

Evaluating the implementation of hyperemesis gravidarum models of care in Australia: Fidelity, barriers and enablers

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Abstract

Background

Hyperemesis gravidarum (HG) is characterised by severe nausea and vomiting during pregnancy that can substantially impair daily functioning and lead to serious complications if untreated. Despite this burden, care of women with HG is often fragmented across multiple services, with many experiencing repeated emergency department presentations and limited continuity of maternity care. In response to this system challenge, the state Ministry of Health in New South Wales (NSW) launched an initiative in 2020 to support adoption or HG-adaptation of three existing models of care across 15 Local Health Districts (LHDs). This study aimed to assess initiative fidelity and to identify key barriers and enablers influencing HG model of care uptake.

Methods

Fifteen one-hour interviews were conducted with key implementation stakeholders over two months in late 2023. A tailored interview guide was informed by district implementation documentation and circulated to interviewees ahead of time. Interviews were audio-recorded, transcribed verbatim, and de-identified. Interview data was supplemented by written model of care summaries for each LHD. Transcripts and summaries were analysed using content and inductive thematic analysis in NVivo.

Results

Implementation and adaptation of models of care was variable, with most districts adopting at least two approaches. Hospital in the Home (HiTH) was implemented in all districts, while Early Pregnancy Assessment Services (EPAS) were less frequently utilised and Maternity in the Home not implemented at all. Other services including maternity-led outpatient and virtual care models were identified and were commonly utilised to complement HiTH and EPAS HG models, particularly in regional settings. Key implementation enablers included strong local leadership and resource sharing, while major barriers related to workforce culture and capacity, geographic dispersion of patients and services, and unclear clinical oversight, particularly for non-maternity services.

Conclusions

A range of flexible, locally adapted and complementary HG care models were identified to support effective HG management. Workforce factors, including role clarity, capacity, and readiness for change, were key determinants of implementation success. Strengthening integrated, multidisciplinary approaches, enhancing workforce capability, and building on fit for purpose models within LHDs will be critical to improving continuity, equity, and sustainability of care for women with HG.

Background

For pregnant women with hyperemesis gravidarum (HG), the severity of nausea and vomiting can make everyday work and caregiving extremely challenging (1–3). Without appropriate treatment, serious complications including malnutrition, dehydration, and even miscarriage can ensue (4–6). Despite these health and social challenges, care for the approximately 3% of pregnant women (1) who experience HG is typically fragmented and shared across multiple services and sectors (2). HG occurs early in pregnancy, frequently before women are linked into maternity services. Some women with HG are treated appropriately by general practitioners (GPs), midwives and/or obstetricians, however many enter a cycle of hospital emergency department presentations for acute treatment with little or no continuity of care or maternity care provider involvement (3, 4).

In response to this system challenge, the New South Wales (NSW) Ministry of Health introduced a four-year initiative ('HG Initiative') in 2020 that aimed to improve clinical care and support for women with HG (5–7). A central focus of the initiative was support for the implementation of formal HG models of care across all 15 Local Health Districts ('districts'). The districts span six metropolitan and nine regional/rural areas, characterised by considerable variation in population size, density, and geographic dispersion. Consequently, they also differ in the number, size, staffing capacity, and maternity care delineation of hospitals that support their populations.

Beyond model of care implementation, the HG Initiative supported the expansion of a social support service providing domestic assistance and meals ('HG ComPacks') (8) and a telephone hotline for women with HG seeking medication advice ('MotherSafe enhanced service for nausea and vomiting in pregnancy and HG') (7), with a view to strengthening broader health and social care for women. A statewide clinical guideline for HG was also developed (9), providing guidance for clinicians on treatment options for patients.

At the outset of the HG Initiative, maternity and non-maternity models of care already in existence for other conditions were earmarked i) for extension of their scope of care to include patients with HG or ii) to be developed and adopted by districts with no or limited formal HG care in place. Identification of suitable existing models of care was based on the findings of a formative stakeholder survey and workshop conducted by the NSW Ministry of Health. Individual districts commenced the initiative with varying levels of development of HG models of care. They also varied in the extent that earmarked models of care were already in place for other patient groups.

