountability and authority.
7	Reduce workforce risks through attracting, retaining, and maintaining of specialist clinical and support staff.
8	Utilise existing health infrastructure to support efficiency and economic outcomes.

4.1 Clinical focus group workshop outputs

Outputs from each of the three clinical workshops are provided in this section. For ease of analysis, and in acknowledgement of the significant cross over in service delivery, the findings from the Obstetrics and Gynaecology (O&G) and Paediatrics and Neonates (P&N) workshops have been combined. Outputs from the Mental Health (MH) workshop have been kept separate.

4.1.1 Clinical focus workshop – O&G and P&N

Both workshops followed a similar approach, with attendees provided an overview of activity to date, which included:

- A summary of the Government announcement
- An outline of the stage one potential clinical service delivery issues identified
- An overview of option scenarios
- An overview of the guiding principles

Each workshop was then divided into the following discrete facilitated activities:

Analysis of options 1, 2, and 3

Small breakout groups were used during this activity, with each group spending time at one of three stations, before moving to the next station. Each station was designed to facilitate a discussion on one of the numbered options (1, 2, or 3) outlined above.

The focus for Option 1 was to determine potential mitigations and solutions, as well as any dependencies and constraints that may exist for each of the potential clinical service delivery issues identified during stage one. The focus for Options 2 and 3, was to look at what specific patient cohorts or services could potentially be colocated, and to identify any potential clinical benefits/opportunities and risks/issues that may exist for each option.

Service planning and clinical service framework

Small breakout groups were again used for this activity, where attendees were presented with targeted questions relevant to their speciality. The purpose of the exercise was to gather information regarding the casemix and service delivery requirements needed to support improved distribution of lower acuity patients to Level 4 (obstetrics/gynaecology) and Level 2A/B (neonates) facilities. The questions posed to each group are outlined in Table 15.

Table 15 – Clinical service planning questions

#	Obstetrics & Gynaecology	Paediatrics & Neonates
1	<ul style="list-style-type: none">What type of women are currently managed at tertiary sites that could be managed more locally at a secondary site? (e.g. CSF Level 4)	<ul style="list-style-type: none">What type of baby currently defined as a qualified neonate and managed at a tertiary site could be managed more locally at a secondary (CSF Level 4) site such as a Special Care Nursery or even side by side with their mother?
2	<ul style="list-style-type: none">Why do you think this does not occur now and what additional enablers are required?	<ul style="list-style-type: none">What enablers (equipment, workforce, infrastructure, networked support) are required?
3	<ul style="list-style-type: none">What is the optimal size of a general Level 4 service?	

4.1.1.1 Option 1 workshop activity outputs

Option 1 represented alignment to the Government's decision to build the WBH at the Murdoch precinct (with additional support provided for expansion of neonatal capacity at PCH and expanded obstetrics, gynaecology and maternity services at OPH). Clinical stakeholders sought to determine potential solutions and mitigations to each of the identified clinical service delivery issues, in addition to also identifying any dependencies and benefits for Option 1. These are summarised in Table 16 as a summary of what was heard during the consultation.

Please note the potential benefits/ opportunities and risks/issues with these mitigations mentioned for some of the clinical service delivery issues are discussed in further detail under Option 2 and 3 workshop activities (refer to sections 4.1.1.2 and 4.1.1.3).

Table 16 – Option 1 workshop activity outputs

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
<p>1. Obstetrics and gynaecology capacity and capability in the central corridor</p>	<ul style="list-style-type: none"> • Increase capacity and capability at central and northern peripheral services to support low-mid complexity cases and reduce reliance on / support tertiary services. • Increase funding, service and contractual requirements for JHC to deliver a Level 5 public maternity service (if currently at full capacity). This would enhance the current service provision and offering for the local catchment population. • Ensure Level 4 maternity and neonatology services at OPH are optimised and required support services are in place. • Establishment of a specialist maternity unit on the QEIIIMC site (SCGH or PCH), suitably linked to a NICU. • Purchase public beds from private maternity and neonatal (where required) hospital providers centrally. 	<ul style="list-style-type: none"> • Service location planning must link with data to ensure infrastructure decisions are aligned to metropolitan patient volumes and casemix. • Investment in JHC maternity and neonatal services through amendments to the services agreement between JHC and NMHS. This may have workforce, upskilling and infrastructure implications. • Appropriateness and viability of establishing a safe high quality maternity service at QEIIIMC (including infrastructure and workforce). Note: depending on size this would impact the proposed expansion of OPH (and any potential investment in JHC). • Willingness to contractually engage with private maternity hospitals to deliver public services.
<p>2. Disruption to the Maternal Fetal Medicine relationship with PCH</p>	<ul style="list-style-type: none"> • Determine the optimal MFM staffing requirements across WBH and PCH. • Implement long term recruitment strategy to build the MFM workforce for critical services that support PCH neonatology and paediatric care. • Enhanced use of virtual care technology such as telehealth to maintain relationships and multidisciplinary approach. 	<ul style="list-style-type: none"> • Recruitment of trained and experienced workforce will be challenging due to a current lack of available staff. • MFM specialists require additional advanced fellowship training, so there is an urgency in recruitment given the long lead-in time. • Specialist relationships need to be maintained for continuity of service delivery. • MFM are currently active users of telehealth between KEMH and PCH.

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
3. Management of obstetric and gynaecological emergencies	<ul style="list-style-type: none"> • Enhance O&G and neonatology capability at JHC to manage unplanned emergencies presenting to their Emergency Department. • Establishment of an O&G urgent care or emergency service at OPH (optimal model to be determined). • Upskilling SCGH ED, medical and surgical specialities. • Effective triaging to keep low risk births in local catchments where possible, and clarity on where high risk mothers/ babies should present for obstetric and gynaecological emergencies. 	<ul style="list-style-type: none"> • Change in expectations at JHC and/or contractual amendments. • Investment in capital infrastructure and staffing for an emergency O&G and services at OPH. • An O&G capable transport service to support time critical transfers to WBH if local services are not able to manage clinically. • Clear policies and procedures for St John Ambulance to avoid a significant proportion of cases being sent to the WBH. • Education program for public and other stakeholders on the range of options available in the central and northern corridor (non-ambulance attendances). • Not all conditions can be antenatally diagnosed and triaged pre-birth.

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
4. Overcentralisation of maternity and neonate beds at WBH at Murdoch	<ul style="list-style-type: none"> • Increase capacity (beds) at the peripheral/general hospitals (RGH, AHS, JHC, SJGMPH etc.) and regional hospitals where appropriate to redistribute maternity and neonatal care away from an over-centralised model to deliver care locally in line with projected demand. • Re-establish BHS maternity service to achieve objectives above. • Improved capability at peripheral sites to support and retain lower acuity O&G and neonatology patients. • Capability uplifts at peripheral sites to manage neonates (including step-down) will reserve PCH and WBH CSF Level 6 NICUs to very sick newborns only. • Improved consistency across the non-tertiary sites in regards admission or acceptance criteria (inclusion/ exclusions). 	<ul style="list-style-type: none"> • Increases in capacity should align with the DoH demand modelling for the system. • Updated CSF for maternity and neonatology yet to be completed (estimated end of 2023) and is a critical dependency to inform decisions. • Expansion at peripheral and regional hospitals requires capital and recurrent funding commitments, as well as the availability of workforce and appropriate training. • Risk of too many maternity and neonate expansion projects occurring on or around the opening of WBH. Peripheral expansions should be considered in the short-term.
5. Increased transport time for neonates requiring time critical management at PCH	<ul style="list-style-type: none"> • Colocation of some medical and surgical subspecialties to support neonates at the WBH/FSH would provide some level of risk stratification by reducing the volume of patients requiring transport to PCH. • Establishment of a maternity unit on the QEIIIMC site, where antenatally diagnosed babies could be birthed in close proximity to time critical medical and surgical subspecialties available at PCH. • Alternatively, deliver antenatally diagnosed babies only at SGCH or PCH for immediate time critical management (no defined maternity unit). • Increased capability of NETS WA to provide an emergency neonatal helicopter transport service to PCH. • Increase workforce size of NETS WA to increase overall capacity. • Review of best practice nationally and internationally. 	<ul style="list-style-type: none"> • Transport/road time to PCH from Murdoch is 30 minutes (median) excluding preparation, but longer in peak hour traffic conditions. • Cost and availability issues with a helicopter service is significant. • There are additional load and unload processes required by helicopter transfer. Additional patient preparation time is needed when using helicopter transport and may add additional constraints to time critical transfers. • Vibration and temperature control issues experienced during a helicopter transfer may result in reduced clinical outcomes for patients. • Availability of qualified staff to expand the NETS WA service will be a challenge, so recruitment would need to be commenced as a priority.

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
<p>6. Access to specialist paediatric and supporting services for neonates, including inpatient consultations</p>	<ul style="list-style-type: none"> • Potential expansion of current workforce profile at PCH to provide a hub and spoke or in reach service to WBH where possible/practicable. This includes medical, nursing, allied health and technical staff (e.g. echocardiographers). • Joint appointments between HSPs/sites and consideration of cross site staff rotations to maintain a critical mass of service and consistency of quality (networked model). • FSH has a significant paediatric service with 12 general paediatricians and 9 subspecialist paediatricians (across renal, gastroenterology, respiratory, neurology and endocrine; the majority of whom work at PCH). This could be expanded at FSH and future WBH with strong professional and clinical service linkages to PCH. • Select upskilling in agreed clinical services and/or investigations to reduce reliance on PCH and unnecessary transfers. • FSH neonatal unit is currently categorised as Level 5+(CSF), looking after neonates >28 weeks gestation. • There is an opportunity for current FSH staff to further develop their neonatal knowledge, skills and experience, through the integration of the KEMH and FSH services into the WBH, and through increased collaboration with PCH • Build on the current expertise available. For example, FSH Radiology currently provides a range of neonatal services including CT scan, MRI, Nuclear Medicine, Ultrasound, X-ray and Upper GI contrast. • Enhanced use of virtual care technology to support inpatient consultations and multidisciplinary team meetings where appropriate. 	<ul style="list-style-type: none"> • Availability of specialised workforce is limited across some disciplines, and workload may not be sufficient to maintain clinical competency. • Workforce expansion will need to be funded. • Clear and enforceable agreement between the hospitals on expectations and services from an in-reach model • Clarity on the professional and line management of staff with joint appointments. • Upskilling/training programs need to be planned and delivered well in advance, be competency based, and adequately funded. • Expertise takes time to develop, and there is a need to maintain safety and quality of services as the highest priority. These positions need to be in place by (or preferably well prior) to the WBH opening. • Although FSH provides well respected neonatal services, it is increasing from a Level 5+ to a Level 6 service (under the CSF) and will be managing higher risk neonates. Education and training requirements will need to be identified across the various disciplines where appropriate. • Blood bank transfer exchanges for neonates are highly specialised and FSH currently does not have this capability. • There may be an overreliance on PCH to initially support the WBH neonatal unit. • ECMO service is not available at FSH (very specialised and not easily replicated). There are limited centres in Australia who can do ECMO (usually one per state offering these services as the numbers are extremely low). Need to consider the availability and deliverability of the service including requirement for a mobile service. • Need to avoid duplication of high acuity low volume services. • The WBH must be a highly digitally enabled hospital.

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
7. Capacity, demand and service delivery model for NETS WA	<ul style="list-style-type: none"> • Increase capacity via additional team over a 24/7 roster to meet expected additional demand (increased transfer time and potential increase in transfers from WBH to PCH for subspecialist review). • Review of NETS WA locations, with consideration given to the adoption of a 'hub and spoke' model, to increase presence across the metropolitan area and reduce pick up wait times. • Jurisdictional review of other neonatal emergency transfer services to determine if there are opportunities to optimise the service delivery model based on others experience where there is distance between the tertiary women's and paediatric hospitals. • Review current model where neonates are only retrieved to PCH or KEMH, to consider transport to the nearest appropriate facility. • Consideration given to use of dedicated aerial transport mediums/ assets, such as helicopter and fixed wing aircraft in partnership with other services. • Investment to increase capabilities to service emergency high risk paediatric and ECMO transfers in line with other Australian states. 	<ul style="list-style-type: none"> • Increased capacity for NETS WA, and/or new capability (paediatric retrieval) would be the subject of separate Business Cases to secure funding. • Clarification is needed as to the NETS WA requirements at the WBH (linked to its previous functional brief and schedule of accommodation planned at the QEIIIMC). • Jurisdictional review should bring in independent expertise (national and/or international) to work with local stakeholders in identifying potential opportunities based on their knowledge and experience. • Significant cost (upfront and recurrent) associated with aerial emergency transport mediums.

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
8. Duplication of higher acuity and/ or highly specialised services over two sites	<ul style="list-style-type: none"> • Clear identification of what services are most impacted is needed, to identify where some level of duplication is potentially required and equally, where it should not be replicated (i.e. remain as a single site service). • Specific identification of additional needs / expansion (e.g. child protection services at WBH). • Detailed current state assessment of current formal and informal service arrangements between KEMH and PCH • See also Mitigations/Solutions under Issue #6. 	<ul style="list-style-type: none"> • Systematically determine appropriateness of satellite service delivery versus independent service delivery across the breadth of services. • Some services will have insufficient patient volumes to support duplication without diluting service quality outcomes. • Where duplication or additional services are required, this will impact operational financial sustainability (due to increased recurrent costs). • Dedicated parking at WBH for visiting clinical staff from PCH to reduce time lost to travel (basement parking WBH) • See also Dependencies/Constraints under Issue #6.
9. Availability of workforce with the required skills and expertise to deliver optimal and safe services across PCH and WBH	<ul style="list-style-type: none"> • Develop detailed future Workforce Plan across WBH and PCH for early identification of anticipated gaps in skills and expertise that need to be filled. • Aggressive and targeted recruitment strategy where there are current and expected deficits (national and international where appropriate). There is an opportunity to attract new talent into high demand professions. • Workforce incentives and formal professional education programs to retain and attract new staff. The implementation of incentives and availability of new training opportunities may provide some staff with an improved value proposition (financial and career). • Funding of specific training programs to increase workforce in existing known areas of shortage in time for WBH opening where appropriate (e.g. cardiac scientific officers). The Sonographer Training Program was identified as a good example. • See also Mitigations/Solutions under Issue #6 and 8. 	<ul style="list-style-type: none"> • Workforce planning needs to involve DoH to ensure the broader WA health system requirements are considered. • The education and training requirements for future specialties are time and resource intensive to ensure that they have acquired the relevant skills, knowledge and experience. • Recruitment strategies need to be funded and resourced. • Consideration needs to be given to impacts of an aging workforce at PCH that will not be able to support expanded services at PCH or duplicated services at Murdoch in the longer term. • Workforce availability in highly specialised areas with long lead in times. Services can be created – but can they be staffed? • See also Dependencies/ Constraints under Issue #6 and 8.

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
10. Impacts to established specialist multidisciplinary team relationships	<ul style="list-style-type: none"> Identify and document all potentially impacted MDTs currently between PCH and KEMH (and future WBH) and develop bespoke solutions to enable continued high quality and flexible service delivery. There is an opportunity for WBH to develop new locally based MDT services and relationships with the colocation of adult tertiary services at FSH (e.g. Diabetes/ Endocrinology). Some Mitigations/Solutions listed under Issue #6, 8 & 9 apply. 	<ul style="list-style-type: none"> Develop integrated service delivery models between WBH and FSH tertiary services, and WBH and PCH that encourage MDTs to optimise the quality and safety of clinical care. Clarity on resource commitments from WBH, FSH and PCH to support MDTs, to prevent staff from defaulting to their “home base” during high periods of demand. Potentially a higher transfer rate from WBH to PCH to access MDT at that site. Some Dependencies/Constraints listed under Issue #6, 8 & 9 apply.
11. Fragmentation of perinatal and infant mental health services and access to care	<p>This issue (including clinical, infrastructure and non-clinical considerations) is discussed in detail at the Mental Health Clinical Focus Workshop on 14 June 2023. See section 4.1.2.</p>	

Clinical Service Delivery Issue	Mitigations/ Solutions	Dependencies/ Constraints
12. Governance and accountability	<ul style="list-style-type: none"> • Early decisions on clinical and operational governance for the WBH, as well as OPH maternity services (currently under the governance of WHNS). This may include hub and spoke models where appropriate. This will provide clarity for HSP staff and assist with planning, design, delivery and commissioning of the WBH (including decisions on clinical and non-clinical support services integration). • System-wide review of neonatology, paediatric and maternity service delivery, to support long term planning. • There is an opportunity to review how neonatal services are governed, with positive impacts to resource sharing, service redundancy, and standardisation of policies and processes across the state. 	<ul style="list-style-type: none"> • Decision required at the DoH level on governance. • Consider governance from the perspective of a single precinct (Murdoch) to avoid operational separation from SMHS. • Consideration is needed for the vision for CAHS and how moving to the Murdoch site could impact on this. • Three HSPs operating from the Murdoch site would require significant coordination and well documented accountabilities and responsibilities to ensure the delivery of safe high-quality care.

