BHUTAN
Innovation
Lab

BIL

"RIGHT PLACE; RIGHT TIME"

Addressing Systemic Challenges in the Hospital Appointment Process for Better Health Outcomes

October 2025

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An initiative undertaken by BIL under *Prime Minister's Office* in partnership with UNDP Bhutan.

Introduction

1. Established in 2024, Bhutan Innovation Lab (BIL) – a joint initiative of the Prime Minister's Office (PMO) and United Nations Development Programme (UNDP) – leverages advanced research, design, and experimentation methods, alongside citizen engagement, to address Bhutan's national policy priorities and development ambitions. The Lab has a bold vision and mandate to augment, accelerate, and unblock barriers to Bhutan's prosperity, harmony, and resilience.

2. Free healthcare is enshrined in Bhutan's Constitution, and is a core tenet of its development philosophy: Gross National Happiness. In February 2025, for its first frontier policy issue, the Hon'ble Prime Minister requested the Lab support the Ministry of Health (MoH), National Medical Service (NMS), and the Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) to improve health outcomes, specifically focusing on the rising issues of hospital waiting times and overcrowding at Bhutan's leading hospital, JDWNRH.

3. This report, first delivered to the Prime Minister and Health Minister in May 2025, outlines the methods the Lab deployed, its broad findings, key recommendations, and a testable list of 44 interconnected, system-transforming, interventions. The Lab targets two relatively under-explored areas in current policy: first, concentrating effort on indirect measures as a means for systems change (addressing factors that influence people *before* they arrive at JDWNRH); and second, focusing hard on the complex interdependencies between interventions as the key to their success. The Lab's recommendations are a series of behavioural, policy, and practice changes designed both to provide immediate relief, and to prepare the system to transition to a better way of working.

4. The Lab's duty is to identify, design, and scale policy interventions that can deliver more effective, more efficient, and more enduring changes to the country and the everyday lives of Bhutanese citizens. Our aim is that for every Ngultrum spent, we can enable Bhutan to deliver more and faster than traditional approaches, accelerating His Majesty's vision, fostering enlightened governance, and delivering entrepreneurial, improved, and productive public services.

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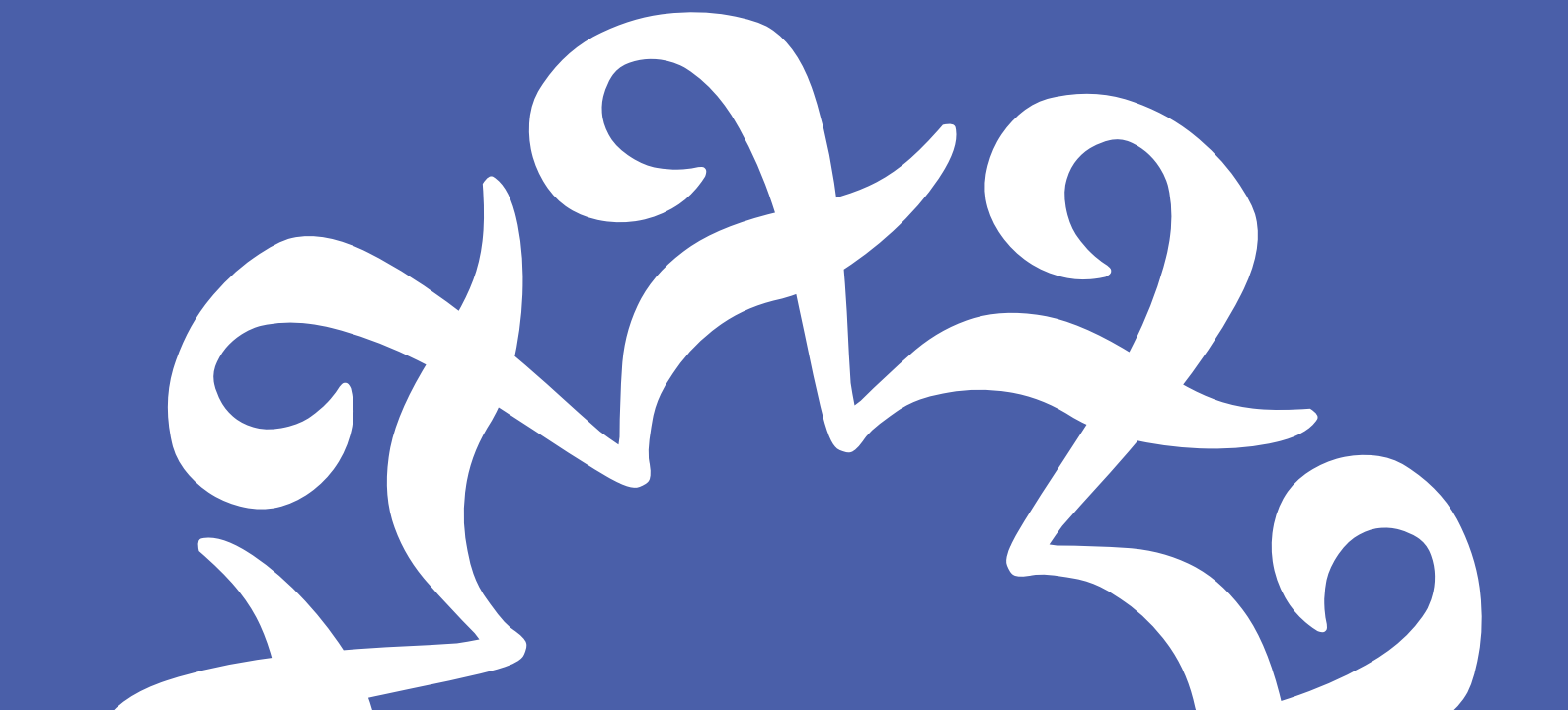
HIGH-LEVEL SUMMARY REPORT