Three existing models of care were identified as potentially suitable to support the care of women with HG. Hospital in the Home (HiTH) (10) is an admitted model of care that provides an in-home alternative to staying in hospital and is traditionally used to manage conditions such as cellulitis and pneumonia. As per the NSW Health HG clinical guideline (9), HiTH was recommended for severe cases only. Early Pregnancy Assessment Services (EPAS) provide non-acute outpatient care for pregnant women who have pain and/or bleeding during the first 20 weeks of gestation (11), temporally aligning with the peak

gestation of HG onset (12). Maternity in the Home (MiTH), is a midwifery-led service that provides postnatal care in the clinic or home for women and their newborns.

A newly created staffing position in each district, an 'HG Project Lead', was responsible for selection and implementation of HG models of care that were fit for purpose for the local context. In line with local human resources processes, HG Project Leads were appointed at different time points across districts and were responsible for consulting on, designing, and implementing district-level HG models of care over the course of the HG Initiative.

As part of a broader process and outcomes evaluation of the HG Initiative (6, 7), this study aimed to determine the fidelity of, and barriers and enablers to, implementation of HG models of care within the 15 districts that comprise the NSW state healthcare system.

Methods

Recruitment

District and NSW Ministry of Health policy staff with involvement in the implementation of at least one HG model of care identified by the NSW Ministry of Health were invited by the evaluation team to participate in a semi-structured interview. Recruitment was conducted via an invitation email that contained a brief project summary and a Participant Information Sheet.

Interview preparation and consent

An interview guide was developed, with indicative questions focused on the implementation of HG models of care, and the experience of interviewees regarding any barriers, enablers and considerations for sustainability (**Supplementary Data 1**). Questions were finalised following review by all study team members and a separate Evaluation Working Group that was comprised of HG experts and decision makers.

Interview questions were tailored for each interviewee based on review of individual district implementation plans and progress reports. Participants who provided written consent were contacted to arrange a suitable time to conduct their interview. Questions were shared with interviewees at least one week prior to the scheduled interview.

Data collection

Online interviews were conducted by two authors (AR, PW) from October to November 2023. At the commencement of each interview, interviewers (characteristics in **Supplementary Data 2**) provided interviewees with an overview of the study, including the rationale for conducting the research. Interviews were audio recorded with participant permission, professionally transcribed verbatim, and

identifying features were removed. Participants had the opportunity to review their transcript prior to data analysis. Participants were also requested to confirm the model/s of care available at each site within their district by completing a model of care summary template.

Data analysis

Interview transcripts were imported into NVivo 14 qualitative data analysis software. Content analysis was undertaken to establish the extent of implementation of models of care and services, with findings cross-checked with templates completed by interviewees. A framework for identified barriers and enablers was developed comprising three levels of reporting (local, district, and system-wide), and inductive thematic analyses were undertaken by two coders (AR, PW).

This study has been reported in accordance with the Consolidated criteria for reporting qualitative research (COREQ) guidelines (**Supplementary Data 3**).

Results

Participants

Consented interview participants comprised 15 district HG Project Leads representing 14 districts and one NSW Ministry of Health representative who was directly involved in the implementation of HG Initiative models of care. A total of 15 interviews were conducted, with one HG Project Lead unable to proceed with an interview due to internal approval processes not being finalised. Interviews ranged in duration from 42–68 minutes. HG Project Leads representing all fifteen districts completed written model of care summaries.

Model of care fidelity

Over the course of the HG Initiative, most districts adopted at least two different models or categories of care (Fig. 1) to meet local healthcare needs and to allow for peaks and troughs in capacity of care. Implementation varied considerably, both within individual districts and across districts.

HiTH was the most commonly implemented model of care, primarily deployed to deliver protocol driven intravenous (IV) fluids to women. It was implemented across all 15 districts, with 13 adopting a site-specific approach based on local hospital capacity and two delivering HiTH services under district-wide governance (Fig. 1). Implementation was variable however, with most HiTH sites operating from an ambulatory care location rather than within patient homes. While the NSW Health HG clinical guideline recommended HiTH for severe cases only, in practice, women were often offered IV fluids in ambulatory care HiTH settings regardless of the severity of their illness.

EPAS was utilised as a first line HG model of care in only one district, with three other districts reporting referral-based EPAS models of care (Fig. 1). It was additionally used as a triage service for other models

of care in several other districts, but in all cases, only operated within business hours. MiTH was not implemented in any district (Fig. 1).