4.1.1.2 Option 2 workshop activity outputs

Option 2 represents the WBH is built on Murdoch site, with a small maternity and neonatal service at QEIIIMC (either SCGH or PCH, noting there is a planned neonatal expansion for PCH). Outputs from Option 2 discussions are presented as a range of high-level observations with associated benefits/opportunities and risk/issues. Please note that these are not exhaustive and represent initial thoughts only. Outputs are outlined in the tables below.

Table 18 – Option 2 workshop activity outputs

Observations	Benefits/ Opportunities	Risks/ Issues
<p>Assessment of workforce requirements is needed to ensure sufficient resourcing is available to support future increased service capacity and distribution</p>	<ul style="list-style-type: none"> • There is an opportunity to implement a coordinated long term workforce strategy to attract and retain staff (e.g. training and development opportunities for current and future staff). • Some staff who live locally or in the northern corridor and do not intend to transition to the new site in Murdoch would have an additional option to transfer to the QEIIMC maternity service (along with OPH). 	<ul style="list-style-type: none"> • The current specialist workforce (medical, nursing and allied health) may not be able to service increased capacity across multiple sites with the addition of a maternity unit at QEIIMC and planned expansion at OPH. • There is a risk of workforce dilution, with onflow impacts to service delivery, quality of care, patient outcomes, and reduced retention of specialised staff. • Need to consider the impact on training pathways which will exacerbate workforce issues further.
<p>There are advantages to the delivery of time critical neonatal surgical services and supporting medical services under this model</p>	<ul style="list-style-type: none"> • Surgical and medical teams will be able to remain onsite and centralised at PCH, with close proximity to essential supporting services. • Fewer time critical neonatal transfers will be required, resulting in reduced risk of transport related negative clinical outcomes. 	<ul style="list-style-type: none"> • The available location for the maternity unit on the QEIIMC site will impact the promptness of the transfer to PCH. The option for the unit to be within PCH may need to be considered. • The volume of neonates requiring time critical intervention alone, would not be sufficient to sustain a unit.

Observations	Benefits/ Opportunities	Risks/ Issues
<p>Analysis is needed to determine the sustainable size and scale of a new maternity and neonatal service at the QEIMC site</p>	<ul style="list-style-type: none"> • The establishment of a unit on the QEIMC site would reduce the size requirements of the WBH and the risk of overcentralisation of maternity and neonate services on the Murdoch site. • A minimum viable number of deliveries needs to be determined to inform the appropriate size and scale of the O&G services, in addition to supporting specialist neonatal services. • The unit could operate under a single service/two site model across the Sir Charles Gairdner Osborne Park Healthcare Group (SCGOPHG), or under the governance of the WBH. • The addition of a larger maternity unit at QEIMC potentially negates the requirement for the OPH expansion and associated identified issues (SCGH already has supporting adult services, emergency and critical care services which are currently absent at OPH) 	<ul style="list-style-type: none"> • Current and forecast population growth and activity may not support the minimum throughput required to maintain multiple services. • A new specialist maternity and neonatal service at QEIMC may not have the scale or volume to ensure viability in terms of variety of caseload, cost/economic factors, training and accreditation requirements, and ability to attract and retain the appropriate staff. • There are significant requirements (even if only a small 24/7 unit), as the service would still need to be staffed at all times by a consultant obstetrician and neonatologist (including on-call) and midwives, to manage caesarean sections etc. Given the proposal to expand obstetric and neonatology beds at OPH and the latter at PCH, any addition at QEIMC would need to coincide with a reduction elsewhere. • Buildability on QEIMC will be an issue.
<p>A robust triaging process is needed to ensure the right patients (mother and/or baby) are treated in the right location</p>	<ul style="list-style-type: none"> • There is an opportunity to review current triage and patient distribution processes, to improve points of access and reduce unnecessary patient transfers between services. 	<ul style="list-style-type: none"> • The cohort intended for the QEIMC based service needs to be clearly defined and agreed between stakeholders. • Clinical safety issues may arise when determining which patients meet a particular high-risk criterion for admission to a particular unit/service. Errors could result in reduced clinical outcomes arising from patient triage to the wrong level and/or location of care. • Service capabilities between an additional QEIMC based maternity (and neonatal) service, and other service providers (e.g. OPH) need to be determined. For example, which service (OPH vs QEIMC based services) is appropriately equipped to manage a obstetric emergency.

Observations	Benefits/ Opportunities	Risks/ Issues
<p>Increased capacity for women to present with obstetric and/ or gynaecological emergencies</p>	<ul style="list-style-type: none"> • An additional unit on the QEIMC site would provide a central location for women to present with obstetric and gynaecological emergencies via the SCGH ED. • There is an opportunity to reduce incorrect patient presentations, with improvements to clinical outcomes and resource efficiency. 	<ul style="list-style-type: none"> • There is a risk of over-presentation of patients at the new specialist site that will require transfer to a more appropriate site for specialist management (e.g. WBH). • Need to consider the flow on impact to other services from the additional site (e.g. does the SCGH Radiology Department have the ability to expand/extend its ultrasound services) • Public awareness and education is needed to ensure patients choose the correct service location.
<p>Supports discharge of neonates to lower acuity care</p>	<ul style="list-style-type: none"> • There is an opportunity to provide the PCH neonatal unit with neonatal step-down capacity in a supporting QEIMC (e.g. SCGH) based service, improving discharge of eligible babies to a lower acuity care setting within a short distance of PCH. • There may be an improved ability to distribute neonates according to acuity and clinical needs across multiple neonatal units (more urgent patients could continue to go to PCH and WBH). 	<ul style="list-style-type: none"> • Potential colocation of neonatal services on the QEIMC site will require a clear governance structure (e.g. will these services be independent of each other?). There is an opportunity to review the current governance structure of NICUs. • With the planned expansion of PCH NICU, the bed pressure will be reduced. • Consideration to availability of workforce required to operate multiple units is needed. • A neonatal unit at SCGH would likely negate the need for the PCH NICU expansion.
<p>There are improvements to service redundancy</p>	<ul style="list-style-type: none"> • The addition of a specialist maternity and neonate unit at QEIMC site would improve service redundancy across both the central and northern corridors. 	<ul style="list-style-type: none"> • With the addition of a QEIMC based service, there is a risk that services currently provided at KEMH will be fragmented over multiple sites across the metropolitan area. • Consideration to availability of workforce required to operate multiple units is needed. • The planned expansion at OPH, and/or support for expansion at JHC or a private hospital contract (e.g. SJGHC Subiaco) are other alternatives to improve service redundancy in the central and northern corridor.

Observations	Benefits/ Opportunities	Risks/ Issues
<p>There is a need for patient accommodation to support provision of specialist maternity services at the QEIIIMC site</p>	<ul style="list-style-type: none"> Ronald McDonald House may have some capacity to provide an expansion of parent accommodation, or within PCH, with appropriate funding. 	
<p>The model only partially aligns with international best practice for service tri-location</p>	<ul style="list-style-type: none"> There is an improvement in the level of tri-located care provided when compared to the base option. 	<ul style="list-style-type: none"> There are clinical risks associated with delivering care using a model that does not completely align with recommended best practice.

Other observations

Clinicians emphasised that the increasingly complex needs of mothers, and the associated requirement to immediately access the medical, surgical, imaging and critical care services to provide safe high-quality care, has been a significant and long-term driver to relocate the stand alone KEMH. This is analogous for gynaecology (including gynae-oncology and urogynaecology). Women’s health care will be significantly enhanced by colocation with an adult tertiary hospital to facilitate timely and appropriate escalation, with access to the full suite of adult services, to optimise their outcomes.

The decision to collocate the WBH with FSH as opposed to SCGH as the adult tertiary hospital was generally viewed as preferable given it already has established relationships and pathways between the existing functioning Level 5 obstetrics, gynaecology and neonatology service and medical/ surgical services within the hospital. For example, FSH Medical Imaging provide a range of foetal, neonatal, obstetric (including MFM), adult gynaecology (including oncology) services. By comparison, SCGH has not been providing these services onsite and therefore there was expected to be a greater period upskilling for SCGH to support the WBH at QEIIIMC. There was no suggestion though this was not achievable; simply that it required a greater investment of resources prior to the relocation of KEMH to the QEIIIMC.

Considerable discussion of this option both in the workshops and post as to what would constitute the appropriate size of a maternity service at the QEIIIMC and its potential location took place. Various possibilities had been suggested prior to the workshops which varied between a 1-2 bed maternity unit to a 40-bed maternity unit (and a number of variations in between). All options were broadly discussed for completeness even if to discount them.

At one end of the spectrum, the option of a very small maternity unit that primarily catered for those mothers whose babies required known time critical transfers to PCH, are planned, or who could be anticipated to be transferred was deliberated. For the purposes of the workshop and to facilitate discussions, this was suggested as 2-4 bed maternity unit based on the attendee’s operational experience.

A number of concerns were raised in regard to this option, some of which are captured in the workshop’s outputs above (ability to attract and retain staff, recurrent operational cost, casemix and volume, training and accreditation etc.). Most critically however, the clinical risks associated with a small, isolated unit managing often complex and unpredictable cases (mother and baby) without the significant wrap around (packaged) and ancillary services available at a tertiary women’s service was highlighted, with the potential to negatively impact the clinical outcomes and quality of care for both the mother and baby.

There is a perception that the majority of women whose babies will be transferred from KEMH for urgent management at PCH have planned caesareans within business hours. As outlined in section 3 (issue # 8) however, an analysis of mode of birth, time of delivery and gestation for patients born at KEMH transferred to PCH for time critical procedures highlights the unpredictability with almost a 50% split between caesarean and vaginal delivery, with 40% delivered outside of traditional business hours and 50% less than 37 weeks gestation.

The issue of what constitutes a “time critical” transfer has been the subject of much discussion within WA health and various numbers have been quoted. In the data provided by CAHS for this Report, it suggests that there is an average of 32 neonates/year transferred from KEMH to PCH requiring emergency (time critical) surgery within minutes to hours. The NETS WA database suggests that on average 91 babies are transferred for “timely intervention” between the two sites which is more broadly defined. In developing a mitigation/solution for these transfers this data will need to be analysed by a cross section of clinicians in greater detail.

There is no strict definition by which to define a “viable” maternity unit, however clinicians suggested at least 2,000 births/year with a variable casemix was needed. Armadale Health Service (Level 4; 23 beds, ~2,500 births/year) and FSH (Level 5, 40 beds; ~3,600 births/year) were cited as local examples, and Westmead Hospital in NSW (Level 6, 41 beds, ~5,500 births/year, see section 6.2).

Establishing an additional maternity unit at QEIIIMC (presumably CSF Level 5, 5+ or 6) would result in the fragmentation/dilution of some specialised services (e.g. MFM). As a consequence, there was a concern that while it potentially mitigated one clinical risk (to facilitate the timely transfers of neonates for immediate surgical and/or medical management) it was increasing clinical risk in other areas. This was a common feature in meetings and workshops that were held i.e. often mitigations or solutions favoured neonates unintentionally at the expense of the mother (or vice versa). Clinicians were keen to establish win-win solutions for the mother and baby and noted that some individual scenarios may require a risk assessment to determine the best option.

There are also significant infrastructure considerations for establishing an additional unit with implications beyond the maternity ward(s) – including labour birth suites, dedicated obstetric emergency theatres, outpatient clinics and wrap-around support services (e.g. perinatal mental health). Any activity/beds associated with the establishment of a maternity unit at QEIIIMC will need to be subtracted from either the WBH or OPH (or both).

If the majority of the beds to establish a maternity unit at QEIIIMC were deducted from the proposed OPH expansion, that hospital could still be expanded broadly in line with the Government parameters (i.e. additional beds, obstetric theatres and Family Birthing Centre) but to a lesser extent. It would likely however need to remain however as a Level 3 obstetric service. This would largely negate the need to establish a critical care and emergency service at OPH which have been advocated for by clinicians under the current proposed expansion and increase to a Level 4 obstetric service noting other recommend requirements (e.g. 24/7 onsite theatre staff) would remain (see Section 4.3.3).

Potential location on the QEIIIMC site was discussed. While PCH was intuitively easier to expand from an infrastructure perspective through its known expansion zones, as a Children’s Hospital it was not considered appropriate given the absence of adult medical, surgical and critical care specialists onsite to manage the mother and potentially placing her at risk as too far away from adult emergency services. There were also additional concerns that the allocation of PCH expansion zones to adult services, would negatively impact on the availability of growth and expansion opportunities needed to future proof paediatric services being delivered at the hospital. The SCGH was therefore deemed the more appropriate prospective setting if this option was considered.

4.1.1.3 Option 3 workshop activity outputs

Option 3 represents the WBH is built on the Murdoch site, colocated with increased neonatal subspecialties at Murdoch. The outputs from Option 3 discussions are presented as a range of high-level observations with associated benefits/opportunities and risk/issues. Please note that these are not exhaustive and represent initial thoughts only. Outputs are outlined in table 20 below.

Table 20 – Option 3 workshop activity outputs

Observations	Benefits/ Opportunities	Risks/ Issues
<p>Increasing from a Level 4 to a Level 5 paediatric service at FSH is essential</p>	<ul style="list-style-type: none"> Increasing the FSH paediatric service from Level 4 to Level 5 CSF will better support the needs of the new hospital. Build on current paediatric subspecialist model at FSH (primarily outpatients) Subspecialist neonatal expertise at the FSH would expand the capability of the paediatric service to provide high quality and safe care for children to the southern (and eastern) corridor closer to home. Opportunity for greater collaboration, reduced centralisation of services, and improved redundancy in the system. Reduce pressure on PCH (inpatient and outpatients), to allow them to plan for future expansion in advanced tertiary services. Joint staff appointments and/or rotations through PCH and FSH. 	<ul style="list-style-type: none"> Additional workforce recruitment needs to be prioritised based on clinical need for both FSH and to support WBH. Availability of workforce needed to support expanded services. Workforce planning is essential as a mitigation. Risk of dilution of resources across the health system. Need to consider the governance of the additional specialists (PCH versus FSH) and dedicated FTE/ separate contracts to ensure clear line management. Any colocation of specialist surgical and medical neonatal services at Murdoch will require a clear governance structure (e.g. will some services operate under a Satellite model, and if so, will they be governed by PCH?).
<p>Assessment of workforce requirements is needed to ensure sufficient resourcing is available to support future increased service capacity and distribution</p>	<ul style="list-style-type: none"> Increase the pool of specialist workforce in WA, which currently is either in shortage or has no latent capacity, via a coordinated workforce recruitment strategy. There may be a range of training and development opportunities arising for staff to upskill and/or specialise in high acuity services. 	<ul style="list-style-type: none"> Recruitment for additional specialist workforce (in the context of known shortages) is a long-term strategy and the planned opening date for WBH may not be sufficient to ensure workforce levels are aligned with the needs of the service. Complex care for neonates at the WBH will require an increase, and potentially duplication of multiple medical and surgical MDT services to ensure efficient best practice care.