5. **Patient behaviour and health system structures misalign in Thimphu. In the absence of a district hospital, and with referral gatekeeping protocols inconsistently applied, citizens choose to avail services directly at the national referral level. The total "freedom to choose" where to go poses a risk to the fundamental principle of equal access that is "free at the point of use," due to overcrowding and the difficulty in securing an appointment. At various points in the system there is a misalignment between supply and demand, with some services overutilized and others not.**

6. The Bhutan Innovation Lab (hereafter: BIL or 'the Lab') undertook an in-depth eight-week assessment, using systems thinking, data analysis, site visits, and a range of qualitative, quantitative and design-based methodologies, to identify systemic patterns, causal relationships, and 44 possible interventions to address the challenges, and create efficiencies.[1] These methods focus not on single "panacea" solutions, but a series of interconnected responses, across all scales, and at various points in the system (before people arrive, during the referral process, and at Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) specifically) to ensure effective and sustainable change, reducing adverse impact, and encourage long-term transition to a more efficient practice.

Current Behavior Pathway In Thimphu

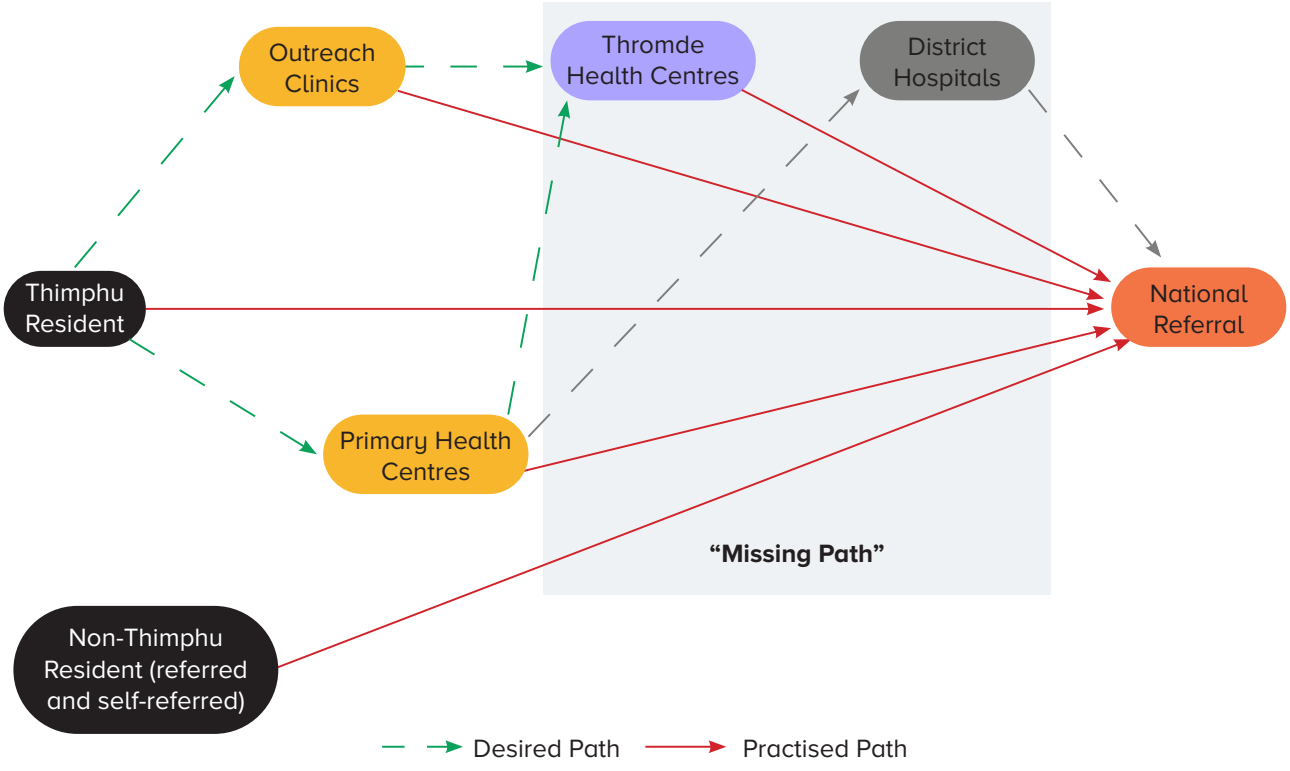


Fig 1. There are several "short-circuits" within the current system that create stress points and override the recommended referral pathways, concentrating people at JDWNRH.

[1] The Lab drew on the work of development partners in Bhutan including the World Health Organisation's 'Cross-Programmatic Efficiency Analysis' (2021), Asia Development Bank's 2024 technical assistance report ('Supporting Health System Strengthening and Health Sector Reforms'), and World Bank's excellent quadruple reports from 2024:"Primary Health Care Performance Initiative Report; Service Delivery Indicators Health Survey; Healthcare Costing Analysis; and the Issue Brief Series on Sustainable Health Finance in Bhutan.

Optimizing supply and demand throughout the system

7. **In Bhutan, the Constitution guarantees all citizens "free access to basic public health services," extending even to highly specialised referrals abroad.