Beyond the three models of care identified as candidates for augmentation or implementation, other approaches to treating women with HG were observed across several districts. For reporting purposes, these were grouped into two categories: 'other maternity models of care' and 'other non-maternity models of care'. Other maternity models of care comprised a range of designations (e.g., Day Assessment Unit, Fetal Maternal Assessment Unit) that consistently functioned as outpatient maternity services. These services typically catered to pregnant women attending hospitals for fetal and/or maternal monitoring, however provided IV fluids and other care to women with HG on an ad hoc basis. Additionally, maternity care models including midwifery group practices and birthing suites also adapted to manage HG patients. They were more commonly observed in pre-existing regional settings, where HiTH services were not available to deliver IV fluids. Collectively, these models were available across 10 districts (Fig. 1).

In contrast, 'other non-maternity models of care' referred to services that did not fall within HiTH, EPAS, or the defined maternity care models. These included virtual care and a shared model of care involving midwives and general practitioners (GPs). Virtual care was delivered at a district-wide level, whereby women were able to be connected to a clinician online or via telephone for monitoring and follow up, following an initial hospital presentation (13). In most cases, maternity-led pathways and/or virtual care were used alongside Hospital in the Home (HiTH) services. A total of eight districts deployed other non-maternity models of care, with four districts implementing district-wide virtual services including two pre-existing virtual care programs that were adapted to incorporate HG management (Fig. 1). One metropolitan district extended their virtual care service to support a rural district with relatively less resourcing.

Enablers

The commitment and resourcefulness of appointed HG Project Leads, along with other informal project champions, were key enablers in initiating or strengthening models of care and driving their implementation. Although primarily in non-clinical roles, HG Project Leads frequently advocated for women with HG and supported patients in navigating the health system, particularly during the early stages of the HG Initiative. The inclination to advocate for care for women was further reinforced by the clinical backgrounds of the HG Project Leads, many of whom had previously worked in maternity care and, in some cases, were directly seconded from clinical roles within the same district. In some instances, the advocacy led to 'early booking in', enabling women with HG to access antenatal services at earlier gestations than is typical in Australia (14) (Table 1).

Table 1
Implementation enablers of hyperemesis gravidarum (HG) models of care

Theme	Explanation
Local enablers	
Dedication and resourcefulness of appointed HG project leads	HG Project Leads leveraged pre-existing knowledge, skills, experience and relationships to conduct their role, in many cases also acting as patient advocates
Informal HG champions	Individual clinicians and managers played a strong role in championing the implementation and continued success of models of care
Strategic planning alignment	Need to build capacity within an existing model of care at a site aligning with a need to develop models of care for HG patients
District enablers	
Inter-district resource sharing	Districts pooled resources, with some relatively well-resourced districts able to assist other districts
Access to virtual models of care	Implementation of virtual care for HG in some districts transcended geographical barriers to ensure equitable access to care
System-level enablers	
NSW Ministry of Health grant funding	Grant funding was made available to support clinical and non-clinical needs. This was used to incentivise the augmentation of existing models of care.
Non- financial resources and support	A suite of resources provided by the NSW Ministry of Health allowed HG Project Leads to focus their efforts on implementation

“I think once you’ve got a passion and interest and I think that’s a general thing across all the hospitals, even where I work in – all my levels – if people want to make the change it just happens. And if they don’t then it just doesn’t.” – HG Project Lead 10

“And so, if a woman books in for her first antenatal appointment and they’re like, “Yep, your appointment’s in two months,” and she’s severely unwell with hyperemesis and I ring up and I say, “She’s really unwell, can we actually see her early?” – HG Project Lead 2

Resource sharing and the development of mutually beneficial service options supported the evolution of care models. For example, one HG Project Lead identified a broader need for an outpatient maternity service in a regional hospital to alleviate pressure on birthing unit midwives. In response, an outpatient unit was established primarily to support women with HG, while also increasing capacity to manage other unplanned presentations to the maternity department.

“They were looking for new patients... for their expanded model. So I think that is certainly something that's definitely aided our implementation because there was a readiness there for expanded cohorts ... The stars aligned for us, really. That we needed a service and they needed some patients.” - HG Project Lead 7

NSW Ministry of Health funding enabled districts to acquire the clinical and non-clinical resources needed to support care delivery, as well as to fund key allied health roles such as psychologists and dietitians. The concurrent introduction of a statewide HG clinical guideline (9) provided a structured management framework for clinicians, supporting both the establishment of new models of care and the refinement of existing services.

Barriers

Human resource challenges were identified as the primary barrier to implementing HG models of care at the local level (Table 2). These included staffing changes, and competing demands on HG Project Leads, as well as staff turnover, perceptions on their scope of responsibility, and limited capacity across both clinical and non-clinical roles.