Observations	Benefits/ Opportunities	Risks/ Issues
<p>Provision of services across two sites may risk dilution of scarce specialist resources</p>	<ul style="list-style-type: none"> • There presents an opportunity for FSH, PCH and OPH to expand and mature its existing suite of services, while also implementing new services. • Potential training and development opportunities arising for internal staff to upskill and/or specialise in high acuity services. 	<ul style="list-style-type: none"> • Specialist resources, such as those needed to provide high complexity neonatal surgical and cardiology services, are scarce and not easily duplicated over two sites where there is a significant geographic distance between them. • Specialist services for neonates involve a whole team who are expert and trained to manage the neonates with rare and complex conditions – beyond just the medical or surgical specialist. In addition, these neonates often require input from multiple subspecialties. • Duplication of specialities currently located at PCH may place PCH clinical service delivery at risk, due to the inability to backfill shifts when services are being redirected to the WBH, or sufficiently cover on-call rosters. An independent employment model for WBH may have to be considered as a mitigation. • There is currently limited capacity of key specialised, diagnostic and supporting services needed to provide comprehensive MDT neonatal services, such as neurophysiology, EEG, and echo sonography across two sites. An early and targeted recruitment strategy to address these known challenging professions will be critical.
<p>Satellite services consist of more than only the specialist – they require the entire multidisciplinary team, including infrastructure and equipment requirements</p>	<ul style="list-style-type: none"> • Increased system redundancy if the required services, equipment and infrastructure are available at PCH and WBH. 	<ul style="list-style-type: none"> • Providing additional services at WBH requires more than simply sending the specialist across from PCH. For example, in Cardiology it also includes ensuring the specialist staff (cardiac nurses and cardiac scientific officers etc) and required infrastructure (biplane cardiac catheter laboratory) is available. • Upfront and recurrent costs associated with staffing, infrastructure and equipment.

Observations	Benefits/ Opportunities	Risks/ Issues
There are a limited number of paediatric surgeons currently in WA with neonatal expertise and/ or being trained nationally	<ul style="list-style-type: none"> Recruit to increase the number of paediatric surgeons in WA and promote succession planning. Consider rotation of additional surgeons through PCH and FSH. 	<ul style="list-style-type: none"> Splitting highly complexity/ low volume procedures over an increased number of surgeons may reduce surgical volumes to below what is required to maintain individual clinical competencies. In addition, consideration is needed regarding the provision of adequate training opportunities for those seeking these specialist skills. Specialist surgical services for neonates involve a whole team who are experts and trained to manage neonates with rare and complex conditions – beyond just the surgeon. Limited training opportunities for paediatric surgeons. Need to collectively determine and agree what is appropriate for the Level 6 tertiary service versus a Level 5 service.
Time critical transfers will still be required under this model	<ul style="list-style-type: none"> There is potentially a small cohort of transfers that may be avoided if the right expertise is available at FSH, but would need to be collectively agreed across the HSPs and DoH. 	<ul style="list-style-type: none"> Time critical transfers are not mitigated by this option, as there will continue to be a cohort of high-risk babies that need to be moved to the surgical/medical NICU at PCH. Risk that time critical neonatal services currently provided at PCH will be fragmented.
The model only partially aligns with international best practice for service tri-location	<ul style="list-style-type: none"> There is an improvement in the level of tri-located care provided when compared to the base option. 	<ul style="list-style-type: none"> There are clinical risks associated with delivering care using a model that does not completely align with best practice.

Other observations

FSH has a well-established and respected Level 4 paediatric service with nearly 7,000 admissions per year and a paediatric ED with 26,000 attendances per year. The service provides care for children and adolescents up to 16 years of age for medical, surgical and some specialist conditions. It is a Level 2 training site for basic and advanced trainees and is benchmarked (by Children’s Healthcare Australasia) with Gold Coast University Hospital, John Hunter Children’s Hospital, Christchurch Hospital and Royal Hobart Hospital.

The paediatric service is able to access timely paediatric radiology services, EEG via the neurophysiology department, a paediatric cardiologist to perform echocardiograms, and multidisciplinary paediatric feeding service. Currently, FSH has 12 general paediatricians (4.8 FTE) and 9 subspecialists: 2 Renal, 2 Gastroenterology, 1 Respiratory, 3 Neurology, 1 Endocrine (totalling 1 FTE/10 sessions); the latter under

the current model provide outpatient services and ad hoc inpatient services. The vast majority of these subspecialists also work at PCH (2 as Head of Department).¹⁶

There was strong consensus that the establishment of the WBH at FSH precinct is the catalyst to increase the FSH paediatric services from Level 4 to Level 5, to better support the needs of the new hospital and partially mitigate the lack of a colocated tertiary paediatric service. There are additional benefits as outlined in the workshop outputs above including reducing the known capacity and demand pressures on PCH, and the decentralisation of paediatric services.

There was similar majority agreement that there should only be one Level 6 paediatric service in WA (at PCH) given the size of the state, and that some specialist tertiary services (e.g. cardiothoracic surgery) should not be duplicated over both PCH and WBH (see section 3.0, issue #8 for further detail). This position was confirmed by the Director General WA Health in a meeting with PCH on 24 July 2023.

A report by McKinsey & Company (2006), *Children's Health first: international best practice in tertiary paediatric services*, was commissioned by Health Service Executive Ireland for the planning of the new Dublin Children's Hospital. They consulted paediatric experts from around the world, including Australia, in addition to academic literature and paediatric professional bodies. The Best Practices section includes a summary of the evidence and case study examples. Some of the critical points made are:

- Providing critical mass of sub-specialist care is the most important factor in delivering best outcomes for patients, especially those with clinical complexities. As an example, the minimum effective catchment was in the region of 3.5 - 5 million, with the exception of Cardiac surgery where the minimum for each unit should be a minimum of 5 million.
- Full breadth of service is the most important component of delivering highest quality of care. It covers core medical, diagnostic and non-clinical patient support services.

It is clear from the discussions that PCH, FSH and WBH will need to make collaborative decisions, facilitated by DoH as the System Manager, to ensure there is a clear and agreed understanding of the type and level of medical and surgical services to be provided to neonates at the WBH by PCH and FSH. These should occur well prior to the commissioning of the new hospital, potentially in the short term to identify and alleviate concerns between the stakeholders, reduce potential duplication, avoid "scope creep", ensure clinical outcomes are optimised, inform workforce planning, and provide clarity for the future phases of the project.

The experience of the Gold Coast University Hospital (GCUH) (see section 6.3), whereby agreement and clear boundaries was reached on what was appropriate neonatal surgery at their site versus referred to Queensland Children's Hospital (QCH), shows that this can be achieved through a transparent and authentic approach by all stakeholders. The paediatric surgeons had close connections to QCH including, at times, doing operating lists at both hospitals, which was critical in establishing trust and confidence in the quality of service provided. Over time the neonatal surgical procedures performed at GCUH has increased, which has required an increase in paediatric surgical FTE and establishment of a neonatal anaesthetic roster, together with upskilling of neonatal nursing staff. GCUH paediatric surgeons are part of a Statewide network that discuss relevant cases.

In light of the decision to relocate the WBH, there will need to be a more concerted effort in the short-term to develop stronger relationships across medical and surgical specialities, which in turn builds capability and trust. As one clinician succinctly put it "we need to create synergies, not competition".

4.1.2 Clinical focus workshop – Mental Health

Similar to the O&G and P&N workshops, attendees were provided with an overview of the activities, consultation process and clinical service delivery issues identified to date. As outlined in section 3.1, the main concern from a mental health perspective was the potential fragmentation of perinatal and infant mental health services and access to care.

16. Email from Dr Janine Spencer, Head of Paediatrics, FSH (dated 30 July 2023)

As part of the development of the Women and Newborn Service Relocation Project (WNSRP) BC/PDP, a detailed WNHS Mental Health Services: Service Delivery Model (SDM) was prepared and endorsed by relevant stakeholders. The service delivery model articulates the service delivery principles of mental health services that align with broader objectives of the health service. This includes the delivery of high-quality care that is evidence based, person and community centred, and the focus is to deliver services to the community that align with these principles. The principles of service delivery, as outlined in Table 21 below, were used to guide and focus the workshop discussion.

While it was not the intention of the workshop to review the principles, suggestions were made for consideration in the update of the SDM following the change in location of the WBH.

- a principle that specifically articulates the need for keeping mothers and babies together.
- ensure the language and wording used is appropriate and provides adequate representation to all genders and gender titles.
- consider the addition of “culturally appropriate” in principle #3 to align with “inclusive”.
- greater balance in the consideration of women’s needs and those of the baby.

Table 21 – Principles of Mental Health service delivery

#	Mental Health Principles
1	Placing the woman (and infant where applicable) at the centre of care, ensuring support for partners and family, and a coordinated approach to care for the woman’s needs, including her emotional, psychosocial, cultural, and clinical needs.
2	Striving for ongoing clinical excellence in women’s mental health, with services that are evidence-based, underpinned by principles of co-design, and are enabled by contemporary technology and infrastructure.
3	Ensuring women have timely access to specialised mental health services, where trauma-informed, inclusive practices are prioritised, and continuity of care is offered.
4	Supporting women to make informed decisions about their care. Including through respectful communication, provision of easily understood information, and ensuring women’s choices and preferences are actively sought and respected.
5	Working as a partnership with other services, both internal and external, with a focus on delivering an integrated, multidisciplinary service underpinned by collaboration among health professionals and peer support workers.
6	Presence of a positive and respectful workplace culture, where staff wellbeing is prioritised, and their professional development is supported through ongoing education and training.

The session was facilitated via a collective group activity that sought to identify specific clinical/model of care, infrastructure and non-infrastructure considerations for each of the four mental health services under the current of the Women’s Health, Genetics and Mental Health Directorate, within the context of the Government announcement (Option 1) and to a lesser extent Options 2 and 3.

In addition to reviewing considerations for non-admitted services, the activity focussed on the following services as outlined in the SDM:

- Psychological Medicine Services which provide a consultation liaison service
- Mother and Baby Unit
- Child and Mental Illness Unit
- State-wide Perinatal Infant Mental Health Program.

Prior to the activity commencing, the clinicians acknowledged the potential risk to care fragmentation and access. As a result, they identified the change in location as the catalyst for the system to review the current perinatal model of care across the metropolitan area and the links to WACHS, community and primary health care options to improve access (care closer to home), improve efficiencies, and address current service gaps. The discussions focussed on the opportunity to develop an integrated model of care aligned to the guiding principles under a hub and spoke model, which is reflected in the clinical workshop activity outputs below. Critical to the model of care however is ensuring that is appropriately and sustainably funded.

Developing an updated model of care involving all stakeholders and including those with lived/living experience, which would also inform the update to the WNHS Mental Health Services: Service Delivery Model, could be a collaboration between the Mental Health Commission (MHC), Perinatal and Infant Mental Health Network and the WBHP team. The clinicians noted their recommendations will become more specific once the interdependent model of care for obstetrics, gynaecology and neonatology services for the WBH becomes clearer.

4.1.2.1 Option 1 clinical workshop activity outputs

Stakeholders discussed in detail each of the outlined services in the current SDMs from the perspective of Option 1 and identified the clinical, infrastructure and non-infrastructure related outputs summarised in Table 22 below.

Table 22 – Option 1 workshop activity outputs

Service	Clinical considerations	Infrastructure considerations	Non-infrastructure considerations
Psychological Medicine (Consultation Liaison)	<ul style="list-style-type: none"> • There is currently inequity across the system in regard to the provision of services due to resourcing. KEMH is adequately resourced, however it is suboptimal elsewhere. • General hospital sites (e.g. JHC, AHS) are managing increasing acuity, and in-reach models will be required in the future which need to be considered in medium-term planning. • Consider a ‘hub and spoke’ approach to service delivery. Potentially dual hubs or triple hubs may be appropriate (e.g. WBH, OPH, AHS – aligning to HSPs) where there are large volumes of activity. • Need to ensure improved service access for complex patients, while also providing the required in-reach into PCH. • Links to NICU are essential and would suit expansion at PCH to align with proposed increased neonatal service delivery capacity. • A stepped approach is needed to decentralise clinical service delivery, given availability of staff will be an issue and requires a long-term recruitment strategy. 	<ul style="list-style-type: none"> • There needs to be sufficient space/ accommodation allocated at spokes to deliver required services. • Implementation of technology such as telehealth/virtual care is needed to support WACHS regional patients and services (dedicated virtual care rooms) especially if a HiTH model is part of the model moving forward. 	<ul style="list-style-type: none"> • There is an opportunity to explore and benchmark against an NHS model based on volume of births with consideration to the fact that community-based services are more prevalent in the UK when compared to WA Mental Health Services. • Consideration is needed to the number of births planned for the expanded OPH so appropriate Psychological Medicine services can be anticipated. • Consideration to the increased mental health needs of long stay maternity and gynaecology patients is needed. • Linkages to Child and Adolescent Mental Health Service (CAMHS) and WACHS need to be considered to support transfer of long-term patients between services. • Optimal governance of the service needs to be considered if a hub and spoke model is adopted especially for consultation liaison services (single or aligned geographically). • Service delivery is currently reliant on a highly specialised workforce. There are risks this workforce could be fragmented and/or diluted.

Service	Clinical considerations	Infrastructure considerations	Non-infrastructure considerations
MBU	<ul style="list-style-type: none"> • There should not be 2 x MBU units located on the FSH precinct. • The FSH MBU has advantages in its current location from a staffing perspective, as well as the other units within the facility providing complimentary services e.g. Youth Unit and Assessment Unit. • OPH is likely the logical site for the MBU, however there is only older adult and community MH services onsite. JHC and SCGH sites with adult MH services should be considered as well, noting however only the former has a maternity unit but both have EDs • There is a need to colocate MBUs with other relevant specialist services to enable in-reach capabilities and rapid access to support/services for complex patients. • Perinatal mental services at any new site needs to be of sufficient size and linked to viable patient volumes to provide an effective service. • Links to paediatric services are needed and may be provided by an MBU located at QEIIIMC. 	<ul style="list-style-type: none"> • The extent to which ED in-reach is possible at OPH needs to be determined pending confirmation of future casemix and service levels at the site. • The MBU in the north should not be a standalone unit (as per current KEMH) – need to consider other MH supports. • College guidelines suggest an optimal service delivery would be achieved via an 8-bed unit. • Discussions suggested that as an alternative location to OPH, that JHC could also provide effective in-reach and required patient access • A preliminary assessment as to the capacity of JHC and SCGH to accommodate a MBU onsite needs to be assessed. 	<ul style="list-style-type: none"> • Catchment areas to be discussed and determined at a systemwide level, including flow from WACHS regions, with all stakeholders. • Strong interdependency with Psychological Medicine/ Consultation Liaison. • Consideration needs to be given to complexities arising from service delivery within the PPP environment if JHC was the preferred location for the MBU. • Bed configuration and accommodation options are needed to cater for increasing needs related to transgender patients. • Consideration to the increased mental health needs of long stay patients is needed. • Consider more formal arrangements with WACHS referrers to align MBUs and build relationships and capacity in regional WA.

Service	Clinical considerations	Infrastructure considerations	Non-infrastructure considerations
CAMI	<ul style="list-style-type: none"> • Colocation with obstetrics services, emergency services and an MBU is required to provide the in-reach opportunities needed by a CAMI service, coupled with the capability to admit patients for treatment. • FSH currently provide a CAMI antenatal clinic. • CAMI services should generally be provided at the hub as numbers will not justify one at every maternity unit. 	<ul style="list-style-type: none"> • Multiple locations across northern, eastern and southern corridors are needed to reduce travel requirements for patients. There is a risk that complex patients located within the northern corridor may be unable to travel extended distances to access critical services exclusively located at the FSH precinct. • Consideration is needed as to the capacity and level of service delivery planned for OPH, and whether these are sufficient to provide the required in-reach opportunities needed. 	<ul style="list-style-type: none"> • Main pathway for patients to access CAMI services is via obstetrics, so alignment with referral pathways needs to take precedence over alignment with existing infrastructure based service delivery. • Increased linkages and use of community-based services to support management of follow up referrals is needed and may be supported through continued development of Non-Government Organisation (NGO) partnerships. • Fragmentation and dilution of workforce is a risk with this option.

Service	Clinical considerations	Infrastructure considerations	Non-infrastructure considerations
State-wide Perinatal Infant Mental Health Program	<ul style="list-style-type: none"> Guiding principle with the SPIMHP is that it must be located alongside clinical services given the perinatal/infant sub speciality. Aligning and colocating the SPIMHP with WBH would be best option, as while a non-clinical program focussed on education and training, health promotion, and research, it works closely with clinical services. Preliminary position is that the program should remain with the Psychological Medicine/ Consultation Liaison component of mental health service. If second MBU relocates OPH, the SPIMHP will be very much involved across all perinatal and infant mental health services regardless of site or governance. 	<ul style="list-style-type: none"> Implementation of technology infrastructure to support provision of research, education/ training, service development and health promotion via telehealth/ virtual care when appropriate 	<ul style="list-style-type: none"> With second MBU likely to be based north of the river the relationship between both MBUs and the SPIMHP will need to be developed and robust.