** To realise this commitment, Bhutan has a three-tiered system - primary, secondary, and tertiary - intended to create a clear referral pathway to efficiently move patients to the appropriate level and specialism of care, without overwhelming any one part. Primary facilities such as Primary provides first-contact and preventive care; district and general hospitals manage more complex cases; and national or designated regional referral hospitals concentrate specialist expertise and advanced technologies. This structure has delivered notable successes, particularly in improving geographic access to essential services, reducing maternal and child mortality, and embedding equity as a constitutional principle. Yet important gaps remain. Rising non-communicable diseases, growing demand for palliative care, and persistent shortages in some advanced specialisms, limit the system's effectiveness. Moreover, reliance on overseas referrals highlights both the achievements of the system in guaranteeing universal access and its vulnerabilities in terms of sustainability, costs, and dependency on external providers.[2]

8. **The Lab was called to focus on *how* patients move through this system: where people go, and for what reason.** It became clear that issues at JDWNRH are – in part – an effect of behaviour and processes elsewhere. The Lab observed patterns of availment that cause the system stress: patients bypassing the recommended referral pathways, causing "short-circuits", and concentrating patients in particular locations at particular times, e.g., early-morning outside General Outpatients Department (GOPD). At various points in a patient's journey, there appeared an opportunity to streamline, schedule, or reduce – avoidable or displaceable – first, second, repeat, and frequent visits. For example, patients who queue one day but are unsuccessful in their bid to attain a token, who then return the next day; those who queue for tokens twice before and after lab tests; and those who queue for GOPD and then queue again for a token in specialist departments, despite receiving a referral, instead of being pre-booked or scheduled for a specialist appointment (see: "red loops" in Fig. 2).

9. **Globally, overcrowding at higher level facilities, and the relative underutilization of those at lower levels, in tiered systems, fuels inefficient service delivery and expenditure.** Research has shown continually in Bhutan the disproportionate case load that the JDWNRH bears.[3] For example, in 2017, around 50% of all diarrhoea and common cold cases were treated as outpatients at secondary and tertiary hospitals. However, as "self-limiting" conditions, these can typically be managed at the primary level, with only the most complex and severe cases requiring treatment at higher-levels in tertiary-based systems. The consequence is both an *economic cost*, where it can be as much as four times more expensive to treat the same outpatient condition at JDWNRH than it is to treat it at the primary level, and an *opportunity cost,* diluting or diverting specialists' attention from waiting-lists or patients with clinically more serious needs.