Table 2
Barriers to the implementation of hyperemesis gravidarum (HG) models of care

Theme	Explanation
Local barriers	
Capacity of HG Project Leads	Recruitment delays, staffing changes, and competing roles and responsibilities for HG Project Leads resulted in gaps in implementation support
Ongoing staff education needs	Formal staff education requirements were ongoing due to site staff turnover
Clinical governance	A nominated role/position to take responsibility for clinical oversight and authority was not always available. Clinicians were concerned about taking responsibility for patients that they had not previously consulted with and/or taking on additional workload.
Lack of staff support	Some clinicians and departments perceived that HG care did not fall within the scope of their responsibilities and/or they did not view that HG was a serious illness
Insufficient staff capacity	Existing model of care staff did not always have the capacity to engage in additional activities required to care for women with HG
District barriers	
Capacity to provide holistic and early access to continuity of maternity care	Some districts were unable to incorporate the care of women with HG into the other aspects of their pregnancy care through 'early booking in' approaches
System-level barriers	
Geography	The dispersion of hospitals, staff and patients across NSW meant that patients sometimes needed to travel long distances for care, and smaller hospitals needed to create local solutions outside of formal HG models of care
Statewide guideline was released later than anticipated	Delayed release of the NSW Health NVP/HG Guideline initially left staff without a recommended clinical framework to follow

"It's not that they don't care, I think that because it hasn't been part of their portfolio for so long it's like, this has been an ED problem. And when we talk about: well, maybe we can decrease ED representations. They actually don't care because that's ED's .. money. So why would we spend money on women when it's going to save ED money?" - HG Project Lead 13

In some instances, staff already operating at or beyond capacity were required to take on additional tasks, such as upskilling in intravenous (IV) fluid administration.

"... maternity services [are] understandably very busy. We've got a real midwife shortage and to be able to push any harder they have not been feeling they have that capacity to do anything else further than what

they're currently doing in early pregnancy.” – HG Project Lead 11

“That (early booking in) is very new and that is an extra ask on the midwives because, as you can imagine, we in Australia generally don’t book women sometimes till about 15 or 16 weeks of pregnancy. These women are coming in at seven or eight weeks and it’s always – well, she might not even have a pregnancy at 12 weeks. It’s sadly the attitude, which is fair. It’s always been part of the culture that we don’t really need to see midwives and the booking does take time. It takes about an hour – an hour and a half – depending on how complicated the woman is.” – HG Project Lead 10

Staff turnover also had downstream effects on implementation, as it required HG Project Leads to repeatedly deliver education and training on new models of care.

“I did really hectic education ... when those services went live, and it seemed to go well for a little bit. But then of course, we had a huge staff turnover. So then you get all these new staff again, and they need that education again.” - HG Project Lead 1

Limited or unclear clinical governance for HG models of care emerged as a key barrier to implementation. This was particularly evident within the HiTH model, where non-maternity staff were often hesitant to assume responsibility for the care and governance of pregnant women with HG. Concerns centred on the complexity, unfamiliarity, and perceived resource intensity of this patient group, as well as accountability for patients they had not directly assessed.

“...[HG patients are] very different to what [HiTH is] used to and they're time consuming. These women take probably three to four times the amount of time that their general cohorts of patients usually take, which has been a bit of a barrier.” - HG Project Lead 7

“And doctors have been concerned about being responsible for this patient that they've never seen before. I understand that. But we also need to have trust in our systems: that this woman has been assessed by a doctor in ED, and you've got your nurses out on the ground, and apart from being dry, she's actually a well, young, healthy person.” - HG Project Lead 13

Geographic dispersion across NSW was a significant barrier to delivering both earmarked in-home services (HiTH and MiTH). For patients in rural and regional areas, the distance between the hospital base and their homes limited the feasibility of providing timely, efficient, and cost-effective care. This was particularly evident for IV fluid provision, which was time-intensive and placed considerable additional demands on nurses and midwives.