Service	Clinical considerations	Infrastructure considerations	Non-infrastructure considerations
Non-admitted services	<ul style="list-style-type: none"> • There is a need to consider the opportunity for broader community/ non-admitted services to be established that support inpatient and/or hospital based services in an updated model of care. • Potential to look at establishing Healthcare in the Home (HiTH) services at each MBU (proposed north and south) to support early discharge and in-reach. • The ability to include models that provide follow up acute care such as a HiTH should be a consideration to address expansion of needs going forward but would be a statewide consideration that would involve WACHS with both face-to-face and telehealth options. 	<ul style="list-style-type: none"> • Some infrastructure requirements for non-admitted services. • Increased utilisation of technology to support both physical and virtual home visits. • There is a need to consider the infrastructure requirements to ensure staff safety for women in custody accessing these MH services. 	<ul style="list-style-type: none"> • There is an opportunity to increase community-based access to services currently provided by tertiary mental health services, by utilising a stepped access approach via referrals, and increased use of virtual technology.

4.1.2.2 Option 2 and 3 activity outputs

Following an in-depth discussion on Option 1, stakeholders reviewed their findings and sought to identify if there were any changes in relation to the application of Options 2 and 3. General comments provided were similar to those captured at the O&G and P&N clinical focus workshops (see section 4.1.1.2 and 4.1.1.3), with those specific to mental health briefly summarised below:

- Need to ensure alignment with the guiding principles and there is a risk these options may fragment service delivery, resulting in reduced ability to keep mothers and babies together. This is particularly important with Aboriginal mothers given the historical context of removal/separation.
- Fragmentation of workforce is key risk and is limited in terms of ability to cover the spread/duplication of services.
- Consideration of a split service over two sites may be needed, noting there is a risk to the quality and safety of services that are split where there is limited volume (need critical mass to maintain competency/excellence).

- Provision of services and location of supporting infrastructure needs to be aligned to the distribution of obstetric volumes across the metropolitan area.
- An additional service at the site would require a duplication of onsite supporting services such as WANDAS, Psychological Medicine and CAMI (Option 2).
- Need to carefully consider the issues surrounding the ability to provide training and development of staff within a decentralised maternity service delivery model (Option 2).
- Although a dual hub model with supporting spokes would provide required service coverage, there is a risk that decentralisation of paediatric/neonate service delivery (Option 3) may result in a fragmentation of care that is unable to be supported by the current workforce.

4.2 Casemix and CSF activity outputs

To support the Department of Health to obtain insights on the current and potential future casemix of neonatal, maternity and O&G service delivery, and to inform decision making with regards to modelling and future service configuration, a targeted activity to generate discussion on this was held during each workshop. The activity involved presenting attendees with specialty specific prompting questions that focussed on how lower acuity patients (neonatal and obstetrics) could be managed more locally, where this care could be provided (e.g. CSF Level 4 obstetrics/ maternity and Level 2A/2B neonatal sites), and to which patient cohorts this could be applied. The activity outputs, including the questions used, are summarised in the following sections.

4.2.1 Neonatal casemix and CSF activity outputs

Outputs for the neonatal casemix and CSF activity are provided below and were guided by the following questions:

1. What type of baby currently defined as a qualified neonate and managed at a tertiary site, could be managed more locally at a secondary (CSF Level 4) site in a Special Care Nursery or even side by side with their mother?
2. What enablers are required (equipment, workforce, infrastructure, networked support)?

Table 23 – Neonatal casemix and CSF activity outputs

Potential casemix	Potential enablers
<ul style="list-style-type: none"> • Babies on CPAP (time limited pending support available onsite). • Short and long term intravenous (IV) Antibiotics. • Nasogastric (NG) tube feeds. • Babies with low blood sugar (short term IV fluids). • Babies that reach a certain weight threshold (e.g. 2kgs). • Early respiratory support (e.g. nasal prongs). • Level 5 • Short term ventilation. • Central lines and long lines. 	<ul style="list-style-type: none"> • Neonatal service gap analysis is needed to assess capacity and capability across the metropolitan area. • Consider the sustainability of small units. • There is an estimated ~30 neonates at KEMH that could be clinically referred to peripheral hospital units but remain at KEMH due to insufficient external capacity. • Commitment to investment in capacity and capability in general hospitals underpinned by a suitable workforce. • Increase step down capacity in regional areas +/- virtual metropolitan support. • Policy and procedure enablers (clear and agreed guidelines). • Rotational requirements added to JDFs to support resource distribution and workforce flexibility between HSPs. • Increase in allied health support. • Provision of local parental accommodation options to support discharge.

4.2.2 Obstetrics and Gynaecology Casemix and CSF activity outputs

Workshop outputs for the O&G casemix and CSF activity are provided below and were guided by the following questions which were provided to the participants.

1. What type of women are currently managed at tertiary sites that could be managed more locally at a secondary site (e.g. CSF Level 4)?
2. What enablers are required (equipment, workforce, infrastructure, networked support)?
3. What is the optimal size of a general Level 4 service?

Table 24 – O&G casemix and CSF activity outputs

Potential casemix	Potential enablers
<ul style="list-style-type: none"> • Water births. • VBACs. • General gynaecology services. • Adolescent and teenage pregnancy services. • Mothers with Diabetes (well defined cohort). • Potential increase in BMI to 45 – review of thresholds and consistency across services (may be site dependent based on facilities, infrastructure, equipment, anaesthetists etc.). 	<ul style="list-style-type: none"> • Minimum level of support services (e.g. AOD, perinatal MH, perinatal loss). • General capability uplift is needed at peripheral hospitals to maintain safety and quality, and support community-based deliveries. • Hold PPP service providers to account to manage cases aligned with service agreement contracts. • Significant investment in infrastructure (direct e.g. LBS and indirect e.g. OP clinic space). • Statewide approach for maternity services. • Implementation of a long-term recruitment strategy to build workforce requirements. • Improved afterhours access to O&G theatres, pathology, and imaging services. • Use of, and access provision for, endorsed public and private midwives to a broader range of sites. • Child protection services. • Bariatric supports.

4.3 Site based workshop activity outputs

The purpose of the site-based workshops was to provide an opportunity to facilitate discussion with site-based stakeholders regarding the infrastructure announcements made as part of the Government’s decision. The aim was to gather information regarding key clinical and operational considerations needed to support these future expansions, which included:

Women and Babies Hospital

- WBH to be built at the FSH precinct.
- Services provided by WBH will be broadly the same size and scope as originally planned.

Perth Children’s Hospital

- Expansion of NICU size and capacity.

Osborne Park Hospital

- Expansion of obstetrics, gynaecology, and neonatal services.
- Construction of a new Family Birthing Centre.
- Expansion of operating theatres.

For each workshop, attendees were presented with a range of site-specific questions and prompts, which were used to facilitate discussions. The questions and prompts used in each session, as well as a summary of the high-level findings are summarised in the relevant sections below.

4.3.1 Perth Children's Hospital

The PCH workshop centred on working through with stakeholders, some of the early the issues and considerations arising from the announced intent to expand the NICU. Specifically, discussion sought to understand what impacts were anticipated, and how they thought an expanded neonatal service at PCH might look and operate. The questions presented focussed on both clinical and infrastructure related topics and are provided in Table 25 below.

Table 25 – PCH clinician questions/prompts

1	What do you see as the key risks/issues with an expansion of the NICU at PCH? What are the potential mitigations and solutions for these risks/issues?
2	What do you see as the main benefits/opportunities with an expansion of the NICU at PCH?
3	Are there any current needs within the NICU at PCH, that will be addressed by an increase in unit capacity?
4	What patient cohort would be best suited to expanded PCH? Would this impact the current admission criteria?
5	What will be the expected flow on impact for clinical and clinical support services that support the PCH NICU (including PICU) and are there any services which may present a challenge?
6	How do you envision the relationship between an expanded NICU at PCH and the OPH neonate expansion?
7	How does this announcement align with current PCH planning activities? Are there any synergies here?
8	Other additional thoughts/clinical considerations for an expanded NICU at PCH?

Table 26 – PCH Infrastructure questions/prompts

1	What do you see as the key risks/issues with an expansion of the NICU at PCH? What are the potential mitigations and solutions for these risks/issues?
2	What is the potential infrastructure impact for additional clinical and clinical support services needed?
3	Will there be any impact to existing PCH NICU infrastructure?
4	What are the potential infrastructure opportunities to be explored (e.g. accommodation for mothers)?

Outlined below are the key clinical and infrastructure related outputs that arose during discussions. These provide some insight into some initial operational and service delivery opportunities and considerations that may arise from an expanded NICU at PCH, in addition to some key risks and issues that need to be worked through. Although not the focus of this session, broader issues that were raised during the session that related potential clinical service delivery issues resulting from the Government decision to relocate the WBH to the FSH precinct were captured and incorporated into section 1 of this Report.

Table 27 – Key clinical activity outputs

Clinical Observations	Description
PCH NICU should remain focussed on surgical and medical neonates	The core business of the PCH NICU – surgical and medical neonates – should be retained even with the expansion. Staff have become specialised, and the skillset required to manage pre-term neonates is different. There is a need to ensure lower acuity neonates do not occupy a Level 6 service simply as a result of that is where there is available capacity in the system.
Management of lower acuity long stay patients requiring access to PCH based services need consideration	With the increased distance between WBH and PCH, there is a risk the volume of long stay NICU patients at PCH will increase as a result of transfers to access PCH specialist review and input. These patients would previously have remained at KEMH with in-reach support. This may require PCH NICU to expand beyond the proposed 20 bed expansion and will also increase the volume of NETS WA transfers.
A specialist workforce is required to support expanded NICU bed capacity	There are concerns the specialist neonatal workforce needed to staff additional NICU beds is not available, and that this issue may be further impacted by an aging workforce in this field. Services between KEMH and PCH are often niche, and recruitment to fill new positions may be challenging. Allied Health was identified as a specific area of need.
Proposed size of capacity should be based on the latest modelling data	The proposed expansion should take into consideration current occupancy (in the context of accepted levels of safe occupancy), expected growth (long-term), and emerging/future trends in NICU utilisation. This should be overlaid with the operational efficiency.
Peripheral expansion is needed to support Level 6 NICU services	In isolation, a capacity expansion of Level 6 services at PCH may not address the underlying cause behind current high occupancy rates. Investment is needed to address insufficient capacity and capability of peripheral sites to accept lower acuity neonates (estimates are KEMH had approx. 800 bed days of babies waiting for transfer to lower acuity care in 2022).

Table 28 – Key infrastructure activity outputs

Infrastructure Observations	Description
Orientation between services at PCH need to be preserved	The physical orientation of NICU, PICU and Surgical Services on Level 3 at PCH must be maintained as part of expansion planning. Separation of these services was considered non-negotiable by stakeholders, with risk to clinical service delivery raised.
There are complexities regarding the size and location of the additional NICU beds	There is a need for NICU to stay on the surgical floor at PCH. Floor space in this area is limited so consideration is needed to where the additional beds could be located. If a standalone unit results, then there are additional considerations regarding minimum viable size (20 beds may not be enough). The current location of NETS WA office may need to be considered. Clinical office space should be in close proximity to clinical areas. Storage is currently a significant issue that should be addressed during an expansion.
Parental accommodation needs to be included in expansion planning	An expansion of NICU bed numbers at PCH will require additional capacity to accommodate well mothers to stay with their babies (boarders).
Opportunity to integrate new technology and flexibility	There is an opportunity to include technology such as a dedicated neonatal MRI as part of the NICU unit expansion. The expansion should also support flexibility in the use of neonatal beds (e.g. increase in the number of beds with surgical capability).
An optimal number of single and multi-bed rooms needs to be determined	There are advantages to both single and multi-bed rooms for patients, their family and carers, and staff. For example, multi-bed rooms have been beneficial for parental support and training. Clinical consultation is paramount to determine the ideal mix within the NICU expansion. Isolation requirements for the NICU to manage infectious patients needs to be considered.
Alignment is needed between clinical service and infrastructure planning	There are concerns infrastructure planning and decision making may occur prior to sufficient clinical engagement, creating a risk of misalignment between the infrastructure needed to deliver high quality clinical services, and the infrastructure that is actually delivered. This would also detrimentally impact clinical engagement.

4.3.2 Fiona Stanley Hospital

The purpose of the FSH site-based workshops was to discuss and identify key impacts and considerations are given the decision to locate the WBH in the FSH precinct, as well as the potential integration of both clinical services and non-clinical support services/ infrastructure between FSH and the WBH. Specifically, what opportunities or issues may exist that need to be worked through, and what future service delivery between the sites might look like.

To support improved discussion, the workshops were divided into two groups, one that focused on clinical and clinical support services, and another that focused on infrastructure and non-clinical support services. Provided below is a summary of questions and topics discussed for each session, in addition to a summary of relevant observations.

4.3.2.1 Clinical workshop

To support discussion with, the below questions and prompts were provided, with each clinical specialty present provided with an opportunity to provide their thoughts and input.

Table 29 – FSH clinician questions/prompts

1	What do you see as the main benefits/opportunities of colocation with the nWBH?
2	What do you see as the key risks/issues of clinical service integration with the nWBH? What are the potential mitigations and solutions for these risks/issues relative to your specialty?
3	How do you envisage the integration of clinical services with the nWBH? How would the service delivery model for your specialty / area change and how might you want this to look?
4	What will the expected flow on impact be for clinical support services (Outpatient Services and Allied Health) and are there any services which may present a challenge?
5	Are there any other additional thoughts/considerations for clinical integration with the nWBH?

Outlined below are the key clinical related observations that arose during preliminary discussions. These provide insight into some initial opportunities and considerations at a subspecialty level that may arise from colocation with the WBH, which has generally been viewed positively by the FSH clinicians.

Table 30 – Key clinical observations from the collocation of FSH and the WBH

Clinical observations	Description
<p>Improved clinical service delivery, collaboration and patient experience will be achieved as a result of collocation</p>	<p>There is an opportunity to improve service delivery, collaboration, and patient experience within the convenience of a single precinct. This may be through the provision of a consultative service via existing services at FSH to the WBH, integration, and/or an expansion in the capability and capacity of these services. This includes but is not limited to:</p> <ul style="list-style-type: none"> • Endocrinology – maintain the continuity of care for mothers with diabetes during pregnancy and postpartum. Support Obstetric Physicians where required in the management of complex endocrine conditions in pregnancy (e.g. pituitary and adrenal disease). • Gynae-Oncology – potential to provide all components of the patients care at a single site (surgery, chemotherapy, radiotherapy), which can currently be split between SCGH and FSH. • Neurology - upskill workforce to provide neonatal EEGs. • Orthopaedics – provide services to support the management of conditions such as Developmental Hip Dysplasia (DDH) onsite. • Medical Imaging – capability to provide a service to the WBH in all areas of women’s imaging (including oncology), antenatal imaging, neonatal imaging and image guided interventional services. Some existing staff with subspecialist training/expertise in neonatal imaging. • ICU – provision of adult ICU services to mothers transferred from WBH and collaborative working relationship with proposed critical care services within the WBH. • Cardiology – further strengthen existing services that are in place for women referred to and delivering at FSH with cardiac conditions (Rhematic Heart Disease, Heart Failure, Adult Congenital Heart Disease).
<p>Additional workforce is needed to support in reach or expanded services</p>	<p>There is no latent capacity to provide additional services to the WBH without the concomitant increase in staffing. This will be dependent on the proposed service delivery models and level of integration between the two hospitals. Clinical specialities will be enthusiastic to support patients at the WBH but it must be underwritten by appropriate resourcing. The increased workforce demand may result in competition for staff between the hospitals.</p>
<p>Service provision to neonates requires training and expertise</p>	<p>Upskilling of staff where appropriate is required to support the expansion of specialist services. This is particularly relevant to the potential provision of services to neonates, such as Echocardiography, EEGs and specialist Medical Imaging trained staff. This should be well planned, funded and implemented prior to the opening of the WBH.</p>
<p>FSH should increase from a Level 4 to a Level 5 Paediatric service</p>	<p>There are clear benefits in increasing from a Level 4 to a Level 5 paediatric service at FSH (under the CSF) to provide an increased capability to support the WBH and operate under an enhanced hub and spoke model with PCH. This will also further attract paediatricians and paediatric subspecialists to work at FSH, encourage joint appointments with PCH, and reduce demand pressure on the State’s only tertiary paediatric hospital.</p>

Clinical observations	Description
Minimise the number of Service Level Agreements and Memorandums of Understanding	Service Level Agreements (SLAs) and Memorandums of Understanding (MOUs) are well intended, but with potentially three HSPs on the FSH precinct it is important that it does not result in a multitude of complex arrangements leading to reduced efficiency and clinical care fragmentation.
Relocation of services to WBH will create floor space for other services.	The integration of O&G services provided at FSH into the WBH, will create expansion opportunities for FSH services currently at capacity. For example, the development of paediatric services (in line with an increase from Level 4 to Level 5) including the creation of an adolescent and young adult ward are benefits that could be realised through the availability of additional floor space on Level 3. Theatre and outpatient capacity will be released to address pressure demands.
Technology should be utilised to reduce patient requirements to travel to PCH	To reduce the need for paediatric and neonatal patients to travel from FSH to PCH, there is an opportunity to increase the usage of telehealth and other virtual care options.
Current FSH maternity related outpatient activity needs to be factored into the WBH build	FSH currently offers a range of speciality led obstetric related outpatient clinics (e.g. Cardiac, Diabetes, Endocrinology, Renal, Haematology, Mental Health) that will potentially be provided in the outpatient facility within the WBH. These need to be captured and assessed as to the impact on the current accommodation requirements for the WBH build.