[2] Tenzin, K., Dorji, T., Dorji, G., and Lucero-Prisno III, D. E. (2022) 'Health inequities in Bhutan's free healthcare system: a health policy dialogue summary,' *Public Health Challenges,* 1: 1-8.
[3] Wangmo, S., Patcharanarumol, W., Dorji, T., Wangmo, K., and Tangcharoensathien, V. (2018) 'Bypassing Primary Healthcare in Bhutan: Complex Interplays between Demand and Supply-side Influences,' *Quality in Primary Care*, 26(5): 117-124.

First, Second, "Repeat", and "Frequent" Outpatient Visit Types

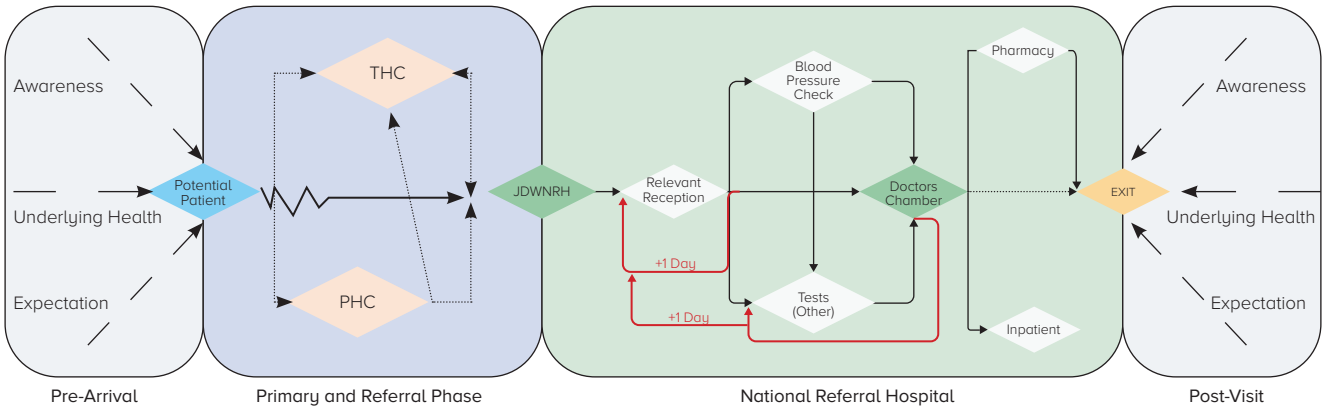


Fig 2. Patient pathways, and avoidable loops. The grey section outlines the factors that influence a patient's journey before entering the system. The blue outlines the "short circuit" or primary and secondary care levels. The green outlines some of the vicious loops within the national referral hospital.

Places of Leverage and Intervention

10. **The Lab identified three "leverage points", areas where a small shift could lead to significant improvements: processes and practices at JDWNRH; referral pathways before JDWNRH; and pre-arrival infrastructure and health literacy.** Identifying and acting on these leverage points could optimize patient flow, improve service accessibility, and enhance overall system efficiency. The Lab's objective was to provide the system with immediate relief while also enabling a transition to a better way of working, built on effective scheduling, the correct use of referral pathways, and greater digitalization. Across each leverage point, the focus was ensuring resources – human and material – are available at *the right place, and the right time*, across the health system; people avail services at the *right place, and right time*, for the condition they have; and that illnesses are caught, as best they can be, at the *right place, and right time*.[4]