“I'm not super confident about ever being able to provide fluids in the home through the MiTH service...[we will consider telephone follow up], rather than a home visiting service.” – HG Project Lead 3

Discussion

Drawing on a comprehensive set of stakeholder interviews, this study outlines the fidelity of implementation, as well as the key barriers and enablers influencing implementation, within a state-wide initiative to improve care for women with HG. While availability of models of care for women improved substantially following the commencement of the HG Initiative, the types of care available across the state varied considerably, influenced by local population needs, existing resources and infrastructure, staffing capacity, and the presence of local clinical champions. Operating within a context of heterogeneous service delivery, the HiTH model for HG was augmented or introduced in all districts. In contrast, EPAS for HG was implemented in a smaller number of districts, largely as a complementary model, and MiTH for HG was not implemented at all. Beyond the models initially identified for augmentation and implementation, maternity-led services and virtual care played important roles in supporting the management of women with HG. This diverse landscape reflects the diversity of models of care and services for HG identified in a recent scoping review (6), and is consistent with broader patterns observed in models of maternity care (15).

As an existing non-maternity model of care, HiTH was deployed either in women's homes or (more commonly) in ambulatory care settings, often regardless of the severity of their illness. While the geographical dispersion of the NSW population rendered IV fluid provision in rural and regional patient homes less feasible, the flexibility to operate in standalone teams, or as part of an integrated team that included hospital and community care providers, supported HiTH's widespread adoption as an HG model of care.

Another factor that may have supported the success of HiTH for HG was latent capacity. During the COVID-19 pandemic, non-HG HiTH experienced a surge in demand and rapid expansion, leading to improved resourcing, staffing, and governance (16, 17). Following the peak pandemic period, demand for HiTH services declined in some settings, reflecting broader post-pandemic reductions in home-based and post-acute care utilisation, and challenges sustaining referral pathways (18–20). The resulting excess capacity and utilisation of existing resources were likely additional factors in HiTH's success as a sustainable pathway for HG care.

Despite its widespread adoption, HiTH posed challenges for clinical oversight and prescribing. In addition to IV fluid therapy, most women with HG require antiemetic medications, and correction of electrolyte and/or nutritional disturbances. These issues can be difficult to manage in non-pregnancy and nurse-led models of care, where clinical governance structures and medical prescribing responsibilities may be less clearly defined (21). For HiTH, these gaps were largely mitigated by HG Project Leads who facilitated access to a range of clinicians including specialists, GPs, and nurse practitioners alongside HiTH. As HiTH was typically implemented alongside maternity-led pathways and/or virtual care, these complementary models ensured appropriate oversight. This is consistent with broader evidence that hybrid and multidisciplinary care models—particularly those integrating virtual and in-person maternity services—support continuity, safety, and effective care delivery in pregnancy (22).

As existing maternity models of care, EPAS and MiTH initially appeared to be appropriate models of care for HG treatment. However, both the extent and type of HG care delivered within maternity settings varied considerably across districts, largely reflecting differences in staffing capacity and the capability to expand existing scopes of practice. Although the EPAS model corresponded with the gestation of HG (12), the often-prolonged duration, frequency and intensity of HG care meant that EPAS was better suited to managing episodic overflow from other services, such as HiTH. Additionally, the restricted hours of EPAS posed a further limitation for the unpredictable and unplanned nature of HG presentations. The predominance of other maternity outpatient models in regional settings is consistent with findings in a recent review of outpatient models of care for HG (2).

The MiTH model was not implemented in any districts, with a perceived lack of staff support identified as a key driver. This reflects a broader policy challenge concerning roles within maternity services (23). Although some literature suggests that midwives view the management of HG patients as falling outside their scope of practice (24), other suggests HG care as consistent with core midwifery responsibilities (2). Aligning with this tension, a recent UK policy paper recommends prioritising education for midwives and identifying them as clinical champions to support such models of care (25). Notably, alternative maternity care models were successfully adapted to manage patients during the HG Initiative. This suggests that barriers to MiTH implementation were less likely to be structural and may instead reflect local workforce attitudes, confidence, and readiness for change, particularly as MiTH is traditionally a post-natal service. These findings highlight the importance of targeted workforce engagement, clearer role definition, and capability-building to support the uptake of new care models (24).

Virtual care served as an important complement to in-person treatment for HG, operating across multiple referral pathways including primary care, private specialists, hospital maternity services, and emergency departments, while enabling shared-care delivery with HiTH and community health services. Its rapid expansion during the COVID-19 pandemic, supported by advances in digital infrastructure (27), has facilitated integration into routine maternity care. Here, it provided a flexible, scalable model for HG management by enabling timely assessment, triage, referral, and ongoing review, while reducing reliance on face-to-face consultations. For women with HG, this may be particularly important given the physical burden of unnecessary hospital attendance and the need for coordinated oversight across fragmented care pathways; virtual care may therefore offer not only a mechanism for improving access, but also a governance structure that strengthens the safety and integration of distributed models such as HiTH (28).