4.3.2.2 Non-clinical support services and infrastructure workshop

The infrastructure and non-clinical support services workshop was held with members of the FSH executive team and sought provide initial engagement to discuss and identify key considerations of the colocation of the WBH in the FSH precinct, as well as the potential integration opportunities for non-clinical support services. Prior to the meeting FSH provided a list of topics to guide the discussion (Table 31), and additional issues related to those items as well as supplementary observations/session outputs are provided in Table 32.

Table 31 – FSH Infrastructure and non-clinical services discussion topics

Planning (WAPC) & Environmental Approvals	Carnaby/offset + Dieback Area
Construction, Access & Amenities	Construction Access. Laydown & Amenities Areas – consider St John Ambulance and Murdoch University sites
FSH Offset Carparking + Mother & Babies Parking	Carpark Access Modelling – Carparks 3 & 4, Carparks 7 & 9 + Hospital Access
Utilities Capacity	Power, Water, Sewer, Gas, etc. + Distribution Network & BMS

Environmental Sustainability Initiatives	Potential for alternative peak demand offsets + emergency power
Support Services	Loading dock, AGVs, linen, waste, catering, cleaning, service tunnel
Patient Transfer	Separate Patient Access to B-Core lifts – access to theatres etc.
System Supports	Security, Incident Management, Call Centre, ICT, MES, CEP, Administration, Education, HR, Recruitment, Finance, etc.
Visitors Access	Ground level to coincide with FSH East Entry to the Concourse

Table 32 – Key non-clinical support services and infrastructure observations between FSH and WBH

Non-clinical observations	Description
Planning (WAPC) & Environmental Approvals	There are existing conservation areas on and off-site. Federal environmental approval may be required to build the WBH onsite.
Construction, Access & Amenities; and Patient Access	<ul style="list-style-type: none"> • Traffic and car park access modelling is required. Currently the adjacent Fiona Wood Road a single lane only with good flow but consideration for emergency vehicle access is needed (to avoid gridlock). • Likely that slip lanes (at a minimum) will need to be included in the traffic modelling for the proposed multi-storey car parks to ensure that traffic cueing to get into the new car parks does not block the single lane access roads – Jennalup Street, Winch Way, Fiona Wood Road. • A review of access to the site is needed including the approach to public transport around and within the FSH precinct e.g. CAT bus style service. • Consideration of potential tunnel linkages between the two hospitals needs to be mindful of the existing FSH service tunnel that runs East-West across the site.
FSH Offset Carparking + Mother & Babies Parking	<ul style="list-style-type: none"> • Need to consider enabling works prior to car park construction, including vacant block availability for offsite parking. • Clarification required as to whether there is separate WBH parking versus FSH car parking (competition between hospitals for the new multi-storey car parks). • Total capacity of site parking needs to realistically reflect actual and projected usage versus aspirational targets.
Utilities Capacity; and Environmental Sustainability Initiatives	<ul style="list-style-type: none"> • Known electricity/power issues with the site will need to be addressed/rectified. Additional generators currently located onsite. Aware that a fully electrified hospital had been proposed. • Opportunity to consider sustainable energy sources as an alternative to what is currently onsite. Central Energy Plant (CEP) capacity to be assessed including contingency/redundancy and management of disruptive repairs and maintenance of major plant.

Non-clinical observations	Description
Support Services	<ul style="list-style-type: none"> • Suitable linkages between the FSH and WBH will need to be determined. There is no suitable way to facilitate support services between the hospitals at ground level. • A tunnel link will be required to connect services and a bridge link as well. Potential issues with loading dock access route (shares the same access with ED).
Patient Transfer	<ul style="list-style-type: none"> • Optimal clinical patient links from FSH to WBH need to be thoroughly explored (e.g. Helipad, ICU, ED, Medical Imaging).
System Supports	<ul style="list-style-type: none"> • CEP capacity to be fully assessed. • CSSD may have capacity to manage WBH (recently supported Fremantle Hospital during a downtime period). • Lessons learnt from FSH on the Managed Equipment Service (MES) and generator to be considered for WBH.
Non-clinical support services integration	<p>It was acknowledged that there are significant opportunities for non-clinical support services integration between the hospitals to optimise governance, resources (reduce duplication), productivity and efficiency.</p>
Others	<ul style="list-style-type: none"> • Potential use of existing theatre shell space. • Storage is an issue across FSH. No latent capacity to support WBH. • PathWest pneumatic tube system has been expanded but unlikely to support the WBH in its current form (compression). • Some end of trip (EoT) facilities are better utilised at FSH than others. Apply site lessons learnt to WBH. • Under proposed model the Medihotel is unlikely to address patient accommodation requirements, although a hotel (Marriott) is being built in the broader precinct. • Current childcare location may be an issue for the WBH build and alternate location may need to be considered. Depending on the final car park solution it could be included in a multi-storey car park at the back of the WBH, replacing its current location.

A question that has been raised in various forums is in relation to the facilities management services contract between Serco and FSH. Serco currently provide 21 non-clinical services at FSH and the contract is currently due to expire in August 2027 with a four-year extension option. This potentially has significant implications for the NWBHP but was outside the remit of this CCR.

4.3.3 Osborne Park Hospital

Similar to the both the PCH and FSH sessions, the OPH site-based workshop set out to discuss and identify the key clinical, non-clinical support, and infrastructure requirements needed to support the delivery of expanded maternity services. The workshop sought understand from stakeholders, what they saw as some of the impacts, dependences, requirements and key considerations and how an expanded maternity service at OPH might look and operate. Attendees were guided through a range of discussion prompts which are provided below in Table 33. The outputs from the session are summarised in Table 34.

Table 33 – OPH workshop discussion prompts

1	What do you see as the main benefits/opportunities with the expansion of the OPH maternity services?
2	What do you see as the key risks/issues with the expansion of the OPH maternity services? What are the potential mitigations and solutions for these risks/issues?
3	Are there any current needs within the OPH maternity services, that will be addressed by an increase in unit capacity and capability? Does the proposed unit size raise any concerns?
4	What patient cohort would be best suited to expanded OPH? How will this impact the current admission criteria?
5	What will be the expected flow on impact for clinical and non-clinical support services that support the OPH maternity services, and are there any services in particular which may present a challenge?
6	If a maternity ward was established at QEIMC site, how do you envision the relationship between an expanded OPH maternity service and a QEIMC located service?
7	What are the key infrastructure considerations/implications and/or opportunities for an expanded maternity service at OPH (including non-clinical support services)?
8	Other additional thoughts/ considerations for an expanded maternity service at OPH?

Table 34 – Key clinical and infrastructure activity outputs

Workshop observations	Description
<p>Emergency, critical care services and additional medical and surgical specialities will be required to support the expansion</p>	<ul style="list-style-type: none"> • The planned maternity expansion of O&G services will need to be supported by 24/7 onsite theatre staff for immediate access. • A critical care service such as a HDU or ICU will be required. • The establishment of an appropriately resourced and sized emergency service (Emergency Centre, ED or other urgent care/emergency model specifically for O&G) is required at the site to manage presenting O&G emergencies such as ectopic pregnancies and potentially include an Early Pregnancy Assessment Service (EPAS)¹⁷. If a general hospital is contemplated it would have a broader remit to provide emergency services to the local catchment. • Key medical and surgical specialties (e.g. General Medicine and General Surgery) will need to be expanded onsite if an emergency service is established and adopt a more multidisciplinary approach. Obstetric Physicians would be an asset to the site. • Some subspecialties (e.g. endocrinology, cardiologists, respiratory, general medicine etc) would suit a consultancy model.
<p>Current clinical support services will be inadequate</p>	<ul style="list-style-type: none"> • Current medical imaging service availability is not sufficient to support a service expansion. Comprehensive out of hours/on-call access to modalities such as ultrasound are essential. Interventional radiology requirements will need to be considered. • A review of a range of services, including but not limited to pathology, microbiology and laboratory services, pharmacy and infection control is needed to determine the upgrade required to capacity and capability to support the needs expanded O&G and other potential services. Special considerations mentioned included the need of an onsite transfusion medicine, and pneumatic tube system.
<p>Options for women need to be maintained</p>	<ul style="list-style-type: none"> • The progress that OPH has made in regard to the provision of midwifery-led care and care continuity models should not be lost in the transition to a Level 4 maternity service. • The broad range of options and choice for women should be maintained. This will be enhanced by the addition of the Family Birth Centre onsite.
<p>Appropriate onsite perinatal mental health services will support holistic care</p>	<ul style="list-style-type: none"> • To support an expanded maternity service at OPH, essentially doubling the current births to approximately 3,600 per year plus the FBC activity (~800 births per year), there needs to be commitment to an investment in perinatal mental health services onsite. • This was considered to be critical if the MBU is established at OPH (noting currently only older adult mental health services are currently onsite)

17. Specialised service to review patients with problems in the first trimester of pregnancy, including pain and bleeding which may represent suspected miscarriage or ectopic pregnancy.

Workshop observations	Description
<p>OPH may be the optimal site to address the significant gynaecology outpatient and elective surgery waitlist in NMHS</p>	<ul style="list-style-type: none"> • There is an opportunity for OPH to provide non-tertiary and non-oncological Gynaecologic services to address a growing waitlist (outpatient and elective surgery – category 2 and 3). Colposcopy is currently provided at OPH but is one example of a procedure that could be performed in increasing numbers outside of a tertiary service. • A role for OPH in providing abortion services will be critical following the introduction contemporary abortion laws to the Western Australian Parliament in mid-2023, which reflects the fact that abortion care is part of everyday health care for women. This will address inequity of access in line with other Australian jurisdictions and remove clinically unnecessary barriers for women accessing an abortion, which is expected to lead in an increased demand for these services
<p>Junior doctor structure needs to be bolstered</p>	<ul style="list-style-type: none"> • The current junior doctor structure, in particular the current overnight/out of hours cover with a medical and surgical RMO only available, will need to be uplifted significantly to provide appropriate medical support.
<p>Flow on impact to outpatients is significant</p>	<ul style="list-style-type: none"> • The current outpatient facilities are at capacity. While the increase in volume and acuity will have a direct flow on impact to outpatient infrastructure requirements, other factors need to be considered. For example, neonatal outpatients will be required given the significant expansion, however in order to attract medical staff there may be a requirement to add paediatric clinics for provide sufficient workload for junior and senior staff (and meet College training requirements).
<p>Workforce planning is needed</p>	<ul style="list-style-type: none"> • To support service expansion at OPH, there is need to develop and implement a workforce strategy as a priority, in order to mitigate impacts from anticipated competition for maternity and support staff. Perioperative services are currently lower than required/established FTE and medical consultant vacancies has resulted in a higher usage of locums and VMPs.
<p>Consideration to size and scale requirements to support accredited training opportunities is required</p>	<ul style="list-style-type: none"> • Expansion at OPH needs to occur at a scale that is sufficient to support the minimum case volumes needed to meet accredited training requirements. This is currently sufficient for obstetrics, however stakeholders reported potential issues with the volumes needed for other specialities (e.g. anaesthetics, neonatology/paediatrics). Training opportunities and growing this pipeline will significantly improve attraction and retention of clinical staff at the site.

Workshop observations	Description
<p>A master plan for OPH is needed</p>	<p>A strategic master plan for the OPH site is needed to ensure:</p> <ul style="list-style-type: none"> • Land options on the site are utilised efficiently, avoiding further lateral expansion. • Challenges of being a brownfield site are considered. • Issues with non-clinical support services are considered (e.g. kitchen services compliance with Food Act 2008 and Food Regulations 2009; significant travel distances and connections poorly protected from the weather for services such as radiology, patient meals, linen etc. via suboptimal walkways). • Current infrastructure challenges and capacity issues are addressed (e.g. outpatients, limited bariatric facilities, waste management, mortuary equipment store, PSS, HSS, PathWest etc). • Consider freeway access and improved public transport options. • Other considerations to align with modern health facility expectations (e.g. end of trip facilities, staff dining/retail, multi-faith room, yarning circle for Aboriginal families).
<p>The flow for maternity transfers from OPH will need to be determined</p>	<ul style="list-style-type: none"> • At present patient transfers occur for pre-term labour and post-partum issues requiring care above the current Level 3 service, not just a HDU environment. There will need to be a clear escalation pathway prior to when the WBH is commissioned. • Note: OPH currently have no postnatal visiting services (all currently conducted out of KEMH), so this will need to be established and resourced for OPH given JHC do not provide post-natal care under their contract.
<p>Current and future relationship with JHC needs to be optimised</p>	<ul style="list-style-type: none"> • The expansion of OPH provides the opportunity to review the Joondalup Development and Health Services Agreement, including the volume and type of O&G activity purchased (currently inpatient activity only; no postnatal services). As the closest Level 5 maternity and neonatal service, the expansion of OPH is a catalyst to review and augment the service relationships with JHC to improve patient care and access such as: <ul style="list-style-type: none"> • Current and future care escalation pathways • Referral pathways for postnatal services
<p>A decision on the future governance of O&G services at OPH is needed.</p>	<ul style="list-style-type: none"> • The current operational (and clinical) governance of maternity services at OPH is via WHNS. With the relocation of the WBH to the FSH precinct, this may no longer be appropriate post commissioning given the geographical distance and potential impacts from the decision on the overarching governance for WBH. • In reviewing the governance, the rationale for the recent change to align with WHNS needs to be considered as important context in relation to leadership, accountability and outcomes.

Other observations

It was clear from the discussions at this OPH workshop, as well as the earlier Obstetrics & Gynaecology and Paediatrics & Neonates workshops, that clinicians and support staff felt there was a lack of a future vision for OPH and that this needed to be clarified. They were generally of the view that a critical decision needed to be made as to whether OPH will remain a specialist hospital or transition to a general hospital in the future.

As per the CSF definition, a general hospital is a facility that provides hospital services with a focus on the broader health needs of the community it serves, rather than a concentration on the purely clinical aspects of health care. A general hospital should provide for most of the health needs of its catchment population. It would usually have the following clinical services and facilities:

- emergency departments
- 24-hour anaesthetic cover
- critical care units
- general surgery capacity (including day surgery)
- obstetric and neonate services
- general medical and geriatric services
- general paediatrics
- some mental health services
- some rehabilitation and sub-acute care
- diagnostics, treatment and ambulatory care.

A general hospital will have resident general specialists, some visiting subspecialists and junior medical staff. For the most part, a general hospital provides services at a Level 4 or Level 5 in accordance with the clinical service role delineation definitions.

OPH currently functions safely as a Level 3 maternity service and can manage the current annual birth numbers approximately 1,600. The expansion of the maternity services (doubling to approximately 3,600 births/year, plus FBC at approximately 800 births/year) and elevation in capability to a Level 4 will increase the acuity and complexity (comorbidities) of patients, and therefore clinical risk. As a result, the consistent view was that OPH will need the addition of emergency, critical care and acute medical/surgical services and personnel to provide safe, high quality clinical care. The concern that was raised was that OPH would become a stand-alone maternity hospital without the adequate supports to manage patient deterioration / escalation, potentially replicating some of the current issues being experienced at KEMH.

Noting these concerns, a further meeting was held on 23 August 2023 with key clinical and executive stakeholders from WHNS, SCGH and NMHS to discuss the emergency and critical care requirements in the context of the OPH maternity and neonate expansion associated with the NWBHP. The clinicians noted that the transfer out of deteriorating patients due to a lack of on-site supports is not a patient centric model. A summary of other WA metropolitan Level 4 maternity service inclusion and exclusion criteria were reviewed. To safely manage the proposed level of future births at OPH clinically, they proposed that the following 24-hour onsite services are required:

- High Dependency / Intensive Care Unit supported through the SCGOPHCG critical care governance (NB: this unit could also be utilised for managing medical and surgical patients onsite e.g. acute geriatrics, elective surgery, to ensure that there is sufficient volume/throughput to be a viable unit)
- Emergency service (model to be further developed, but a strong preference for an Emergency Department)
- 24/7 theatre team (including anaesthetics) +/- additional specialities on-call (e.g. General Surgery)¹⁸
- Enhanced medical cover (out-of-hours/weekends)
- Onsite accommodation

18. *Hiding in plain sight: Inconvenient facts for patient safety in non-24/7 theatre on-site staffed obstetric units.* McGurgan, P. 2023. Aust NZ Journal Obstet Gynaecol: 63: 606-611

It is evident from a review of the benchmarking of other WA general hospitals with maternity services that a HDU/ICU and emergency service is standard for all Level 4 services. OPH would potentially be the only maternity service in WA without these services. Interstate, the Victorian¹⁹ and New South Wales²⁰ maternity capability frameworks similarly list ICUs and Emergency Departments/Services as required for their Level 4 services and will be important in meeting training and accreditation requirements.

5.0 Stage 3 - Executive consultation

The original intention of stage 3 was to hold a series of sessions with HSP executive groups - WNHS, CAHS, SMHS and NMHS. The proposed purpose of the sessions was to present, test and refine the findings and solutions generated by the clinical focus groups, and to consider the practicality of proposed solutions and how they could be implemented from an HSP perspective, including consideration of any resourcing and infrastructure implications.

At the end of stage 2 however it was evident that the preliminary key findings should instead be presented to the relevant governance groups - WBHP Project Control Group and WBHP Steering Committee - given the timing for the delivery of an updated Project Definition Plan (PDP) to inform the drafting of the updated PDP where relevant, and/or highlight key decision points required. These governance groups have senior executive representation from the HSPs. Key draft preliminary findings were tabled and discussed at the meetings of the Steering Committee (10 August 2023) and PCG (27 July 2023).

The Director General DoH consulted with senior clinicians and executive from CAHS (24 July and 3 October 2023), WHNS (7 August and 4 October 2023) and FSH (25 August 2023) on the WBHP to hear their views, discuss the potential clinical service delivery issues, and explore mitigation, solutions and opportunities. Information from those meetings have been incorporated into this Report where appropriate.

19. Capability frameworks for Victorian maternity and newborn services. Victorian Department of Health. November 2022

20. Maternity and neonatal service capability. New South Wales Health. May 2022.

6.0 Jurisdictional review and analysis

To support the assessment of opportunities and mitigations/solutions and provide context to the potential clinical risks and issues raised during clinical consultations and workshops, a high-level jurisdictional review of neonatal and maternity service delivery models within other Australian states was conducted. The review was able to identify a range of service delivery scenarios representing varying degrees of alignment to tri-location. These examples may provide a useful benchmark to further explore how services are provided within these models, and whether there are any relevant opportunities or experiences that can be used as a part of planning, design, delivery and commissioning phases of the WBH.

Perspectives that may be explored through ongoing engagement with these sites include, but are not limited to:

- Mechanisms for distribution and delivery of key specialties where there is not complete tri-location or there has been some form of compromise.
- Methods to approach patient transfer processes when access to specialist services are needed but not available onsite (e.g. services that are time critical and/or low volume).
- Processes to determine which cohorts should be transferred or admitted to key specialist services (e.g. patient admission criteria).
- Utilisation of workforce management strategies to support retention, recruitment and training.
- Approaches to the management of MDT relationships in environments where services may be decentralised or geographically separated.
- Exploration of third-party insights and experiential learnings that may be applicable to the WBH context.

A summary of findings from the jurisdictional review is provided below.

6.1 Summary of models in other Australian states

A summary of major hospitals across NSW, Victoria, Queensland and South Australia that provide Level 5 and 6 NICU services are outlined in Table 35 below. These hospitals have been further identified in terms of their level of colocation with supporting tertiary adult, women's health, and paediatric service(s).

Table 35 – Summary and co/tri-location status of Australian Level 5 and 6 neonatal units

State	# NICUs	Location	CSF Level	NICU beds	Colocation status
NSW	9	Westmead Children’s Hospital (WCH)	Level 6	23	Colocated with Westmead Hospital
		Westmead Hospital	Level 5	24	Colocated with Westmead Children’s Hospital Note: Maternity Unit part of the adult tertiary hospital
		Sydney Children’s Hospital Randwick (SCH)	Level 6	4	Tri-located with Prince of Wales Hospital and the Royal Hospital for Women
		Royal Hospital for Women	Level 6	16	Tri-located with Sydney Children’s Hospital and Prince of Wales Hospital
		John Hunter Children’s Hospital (JHCH)	Level 6	19	Colocated with John Hunter Hospital (internal colocation)
		Liverpool Hospital	Level 5	15	Not colocated
		Nepean Hospital	Level 5	12	Not colocated
		Royal North Shore Hospital	Level 5	16	Not colocated
		Royal Prince Alfred Hospital	Level 5	22	Not colocated

State	# NICUs	Location	CSF Level	NICU beds	Colocation status
VIC	4	Mercy Hospital for Women	Level 6	28	Colocated with Austin General Hospital Note: Not colocated with a tertiary paediatric service
		Monash Children's Hospital	Level 6	32	Colocated with Monash Medical Centre Note: tertiary level maternity care and neonatal intensive care situated on-site.
		Royal Children's Hospital (RCH)	Level 6	22	Tri-located with Royal Women's Hospital and Royal Melbourne Hospital (700m)
		Royal Woman's Hospital	Level 6	28	Tri-located with the Royal Melbourne Hospital (next door) and Royal Children's Hospital (700m)
QLD	3	Royal Brisbane and Woman's Hospital (RBWH)	Level 6	30	Not colocated with a tertiary paediatric service
		Mater Mother's Hospital (MMH)	Level 6	47	Tri-located with Queensland Children's Hospital (PICU only) and Mater Hospital Brisbane
		Gold Coast University Hospital (GCUH)	Level 6	16	Not colocated
SA	3	The Women's and Children's Hospital (WCH)	Level 6	14	Internal colocation of tertiary women, paediatric and neonatal services
		Lyell McEwin Hospital	Level 6	2	Not colocated
		Flinders Medical Centre	Level 6	16	Not colocated

Source: Service websites including various other online sources, June 2023

As seen in Table 35, across the jurisdictions reviewed, there are a variety of service delivery relationships. These range from complete tri-location (tertiary adult, women's health and paediatric services), through to no colocation (maternity and/or neonatal services provided in isolation from onsite adult and/or paediatric tertiary support). In each jurisdiction the table demonstrates at least one precinct where proximity-based tri-location between tertiary paediatric, women and adult services has been achieved. This may be in the form of three separate tertiary hospitals; or in some instances an adult tertiary hospital which includes tertiary maternity services colocated with a tertiary paediatric hospital.

New South Wales

- Tri-location has been achieved between the Sydney Children’s Hospital, the Royal Hospital for Women, and the Prince of Wales Hospital.
- Colocation has been achieved between Westmead Children’s Hospital and Westmead Hospital, which includes tertiary maternity services.

Victoria

- Tri-location has been achieved between The Royal Children’s Hospital, the Royal Women’s Hospital and the Royal Melbourne Hospital.
- Colocation exists between Monash Children’s Hospital and Monash Medical Centre, which includes tertiary maternity services.

Queensland

- Tri-location has been achieved between the Queensland Children’s Hospital, the Mater Mothers Hospital and the Mater Hospital Brisbane.

South Australia

- Colocation is achieved at the Women’s and Children’s Hospital, where comprehensive tertiary women’s, neonatal and paediatric services are provided in a single location. The future new Women’s and Children’s Hospital is planned to be adjacent to the Royal Adelaide Hospital to achieve tri-location.

The British Association of Perinatal Medicine Service and Quality Standards for Provision of Neonatal Care in the UK, November 2022, states that where new capital developments are being planned, maternity, neonatal intensive care and neonatal surgical services should be colocated.

A range of key examples from Table 35 have been identified and expanded upon in the sections below. These have been selected as they:

1. Achieve colocation of women, babies and paediatric services
2. Do not achieve colocation of women, babies and paediatric services, and therefore demonstrate potential similarities to the WBH context.

Senior clinicians and management from the various interstate hospital services were approached and agreed to a meeting. The purpose of the discussions was to better understand their operating model and inherent challenges or compromises to service delivery (that may occur even when operating within an environment of colocation), and to see if there are any learnings, mitigations or solutions that may be transferrable to the WBH context.

Comprehensive investigation of these operating models as part of future service planning is needed and may include targeted clinician to clinician engagement and physical site-based visits to a range of interstate hospitals.

6.2 Colocated Women, Babies and Paediatric services

Westmead Children's Hospital and Westmead Hospital

The Children's Hospital at Westmead and Westmead Hospital are located on a single site and provide colocation of tertiary adult and tertiary paediatric services. Situated within Westmead Hospital is the Women and Newborn Health which provides a range of MFM, maternity, obstetrics and gynaecology services to women. The service consists of 10 antenatal beds, 13 birthing rooms and 41 postnatal beds, and births up to 5,500 babies per year which are supported by a Level 5 neonatal unit (up to 1,500 babies per year).

Key observations from the meeting with Westmead Hospital on 10 July 2023 are summarised below:

- One of the keys to the success of their service is [Perinatal Advice Referral and Liaison Service \(PEARLS\)](#), which is a team of experienced midwives and nurses who support mothers when their baby will require surgery soon after birth or needs a planned admission to the NICU, or if the mother has a major medical condition, complex pregnancy or will require additional specialist support through their pregnancy and childbirth.
- Once your baby is born at Westmead Hospital and needs surgery in the first few weeks of life, care will be shared with the Grace Centre for Newborn Intensive Care at the WCH.
- The PEARLS team meet with MFM specialists, Neonatology Intensive Care doctors and surgeons, to plan the care of baby's birth and transfer to the WCH.
- Detailed plans are prepared for the mother and baby by PEARLS team (including but not limited to level of staff required, type of equipment required, transfer priority, medications etc.) for the multidisciplinary team. The mother is considered part of the multidisciplinary team.
- The transfer from Westmead Hospital to the Westmead Children's Hospital is still a challenge. Neonates still need to be stabilised and are pushed along an 800-metre corridor in a 140kg mobile intensive care unit by the team to WCH, so there is still a not insignificant travel time associated with the transfer.
- Mitigations included having the retrieval team ready and waiting in the birth room or theatre, which has resourcing implications.
- There have been rare occasions over the past 20 years where the women have birthed within the WCH such was the extreme time critical nature of the intervention required.
- Subspecialist from WCH will walk across to the road to Westmead Hospital to review patients.

6.3 Non colocated Women, Babies and Paediatric services

The following SDM scenarios provide examples where services are successfully provided within a non-colocated environment and provide an opportunity to investigate where potential mitigations to service delivery challenges have been applied that may be applicable to the WA context. This could include:

- Mechanisms and criteria to manage time critical neonatal transfers
- The distribution and service delivery models in place for high demand/low volume specialties (e.g. neonatal medical, surgical and diagnostic expertise)
- Workforce management strategies in place (e.g. shared rosters, satellite services, recruitment and retention).

Gold Coast University Hospital

The Gold Coast University Hospital (GCUH) provides comprehensive maternity, obstetric, gynaecological and neonatal services and delivers approximately 6,000 births/year. It has a NICU that cares for babies born as early as 23 weeks, however neonatal transfer to Brisbane may be required to access specialist treatment. It is not colocated with a tertiary paediatric hospital, with the closest being the Queensland Children's Hospital (QCH) which is approximately 70 kilometres away. GCUH does have several regular paediatric sub-specialist outpatient clinics (e.g. cardiology, endocrine, respiratory, neurology) but these do not provide emergency cover.

Key observations from a meeting with the Gold Coast University Hospital on Tuesday 11 July 2023 are summarised below:

- The 45 bed NICU includes a SCN and a mixture of pre-term and surgical babies.
- When the GCUH opened in 2013, neonatal surgical cases were limited to emergencies which were too unstable for transfer, or low acuity elective conditions. This was due to limited paediatric surgical FTE, and a planned progression of neonatal patient acuity as the Unit transitioned from a level 4 SCN to level 6 NICU.
- The paediatric surgeons had close connections to QCH including, at times, doing operating lists at both hospitals. This was important in establishing trust and confidence in the quality of service provided.
- Over time the neonatal surgical procedures performed at GCUH has increased. This has required an increase in paediatric surgical FTE and establishment of a neonatal anaesthetic roster, together with upskilling of neonatal nursing staff. GCUH paediatric surgeons are part of a Statewide network that discuss relevant cases.
- GCUH continues to have clear boundaries as to what neonatal surgery should be referred/transferred to QCH as the tertiary site. For example, all complex cardiac and acute congenital diaphragmatic hernia (CDH) cases are transferred to QCH.
- The MFM service at GCUH also works closely with the MMH.

6.4 Neonatal transfers

A review of neonatal transfer services revealed that all jurisdictions utilised an existing state based specialist service to manage the retrieval and transfer for neonates. Table 36 below outlines the organisations utilised in each jurisdiction reviewed.

Table 36 – Summary of neonatal transfer options

Jurisdiction	Transfer service	Service Details	Transfer modes	Service Base	Transfer destination
NSW	NETS NSW	<ul style="list-style-type: none"> Statewide service for New South Wales and Australian Capital Territory Caters for newborns, infants and children Provides clinical triaging and clinician connection services to determine optimum transfer arrangements Provides retrieval team service to stabilise prior to transferring patients 	Ambulance, Helicopter and aircraft	Located at Bankstown Aerodrome, with satellite services in Newcastle and Canberra	WCH, SCH and JHCH
VIC	Paediatric Infant Perinatal Emergency Retrieval (PIPER)	<ul style="list-style-type: none"> Statewide service for Victoria, Tasmania and Southern NSW Caters for newborns, infants, children and obstetric transfers Provides clinical triaging and clinician connection services to determine optimum transfer arrangements Provides retrieval team service to stabilise prior to transferring patients 	Ambulance, Helicopter and aircraft	RCH	Newborns are allocated to Level 6 services according to the referring hospital, which are detailed in the following LINK .

Jurisdiction	Transfer service	Service Details	Transfer modes	Service Base	Transfer destination
QLD	<ul style="list-style-type: none"> Neonatal Retrieval Service (NeoResq) 	<ul style="list-style-type: none"> Statewide service for Queensland and northern NSW Centralised coordination occurs from the Royal Brisbane and Women's Hospital NICU department Partnered with Retrieval Services Queensland, Queensland Ambulance Service, Life Flight, Queensland Government Air and Royal Flying Doctors Service 	Ambulance, Helicopter and aircraft	RBWH, with retrievals undertaken using staff from both RBWH and MMH	Transfer destinations are determined by the clinical needs of the baby, and can go to either RBWH, MMH, GCUH or QCH.
SA	<ul style="list-style-type: none"> MedSTAR kids 	<ul style="list-style-type: none"> Statewide service for South Australia Operated through SA Ambulance Service and is the paediatric and neonatal transfer division of MedSTAR (provides general specialist medial retrievals) 	Aircraft via the Royal Flying Doctor Service (RFDS), six helicopters, and rapid response vehicles	Adelaide Airport	Transfer destinations are determined by the clinical needs of the baby, with the WCH the likely destination

Discussions have recently commenced with clinicians from the MMH and the Royal Hospital for Women (NSW) facilitated through Women's Healthcare Australasia.