Additionally, virtual care can support service delivery to rural and remote populations with relatively low HG caseloads, improving equity of access and reducing dependence on hospital-based care. As virtual models are increasingly adopted across health systems (26), they offer a platform that can leverage existing infrastructure and workforce capacity. When integrated with HiTH, virtual care can strengthen coordinated care pathways, including step-down and discharge models, while allowing rapid re-escalation if needed. Combined approaches—for example, with intravenous therapy provision via HiTH —

enable comprehensive, efficient, and patient-centred care, supporting more resilient and resource-efficient maternity service delivery.

In the context of managing an acute, low-prevalence condition with fluctuating demand, HiTH, when paired with a complementary model of care such as maternity-led pathways and/or virtual care, provides appropriate system-level resourcing, governance, and clinical endorsement in most settings. This aligns with existing evidence supporting HiTH as a promising model of care (16, 27). Over time, such integrated approaches have the potential to reduce repeated presentations to emergency departments, thereby improving overall system efficiency. However, despite these gains, a lack of continuity of care across pregnancy remains an ongoing gap.

Early booking-in, as a mechanism to support continuity of maternity care, was implemented only in limited settings and typically relied on strong advocacy from HG Project Leads. Given the early gestation of HG onset (12), early access to maternity services provides a critical window for timely clinical intervention. Women with HG frequently require care beyond that offered at GP clinics, such as IV fluids, the first line treatment for HG (9). This model enables women to engage with midwives and obstetricians earlier in pregnancy, facilitating prompt initiation of pharmacological treatment and supportive care, while also promoting continuity through an established care team across the antenatal period (2, 28). Such approaches align with UK policy recommendations that emphasise early, multidisciplinary management of HG (25). However, most districts maintained a separation between HG management and routine maternity care, frequently attributing this to limited staffing capacity. While workforce constraints represent a legitimate operational challenge, the relatively low prevalence of HG suggests that system-level redesign—rather than resource expansion alone—may enable broader implementation of early booking models. This is further supported by policy and professional guidance that positions midwifery scope of practice across the full continuum of pregnancy (29). Together, these findings indicate an opportunity for policy to more explicitly support integrated, early-access maternity pathways for HG, underpinned by workforce planning, role clarity, and service delivery reform.

Limitations

This study has a number of limitations. Firstly, while efforts were made to include implementation stakeholders from the Ministry of Health and all districts, one district representative was not able to be interviewed. Secondly, while the evaluation interviews were undertaken 3.5 years after the commencement of the HG Initiative, variation in the timing of HG Project Lead appointments and the initiation of model-of-care implementation suggests that further evolution of HG models of care may occur. Finally, interviewee social desirability bias could be present as a result of interviewees being funded by the NSW Ministry of Health, employed by individual districts, and requested to provide objective information on service implementation and sustainability beyond their initial tenure. Social desirability bias was mitigated by following a pre-defined and standardised set of interview questions for all districts (**Supplementary Data 1**), reassuring interviewees that responses would be anonymised, and including the perspectives of relevant Ministry of Health portfolio teams.

Conclusions

The substantial physical, psychological, and social burden of HG makes timely, appropriate care essential from the outset of pregnancy. This research shows that top-down resourcing and strategic endorsement from the NSW Ministry of Health, informed by stakeholder input, enabled districts to adapt HG models of care to local context. While variation in care models is likely to remain necessary, persistent challenges—including staffing capacity, clinical oversight, competing priorities, and workforce turnover—must be addressed to sustain and strengthen implementation. Strengthening integrated, multi-disciplinary care, supported by virtual care models, offers a clear pathway to improve continuity, equity, and access for women with HG.

Abbreviations

ED
emergency department
EPAS
Early Pregnancy Assessment Service
GP
general practitioner
HG
hyperemesis gravidarum
HiTH
Hospital in The Home
IV
intravenous
LHD
Local Health District
MiTH
Maternity in The Home

Declarations

Ethics approval and consent to participate:

The study was approved by the South Eastern Sydney District Human Research Ethics Committee (Project reference: 2023/ETH01137). All participants provided written informed consent.

Consent for publication:

Not applicable

Competing interests:

The authors declare that they have no competing interests.