7.0 Key findings of the clinical consultation

It was clear from the initial targeted stakeholder meetings that there was unlikely to be broad consensus at this stage in regard to all potential solutions/mitigations and opportunities to be leveraged, related to the change in location of the WBH and the inclusion of PCH and OPH expansions to the NWBHP. This process was intended to be the start of these discussions, which will continue throughout the life of the project with ongoing clinician and consumer engagement and input to further investigate, analyse, refine, prioritise and recommend mitigations and solutions for implementation to address the potential clinical service delivery issues raised.

Noting above, this Report has aimed to capture and represent the diversity of views that were expressed in the meetings and workshops, and in addition to describing the workshop outputs, it also provides key findings (KF) where there was general agreement. These are summarised below.

1. Clinicians remain strong in their view that tri-location for the three tertiary services is the optimal service delivery model

- Stakeholders articulated that tri-location as originally planned, represents a multigenerational opportunity to improve upon or eliminate known deficits in the current service delivery model. KEMH as a standalone site is not optimal for both women and babies.
- Clinicians emphasised that the tri-location of a dedicated women and newborn hospital with a tertiary general adult hospital and a tertiary paediatric hospital is the gold standard of care nationally and internationally.
- The argument for tri-location was not disputed, and it has been acknowledged in various forums that this would have been the optimal model but is not possible on the QEIIIMC for the reasons that have been outlined publicly including the impact on operations/clinical services, project delivery and buildability, time and cost.²¹

21. Review of the WA Government's decision to proceed with construction of the new Women and Babies Hospital within the Fiona Stanley Hospital precinct. Infrastructure Western Australia, 2023.

2. The potential clinical service delivery issues raised by clinicians are genuine and need to be considered during decision making throughout the life of the project and beyond

- The potential clinical service delivery issues raised by stakeholders represent legitimate risks to the provision of safe high-quality care to patients and associated clinical outcomes if not mitigated.
- The twelve themed issues should continue to be re-examined at key decision points at every phase in the life of the project (including planning, design, delivery, commissioning and post-commissioning), to ensure that mitigations and/or solutions are pragmatically considered on an ongoing basis (and not just a single point in time).
- To ensure this, it would be beneficial for the NWBHP to design and structure its program-level health checks in line with these 12 themes through the DoH Integrated program Management Office once established.
- Many of the prospective mitigations and solutions identified have application in the later stages of the WBHP and not necessarily the current PDP phase. The NWBHP Team need to ensure that these are not lost over time and elevated again at appropriate points in the project.
- This approach, and an openness to seek out emerging opportunities that align with the service planning principles, will maximise the quality of service delivery for mothers and babies.
- Despite the concerns of clinicians as to the change in location for the WBH, they broadly engaged in good faith in the process of identifying mitigations, solutions and opportunities to the potential clinical service delivery issues raised captured as workshop outputs in this Report.
- In alignment with the NWBHP Governance Framework (Delivery Phase), the further investigation, analysis, refinement, prioritisation and recommendation of mitigations and solutions for implementation could be the remit of the Executive Review Group (ERG) - who are an advisory body to the Project Control Group. The ERG's responsibilities include making recommendations on clinical and planning-related issues to ensure the NWBHP meets future service delivery needs, and review recommendations of Working Groups.

3. There is acknowledgement that colocation of the WBH with FSH will result in significant benefits for women and neonates compared to the existing model

- Integration of tertiary women's services at the WBH (currently provided at KEMH), with a tertiary adult hospital such as FSH, will represent an improved service delivery model for women.
- FSH already provides a high-quality obstetrics, gynaecology and neonatal services, and are well supported by the full suite of medical, surgical, critical care and emergency services available onsite. For example, FSH Medical Imaging provides foetal, neonatal, obstetric (incl. MFM), and adult gynaecology (inc. oncology) imaging to women and babies.
- The colocation of the WBH with FSH will provide women with improved service access to key adult services such as cardiology, endocrinology, intensive care, and supporting allied health, among others.

4. The increase in the neonatal transfer period for time critical cases between the WBH and PCH requires a multifaceted solution

- Given the geographical distance between PCH and the future WBH in Murdoch, the median neonatal transfer time will increase from 15 to 30 minutes (in comparison to KEMH).
- This increases the risk of destabilisation enroute and will delay access to specialist services and interventions for the proportion of neonatal transfers that are time critical in nature (between 32 - 91 neonates/year).
- Preliminary mitigations derived from the clinical consultation process include:
 - » Increased investment in the capacity and capability of NETS WA, such as staffing, equipment and training and education.
 - » Establishment of a significant NETS WA presence at the WBH, to compliment the current base at PCH as a hub and spoke model. This will ensure ready availability at the WBH to facilitate timely neonatal transfers to PCH when required.
 - » Clear and agreed delineation on the type and level of medical and surgical services to be provided to neonates at the WBH (see KF 10).
- Further mitigations and solutions should continue to be explored in relation to time neonatal critical transfers, including the potential establishment of a maternity unit at QEIIIMC (see KF 11) and seeking the input and expertise of respected national and international colleagues (see KF 19).
- Noting that the travel time is only one component, optimisation of the entire neonatal transfer process should be explored including pre-departure stabilisation, protocols and procedures, and reinforcing of the relationship between the referral unit and transfer team to strengthen clinical outcomes.

5. Investment in neonatal and obstetric bed capacity and capability at general hospitals is needed to support management of local demand, in line with service planning principle

- There was general consensus that a significant number of patients currently being treated at the major tertiary hospitals could be receiving care closer to home in lower acuity settings.
- Investment is needed in capacity and capability to increase the ability of local/general hospitals to accept and manage a larger volume of low and medium risk obstetric and neonatal patients, or ensure they are working all full capacity, needed to preserve high acuity care beds.
- As an example, the preference is for pregnant women with GDM requiring insulin treatment receive care closer to home in a general or specialist hospital, not a tertiary setting.
- There is a need to align future service expansion and delivery with locations where demand and growth is occurring. The Joondalup, Armadale and Midland catchment have been identified as a high growth/high demand areas suited to expanded neonatal and obstetric services.
- In the context of the planned OPH expansion, the future capacity and capability of JHC obstetrics, gynaecology and neonatal services needs to be examined. JHC will be the critical in supporting and the OPH service (as a CSF Level 5 service) and therefore the agreed services to be provided under the Joondalup Development and Health Services Agreement will need to be optimised to strengthen service delivery in the northern corridor.
- In addition, there will need to be focused efforts on enhancing SCGH capability to manage obstetric and gynaecological emergencies that may present to their ED in the future.

6. The Mother Baby Unit planned for the original WBH at QEIIIMC should be located north of the river

- Relocation of the MBU planned for QEIIIMC to the Murdoch precinct, where there is already an existing MBU onsite, would result in reduced equity of access for patients in the central and northern corridor. A single expanded MBU at Murdoch (16 beds) would not align with best practice which typically suggests an 8-bed capacity as optimum for MBU service delivery. As a result, there should be two MBUs – one South (FSH) and one North of the river, but with pathways in place to ensure that patients in the EMHS catchment have equitable access.
- Clinicians recommended that one of the two MBUs should be colocated with an adult MHU to manage women who are at high risk of requiring high intensity support to manage risk of harm to self or others or absconding (and may need to be separated from their baby at times to manage this). The FSH MHU currently provides this capacity. The current location of the FSH MBU within the broader 30-bed MH unit is seen as advantageous given its proximity to complimentary units (Assessment Unit and Youth Unit) and the ability to separate a mother from other patients in more acute situations.
- It would be reasonable if the other MBU was colocated with the NMHS obstetric beds (currently planned for OPH) and transfer could be facilitated to a central or northern MHU at SCGH, RPH or JHC through NMHS bed management if required. Women who require a MBU bed would also require access for post-partum review which is available at FSH and would be available at OPH.
- While OPH has been identified as the likely northern location in the interim, a Multi Criteria Analysis (MCA) should be conducted to assess other potentially suitable sites, such as SCGH and JHC. Pending final confirmation, it has been included in the OPH scope for the WBHP to ensure that the costs are captured in the PDP.
- Optimal use of any specialist MBU beds in WA requires development of specialist MH services in the community (HiTH, clinics, visiting services as well as telehealth), and complementary support services such specialist child health nurses and visiting community psychosocial supports (e.g., MIFWA workers, Red Cross volunteers).

7. Capital and recurrent operational investment needs to be considered for OPH to move from a Level 3 to a Level 4 obstetrics, gynaecology and neonatal service

- Stakeholders report OPH is currently operating at, or beyond, intended capacity and any level of service expansion will require a comprehensive uplift in the scale of operations.
- The significant increase in the volume and acuity of obstetrics, gynaecology and neonatal services amplifies the clinical risk, especially in the context of the expected casemix and associated comorbidities.
- Clinicians providing the current services have strongly advocated that other clinical services will need to be added and/or expanded including emergency, critical care and acute medical/surgical subspecialties to ensure the provision of safe high-quality care. This included the addition of a HDU/ICU and an emergency service which would bring it into line with other Level 4 maternity services both locally and nationally.
- Other direct impacts of the expansion at OPH associated with the NWBHP to safely deliver clinical care that need to be considered include but are not limited to:
 - 24/7 onsite theatre staff for immediate access
 - Comprehensive access to medical imaging out of hours/on call
 - Expansion of existing clinical support services (e.g. pathology, pharmacy) and non-clinical support services (e.g. kitchen) to meet the additional demand
 - Addition of perinatal mental health and other services to support the expected casemix and comorbidities associated with a Level 4 service and tailored to the needs of the OPH local catchment/demographics
 - Expansion of ambulatory care/outpatient clinics (currently at capacity)
 - Staff accommodation onsite.
- Significant workforce considerations were also identified, including the need to increase the number of specialists, junior doctors and trainees, midwives and nurses, and supporting allied health; and consider training and accreditation requirements.
- Clinicians emphasised that in the expansion of OPH services, the progress made regarding advancing midwifery group practice and the choice for women should not be undermined. The addition of the Family Birth will further offer women choice.

8. Key decisions are required on the vision, scope and staging of the OPH redevelopment. Fundamental is a determination on a transition to a general hospital

- The long-term vision for OPH is unclear. The predominant view amongst clinicians is that OPH should transition from a specialist to a general hospital without staging. The concern raised is that without the addition of emergency, critical care and acute medical/surgical services associated with a general hospital, OPH would be a standalone maternity hospital and replicate some the current issues and risks being experienced at KEMH.
- The OPH component of the NWBHP is currently being referred to as Stage 1; the scope of which has yet to be finalised particularly regarding emergency and critical care services and other associated requirements as outlined in Key Finding #6.
- The high-level Master Planning process being undertaken for OPH (Stage 1), focussed on the Government announcement, has further heightened these discussions and the requirement for clarity on the initial and future stages/phases. It is being developed with the overarching site-wide requirements to ensure the Stage 1 works would not compromise future expansion of other services at OPH (e.g. General Hospital).

9. FSH paediatrics should increase from a Level 4 to a Level 5 service under the Clinical Services Framework

- FSH has a well-established Level 4 paediatric service providing emergency, inpatient and outpatient services.
- Colocation with the WBH will require FSH to provide a high and more comprehensive level of paediatric support to the hospital and is therefore the catalyst to increase capability from a Level 4 to a Level 5 CSF paediatric service.
- The increased paediatric capacity and capability at FSH would reduce centralisation and demand on PCH services to allow them to focus on the delivery of tertiary level services as their core business. Although under separate governance, the two services could operate under an enhanced hub and spoke model as complementary not competing services which would further attract paediatricians and paediatric subspecialists to work at FSH, encourage joint appointments and collaboration with PCH, and improve system redundancy.
- Whilst outside the direct scope (and budget) of the WBHP, the integration of FSH maternity services into the WBH will create new physical space to enable the expansion of paediatric services.

10. Highly specialised surgical and medical services for neonates currently provided at PCH should not be replicated at the WBH

- Stakeholders expressed concern regarding the impact of potentially duplicating high acuity/low volume specialties at WBH, with risks to the quality of service delivery and clinical outcomes at both sites identified.
- The risks were particularly highlighted in relation to highly specialised neonatal surgery, including the dilution of skills needed to maintain clinical competency, impact on training and development opportunities, service availability/readiness, workforce availability, competition between services and increased operational costs from duplication.
- PCH, FSH and WBH will need to make collaborative decisions, facilitated by the System Manager, to ensure there is a clear and agreed understanding on the type and level of medical and surgical services to be provided to neonates at the WBH by the respective hospitals. The GCUH experience is provides a pragmatic guide for WA Health.
- Decisions are required well prior to the commissioning of the new hospital to identify and alleviate any concerns between the stakeholders, reduce potential duplication, ensure clinical outcomes are optimised, and inform workforce planning.

11. The option for women with babies who have antenatally diagnosed anomalies which require time critical intervention, to birth on the QEIIIMC, should continue to be further explored

- A range of options to establish a maternity service at QEIIIMC, to achieve some degree of tri-location, were discussed and explored both within and outside the workshops and consultations.
- Despite the clear desire of all stakeholders to identify a solution that addresses the needs of neonates requiring time critical transfer for medical or surgical intervention, and supports mother and baby staying together, there was no consensus reached at this point that would result in both a viable, sustainable and clinically safe option at QEIIIMC.
- Clinicians emphasised that any option considered should be clinically risk assessed/stratified for both the mother and baby against the base option i.e. the additional transfer time via a highly competent and bolstered NETS WA service. They also underscored that any potential option should be jointly supported by obstetricians and neonatologists before being pursued.
- A decision to institute a sustainable maternity service at QEIIIMC would have an impact (reduction) on the scope of the planned expansion for OPH if the total planned beds across the health system were to remain the same.

12a. There is an opportunity to implement a state-wide perinatal mental health model of care

- There is an opportunity to review the service delivery model for perinatal mental health and implement a comprehensive state-wide service.
- Stakeholders identified the use of a 'hub and spoke' model to improve equity of access to patients across WA.
- This service development should be properly planned and include a state-wide model of care, which consults with all stakeholders, takes a whole of government approach and avoid duplication and gaps in care and to facilitate safe discharge.

12b. There is an opportunity to enhance the state-wide gynaecological oncology model of care

- There is an opportunity to enhance the state-wide gynaecological oncology model of care including peri-operative care, to reduce the fragmentation of care being experienced by some patients and optimise outcomes.
- Colocation of the WBH with FSH, with its Comprehensive Cancer Centre with supporting medical and radiation oncology services, will improve the patient experience.
- A hub and spoke model with in-reach into relevant hospitals will ensure care closer to home.

13. Planning and investment into workforce development and recruitment needed by 2030 is a priority

- Strategic workforce planning to train, develop and/or recruit a range of highly skilled staff is needed to support efficient and safe service operations across the full scope of the WBHP (WBH, OPH and PCH) for 2030.
- Stakeholders identified the risk of an aging workforce, with positions across a range of key specialties needing effective succession planning to ensure robust leadership is present during and after transition in 2030.
- There is acknowledgement of current workforce shortages across a number of specialties and services, creating additional pressure to activate workforce recruitment strategies early. Stakeholders reported that there are often significant time lags before the benefits of training and development can be realised.
- Consideration is needed to the changing cohorts anticipated on the FSH precinct and OPH and resultant workforce profile required, with a range of additional skills and expertise needed to support increased and new service provision and acuity.
- Current or existing staff should be provided with sufficient opportunities to upskill and undertake professional development in expert areas that are identified as high demand/need.
- A strategic view regarding the coordination and timing of service expansions occurring across each of the sites is needed to maximise workforce availability and minimise the risk of competing recruitment activities for scarce professional resources.

14. Clarity on the future operational and clinical governance will enhance clinician engagement and decision making in the planning, design and commissioning of the WBH and OPH expansion

- Originally the WBH planned for the QEIIIMC resided under the governance of NMHS, and since the announcement of the change in location this has not been changed at this point in time despite the building planned to be in the geographical remit of SMHS.
- An addition, the governance for the KEMH neonatal service (which will relocate to the WBH) is currently provided by CAHS and the maternity and neonatal service at OPH sits within the governance of the Obstetrics and Gynaecology Directorate at KEMH.
- Stakeholders expressed the need to have clarity early with regards to the future operational and clinical governance across the various sites that comprise the NWBHP.
- Clinicians articulated that an early decision is needed to ensure clear lines of authority and accountability are confirmed/updated to support robust decision-making throughout the planning, design, delivery and commissioning phases of the WBH and OPH expansion. This will ensure that there is alignment between activities such as clinical planning, service model redesign, infrastructure determinations, workforce planning and ongoing operational service delivery.