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Author Contribution

AR, PW and AW designed the research methodology. AR and PW conducted the research and analysed the data. AR wrote the original draft manuscript, with reviews and edits from all other authors. AS provided clinical oversight and AW provided data interpretation and policy oversight. All authors read and approved the final manuscript.

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Data Availability

All data supporting the findings of this study are available within the paper and its Supplementary Information.

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Figures

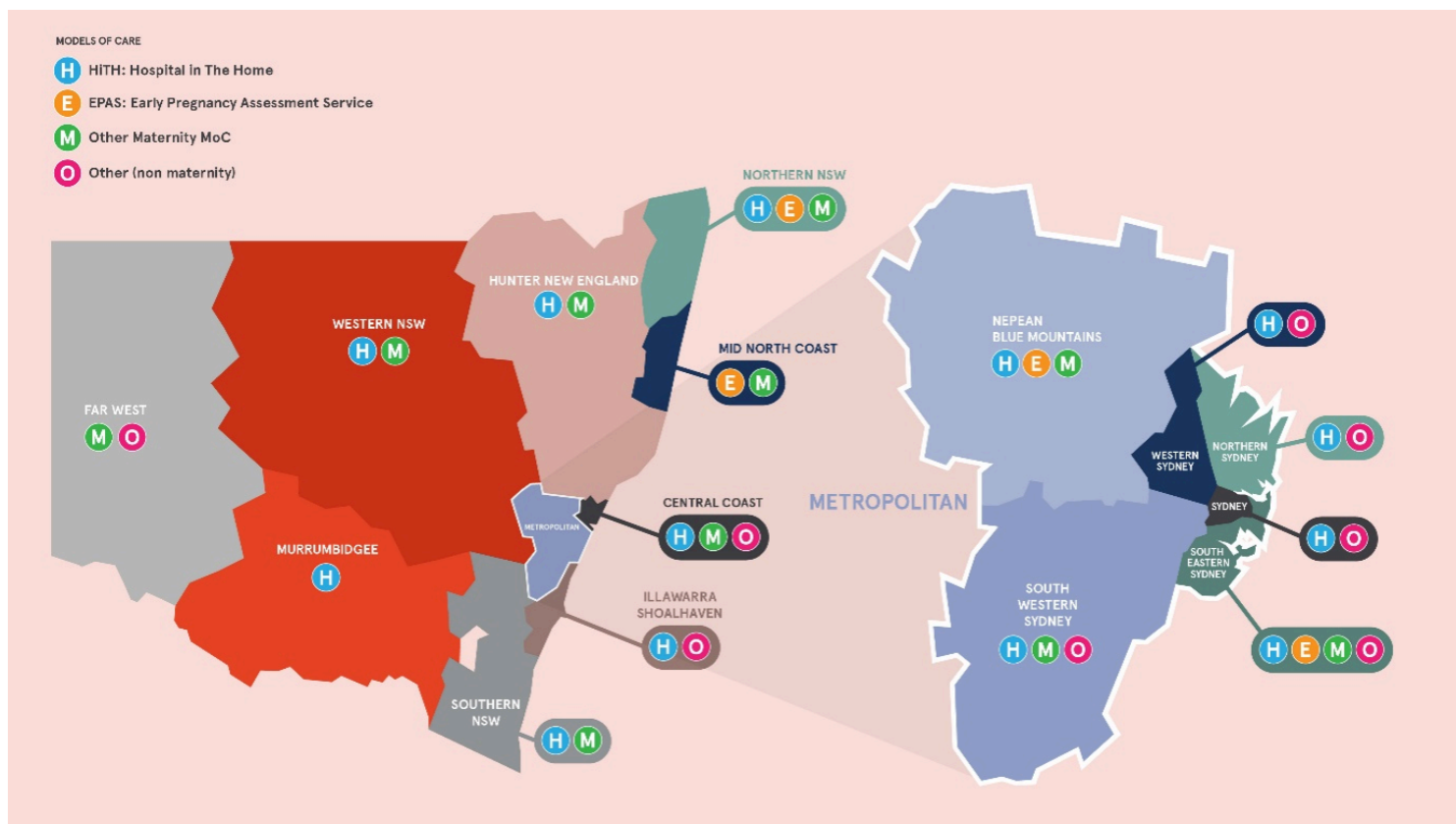


Figure 1

Hyperemesis gravidarum models of care in NSW (as at December 2023)

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