15. There are significant clinical and non-clinical support service integration opportunities between the WBH and FSH

- Colocation with FSH will provide a range of service integration opportunities through shared resources and infrastructure, to optimise efficiency, mitigate duplication and reduce wastage across both sites.
- Planning activities need to include a service by service review to identify potential synergies and determine which services should be integrated.
- Some initial integration opportunities identified by stakeholders include medical imaging, equipment storage, CSSD, kitchen and catering, cleaning and linen services, childcare and parking facilities, among others.
- The future operational governance (as discussed under key finding #13) will also significantly impact the degree of integration required between WBH with the existing FSH, clinical and corporate governance, and change management strategies.

16. The use, integration and alignment of technology is critical and will assist in the mitigation of some distance-based clinical service delivery issues

- Enhanced use of virtual care technology such as telehealth, will be pivotal in preserving existing, and also developing new service delivery and MDT relationships between PCH and the WBH. There is a need for clinicians to be open minded in the use and application of these virtual platforms to existing service delivery models, particularly in terms of facilitating engagement with parents and providing updates, as opposed to direct medical consults.
- It is essential that consideration be given to the integration of new and emerging technologies (noting that delivery of the WBH is not for another 7 to 8 years) to support the delivery of a highly digitally enabled hospital.
- It is important that opportunities to develop an aligned approach to communications and integration of systems between the hospitals is sought (in particular between WBH, PCH and FSH). This includes consistency between ICT systems, MDT documentation and the use of common forms, as a means to introduce standardisation across services (where possible) to improve and/or maintain service quality within the context of increased distance and patient flow between WBH, PCH and FSH.

17. Concerted and strategic efforts are needed to maintain, build and define relationships between specialties across service, hospital and HSP levels, prior to transition and/or expansion

- Consideration to the implementation and establishment of an overarching governance forum between hospitals is needed to support the delivery of services within a reconfigured environment. This may have particular application to the provision of neonatology services between PCH and WBH, and paediatric services between PCH and FSH.
- Membership should consist of a mix of clinical and executive representation to support practical problem solving and discussion.
- Connections and clinical partnerships will be vital to commence early to optimise clinician engagement.
- Development and endorsement of SLAs between hospitals to support service delivery expectations, mitigate identified service gaps and inform future state service planning is needed and should be completed prior to any transition or service expansion.
- To support this, a mapping exercise of current formal and informal arrangements (service level agreements, memorandum of understanding etc.) should be conducted to understand the current baseline.

18. A strategic approach to change management is needed to ensure all HSPs and service locations are sufficiently engaged

- A broad and multi-HSP approach to change management is needed to ensure staff are supported and sufficiently engaged throughout any service reconfiguration processes.
- This includes the development and implementation of wellbeing strategies focussed on staff within services that are relocating and should be captured within the NWBHP Workforce Plan.
- Consideration is needed to ensure appropriate specialty and organisational values and cultures are preserved and/or developed throughout the transition process.
- The use of Human Resources and Industrial Relations expertise is needed to guide transition activities and ensure staff are supported and managed in line with public sector requirements.

19. Facilitated engagement with national and international colleagues will further assist clinicians to develop solutions and mitigations based on others experiential learning

- To support ongoing investigation of service delivery models and their potential to provide operational and clinical perspectives to some of the service delivery challenges identified in this Report, further engagement at a clinician level is needed with respected national and international contemporaries.
- Sessions designed to connect WA specialists with their counterparts in other jurisdictions will facilitate discussion and the development of potential mitigation strategies and/or alternative modes of service delivery.
- This should include site-based visits (virtual and face-to-face) to relevant hospitals and health services, and in particular environments where clinical challenges have been overcome or mitigated with potential application to the WA context, to support clinician-led solutions generation.
- The information and evidence gathered should be broadly presented and disseminated to influence deliberations and engagement.

8.0 Next steps

The completion of activities undertaken as part of this consultation process represent initial steps only and should be viewed from the perspective of supporting a much broader and ongoing formal process of engagement with clinicians and consumers. Decisions and approvals related to content provided here will be made through the appropriate governance pathways. With regards to the key findings from this Report, the following next steps are proposed taking into account different horizons.

1

Present the draft Clinical Consultation Report to NWBHP governance groups
– Project Control Group and Project Steering Committee for review and feedback.

2

NWBHP governance to consider as a priority three key decisions for the Project Definition Plan including:

- a) Osborne Park Hospital vision, scope and staging (KF 7,8)
- b) Location of the Mother Baby Unit originally planned for QEII MC (KF 6)
- c) Position on a Maternity Unit at QEII MC. If not proceeding, then stakeholders to develop the optimal solution to time critical neonatal transfers within the current Project parameters for consideration by the NWBHP governance groups (KF 11)

3

In the short term, the NWBHP Executive Review Group be tasked with engaging transparently with all stakeholders to further explore, analyse, refine, prioritise and recommend to the Project Control Group solutions and mitigations for implementation. This will build on the work done to date and require the establishment of distinct Working Groups with broad clinical representation including subject matter experts, and actively involve consumers (KF 2,4,10).

This process should include the exploration of service delivery models identified by the current and future jurisdictional reviews, including site visits to see alternative modes in action, to develop clinician-led solutions and mitigations based on broader experiential learning (KF 19).

4

In the medium term, the NWBHP Team should ensure there is sufficient focus on:

- Planning and investment in workforce development and recruitment (KF 13)
- Opportunities for clinical, clinical support and non-clinical integration between WBH and FSH (KF 15)
- Use, integration and alignment of technology for the WBH (KF 16)
- Strategic approach to change management (KF 18)

Key Finding 13 and 18 will be critical as part of the NWBHP's organisational change and redesign program which will include workforce, organisational development/change and clinical commissioning.

5

In the short term the System Manager/DoH, as part of its update to the Clinical Service Framework and development of the State Health Plan and State Health Infrastructure Plan, should consider:

- Increasing paediatrics at FSH from a Level 4 to a Level 5 service to provide enhanced support to the WBH (KF 9)
- Expansion of neonatal and obstetric capacity at WA general hospitals (KF 5)
- Development of state-wide models of care for:
 - » Peri-natal Mental Health (KF 12a)
 - » Gynaecological Oncology (KF 12b)

6

In the medium term the System Manager/DoH should confirm the future operational clinical governance for the WBH and OPH to enhance clinician engagement and decision making in the planning, design and commissioning of the new hospital and expanded services (KF 14).

This decision is a precursor to establishing an overarching governance forum between hospitals and HSPs to support the delivery of safe high-quality services in a reconfigured environment (KF 17)

9.0 Appendices

10.1 Appendix A – Annual births in WA by public and private

Table 37 – Annual births in WA by public and private

Year	Total WA births	Public WA births	Private WA births	Public metro
2012	33,050	22,401	10,649	16,218
2013	33,577	22,966	10,611	16,674
2014	34,203	23,445	10,758	17,242
2015	34,072	24,006	10,066	19,231
2016	35,140	25,185	9,955	20,317
2017	33,721	24,754	8,967	20,175
2018	32,667	24,454	8,213	19,976
2019	32,576	24,512	8,064	20,011
2020	31,372	23,989	7,383	19,620
2021	33,713	25,606	8,107	21,004
2022	31,512	23,637	7,875	19,395

Source: DoH Hospital Morbidity Data Collection, period 2012 to 2022, extracted 12 July 2023.

10.2 Appendix B - Obstetrics and Gynaecology Emergency Department presentations

Emergency activity – whereby patients present to hospital via the Emergency Department (ED) that are pregnant i.e. coded as ‘Pregnancy, childbirth, and the puerperium (O00 – O99)’ or have a gynaecological issue i.e. ‘Diseases of the genitourinary system (N00 – N99)’.

Table 38 – Number of metropolitan obstetric emergency presentations (total 1 & 2)

Metropolitan hospital	2018		2019		2020		2021		2022	
	Total	1 & 2	Total	1 & 2	Total	1 & 2	Total	1 & 2	Total	1 & 2
Armadale-Kelmscott Hospital	1,145	62	1,138	65	1,130	81	1,190	100	1,160	133
Boddington Hospital	15	2	10	1	11	2	8	1	8	4
Fiona Stanley Hospital	1,195	151	1,077	113	1,127	119	1,074	179	983	172
Joondalup Health Campus	1,086	182	1,177	245	1,043	207	1,188	294	849	257
King Edward Memorial Hospital	3,239	39	3,339	72	3,307	148	3,656	376	4,131	424
Peel Health Campus	365	40	327	21	356	24	429	29	388	39
Perth Children’s Hospital	-	-	3	1	2	1	2	1	-	-
Rockingham General Hospital	755	68	744	68	783	90	826	106	714	124
Royal Perth Hospital	210	22	187	26	200	31	168	29	185	34
Sir Charles Gairdner Hospital	125	11	125	21	83	16	99	13	119	15
St John of God Midland Hospital	727	31	652	40	712	70	704	78	685	81
Total	8,862	608	8,779	673	8,754	789	9,344	1,206	9,222	1,283

Source: Department of Emergency episode collection, extracted 1 June 2023

Table 39 – Number of metropolitan gynaecological emergency presentations (total 1 & 2)

Metropolitan hospital	2018		2019		2020		2021		2022	
	Total	1 & 2	Total	1 & 2	Total	1 & 2	Total	1 & 2	Total	1 & 2
Armadale-Kelmscott Hospital	1,740	120	1,691	98	1,730	126	2,047	158	1,901	176
Boddington Hospital	39	3	29	2	36	4	45	2	53	2
Fiona Stanley Hospital	2,710	253	2,665	258	2,557	316	2,238	307	2,056	338
Joondalup Health Campus	2,735	238	2,614	260	2,922	288	2,892	320	2,327	267
King Edward Memorial Hospital	1,752	17	1,831	21	1,929	98	2,175	297	2,038	301
Peel Health Campus	1,029	75	1,074	62	1,063	54	1,284	67	1,096	64
Perth Children's Hospital	360	12	729	33	730	30	780	34	760	72
Princess Margaret Hospital	322	9	-	-	-	-	-	-	-	-
Rockingham General Hospital	1,512	88	1,646	97	1,740	112	1,924	169	1,623	143
Royal Perth Hospital	1,679	184	1,547	197	1,339	209	1,325	231	1,403	225
Sir Charles Gairdner Hospital	1,815	283	1,963	305	1,783	232	1,892	284	1,655	216
St John of God Midland Hospital	2,354	182	2,478	151	2,459	197	2,385	249	2,296	255
Total	18,047	1,464	18,267	1,484	18,288	1,666	18,987	2,118	17,208	2,059

Source: Department of Emergency episode collection, extracted 1 June 2023

Table 40 – Number of obstetric emergency presentation by triage status and region

Category	2018	2019	2020	2021	2022
Metropolitan	8,862	8,779	8,754	9,344	9,222
Triage 1	66	66	61	59	69
Triage 2	542	607	728	1,147	1,214
Triage 3	2,914	3,134	3,436	3,763	3,719
Triage 4	4,727	4,438	4,087	4,049	3,900
Triage 5	613	534	440	326	320
Regional	3,573	3,697	3,593	3,850	3,553
Triage 1	12	31	23	22	28
Triage 2	277	289	298	384	321
Triage 3	1,408	1,486	1,377	1,545	1,516
Triage 4	1,556	1,592	1,627	1,630	1,436
Triage 5	320	299	268	269	252
Total	12,435	12,476	12,347	13,194	12,775

Table 41 – Number of metropolitan obstetric emergency presentation by hospital

Metropolitan hospital	2018	2019	2020	2021	2022
Armadale-Kelmscott Memorial Hospital	1,145	1,138	1,130	1,190	1,160
Boddington Hospital	15	10	11	8	8
Fiona Stanley Hospital	1,195	1,077	1,127	1,074	983
Joondalup Health Campus	1,086	1,177	1,043	1,188	849
King Edward Memorial Hospital	3,239	3,339	3,307	3,656	4,131
Peel Health Campus	365	327	356	429	388
Perth Children's Hospital	-	3	2	2	-
Rockingham General Hospital	755	744	783	826	714
Royal Perth Hospital	210	187	200	168	185
Sir Charles Gairdner Hospital	125	125	83	99	119
St John of God Midland Hospital	727	652	712	704	685
Total	8,862	8,779	8,754	9,344	9,222

Table 42 – Number of regional obstetric emergency presentation by country WA region

Country WA region	2018	2019	2020	2021	2022
Goldfields	307	330	366	313	318
Great Southern	368	337	297	402	285
Kimberley	431	462	434	494	456
Mid-West	458	447	458	541	483
Pilbara	676	739	686	745	689
South-West	1,029	1,068	979	978	963
Wheatbelt	304	314	373	377	359
Total	3,573	3,697	3,593	3,850	3,553

Source (Tables 40-42): Department of Emergency episode collection, extracted 1 June 2023

10.3 Appendix C – NETS WA priority classification

Urgency / priority

- There is no state-wide or nationally agreed priority for any patient transfer
- Each agency (St John’s Ambulance (SJA) and RFDS and other neonatal/paediatric retrieval teams) have a unique system related to their practice and role within the health system
- NETS WA utilises the urgency metrics outlined in Table 42 below.

Table 42 – Number of regional

Priority classification	Description
Level 1	Emergency - requiring immediate dispatch
Level 2	Urgent - requiring dispatch within <2hours
Level 3	Elective – for dispatch any time

Source: NETS WA, received 7 June 2023 from CAHS

10.4 Appendix D - Number of selected individual major procedures performed on neonates admitted to PCH NICU by speciality (2018-2022)

Procedure	No. of Procedures	Average No. of Procedures/Year	Lesion able to be diagnosed antenatally	Born at KEMH (#/%)
Cardiothoracic				
Arterial switch	27	5	Usually	22 (81%)
BT shunt/Central shunt	28	5	Usually	24 (86%)
Coarctation/ Arch repair	43	9	Sometimes	21 (49%)
TAPVR repair	5	1	Sometimes	2 (40%)
Valvotomy	3	<1	Sometimes	2 (67%)
Truncus arteriosus	2	<1	Sometimes	1 (50%)
Rastelli	1	<1	Usually	1 (100%)
Interventional Cardiology				
Ballon atrial septostomy (BAS)	32	6	Usually	26 (81%)
Valvuloplasty	24	5	Sometimes	14 (58%)
General Surgery				
Gastroschisis closure	54	11	Usually	53 (98%)
Oesophageal atresia/TOF repair	43	9	Sometimes	21 (51%)
CDH	30	6	Usually	20 (67%)
Laparotomy in pre-term neonate <32 weeks for perforation / NEC	29	6	No	27 (93%)#
Duodenal atresia repair	24	5	Often	16 (67%)
Ladd's procedure for malrotation	23	5	No	5 (22%)
Transanal pullthrough for Hirschsprung's	17	3	No	4 (24%)
Anoplasty	9	2	No	2 (22%)
Lung resection for CCAM/ sequestration	6	1	Usually	6 (100%)
Exomphalos repair	4	1	Usually	4 (100%)
Excision sacroccygeal teratoma	5	1	Usually	4 (80%)
Kasai procedure for biliary atresia	2	<1	No	1 (50%)

Procedure	No. of Procedures	Average No. of Procedures/Year	Lesion able to be diagnosed antenatally	Born at KEMH (#/%)
Neurosurgery				
Myelomeningocele repair	10	2	Usually	9 (90%)
VP shunt	26	5	Sometimes	18 (69%)#
Urological				
Urinary tract obstructive lesion surgery	24	5	Often	17 (71%)
Bladder extrophy repair	3	<1	Often	2 (67%)
ENT				
Tracheostomy	7	1	No	5 (71%)
H-type TOF repair	5	1	No	2 (40%)
Choanal atresia repair	5	1	No	2 (40%)
Laryngeal cleft repair	4	1	No	3 (75%)
Ophthalmology				
ROP laser surgery	31	6	No	30 (97%)#

Source: PCH NICU Surgical 1/1/2018 to 21/12/2022, received 12 June 2023 from CAHS

Procedures mainly performed on pre-term infants, so although not antenatally diagnosed it explains the high number from KEMH