Three Intervention Areas

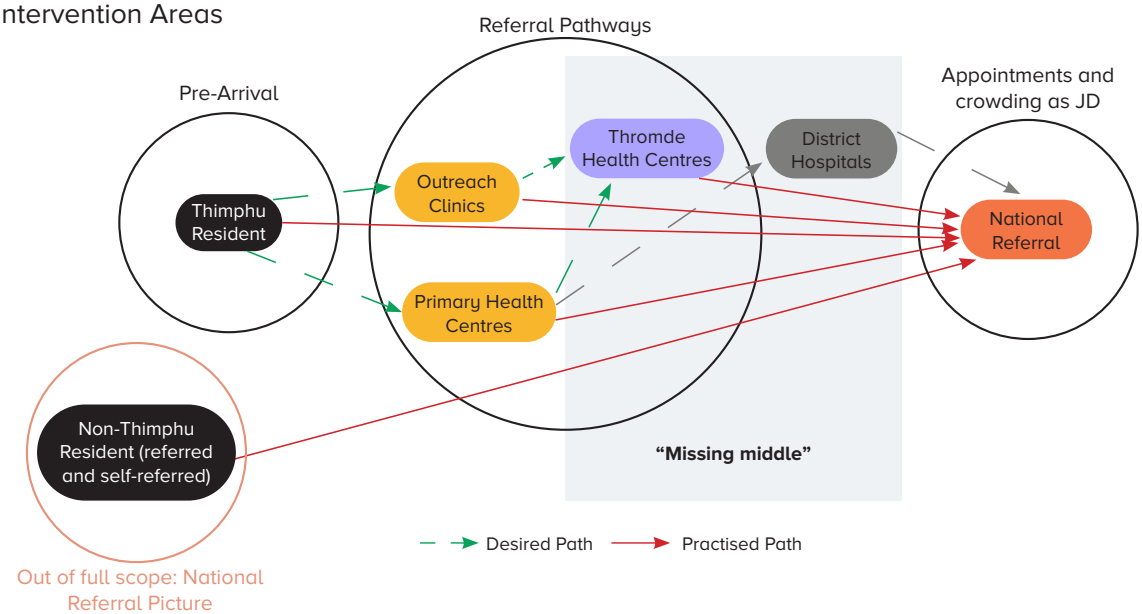


Fig 3. Three intervention areas: pre-arrival, referral pathways, JDWNRH.

[4] Tenzin, K., Dorji, T., Dorji, G., and Lucero-Prisno III, D. E. (2022) 'Health inequities in Bhutan's free healthcare system: a health policy dialogue summary,' *Public Health Challenges,* 1: 1-8.

Interventions

11. The 44 interventions respond to two hypotheses:

    A. **Referral Pathways and Pre-Arrival Factors (e.g., health literacy):** Certain conditions, manageable either through prevention or earlier encounter at the primary level, will reduce the absolute number of people seeking care at the secondary and tertiary level (e.g., district, regional, and referral hospitals), reinforce the proper referral pathways, and enhance the proportion of pre-booked appointments, while increasing patient confidence in managing their conditions and understanding their symptoms.

    B. **JDWNRH processes and practices:** Short-term, design-based interventions can help relieve immediate stress on the system, improve user and provider experience, and prepare the system for transition.

12. **The 44 interventions do not each achieve the same effects; some will generate more impact than others, and none should be considered in isolation.** The central idea of the systems approach is to foreground the dependencies between various factors. Interventions should be implemented as packages, focused on achieving *specific* effects e.g., improve navigation; increase awareness about referral pathways; double the number of pre-booked specialist appointments; and reduce unscheduled walk-ins. The Lab believes that combining several interventions into focused packages will help address the "dose-response" relationship, where directionally correct interventions are not delivered with the appropriate level of intensity to achieve the desired change.

Experimentation

13. **The Lab recommends a "test-and-learn"[5] approach to policy interventions, where promising policies are first tested (or "experimented") on a small-scale, to examine their effectiveness, reduce potential harm, de-risk investment, and calibrate effects.** Alongside NMS, MoH, and JDWNRH, the Lab selected a series of interventions as part of three suggested experiment packages, designed to increase the proportion of scheduled patients, improve patient flow and service utilization, and reduce the absolute number of patients arriving at GOPD, especially at high-stress times (7AM-9AM).

    A. *Increase Uptake of Thromde Health Centres* through enhancement of its services and targeted advocacy around these Centres.

    B. *Strengthen Referral Pathways and Increase Pre-booked Appointments* through the reinforcement of "referral only" patients at JDWNRH and mandating patients to pre-book appointments for referral and revisits.

    C. *Optimizing Token Cap for Improved Utilization and Patient Flow* in the General and Medical Out-Patient Department of JDWNRH by strategically increasing the number of tokens, and reviewing fortnightly.

[5] 'Test and learn: a playbook for mission-driven government,' *Nesta* https://www.nesta.org.uk/report/test-and-learn-a-playbook-for-mission-driven-government/ (date last accessed: 19 May 2025).

Next Steps

14. **Based on BIL's findings, the Prime Minister instructed NMS, MoH, and JDWNRH to implement initiatives that build on the 44 recommendations, across seven areas:** (i) Decentralization of Patient Care through Thromde Health Centers; (ii) Filter Clinic Management and Phase-Out; (iii) Emergency Department Management; (iv) Adjustment of dental services to include filter and referral mechanism; (v) dedicated Tourist Health Services; (vi) Advocacy and Awareness on the new services; and (vii) Operational and Institutional Improvements – including referral focal points, Electronic Patient Information System (ePIS) and uniforms. NMS leadership accepted BIL's wider list of interventions, and included many of them in their 2025-30 Strategic Plan. BIL's recommended experimentation phase was paused by the Prime Minister, prioritising immediate action.

Before handing over full delivery ownership in summer 2025, BIL supported MoH, NMS, and JDWNRH to translate this vision into a timed, sequenced, and costed delivery plan focused on three primary strategic outcomes:

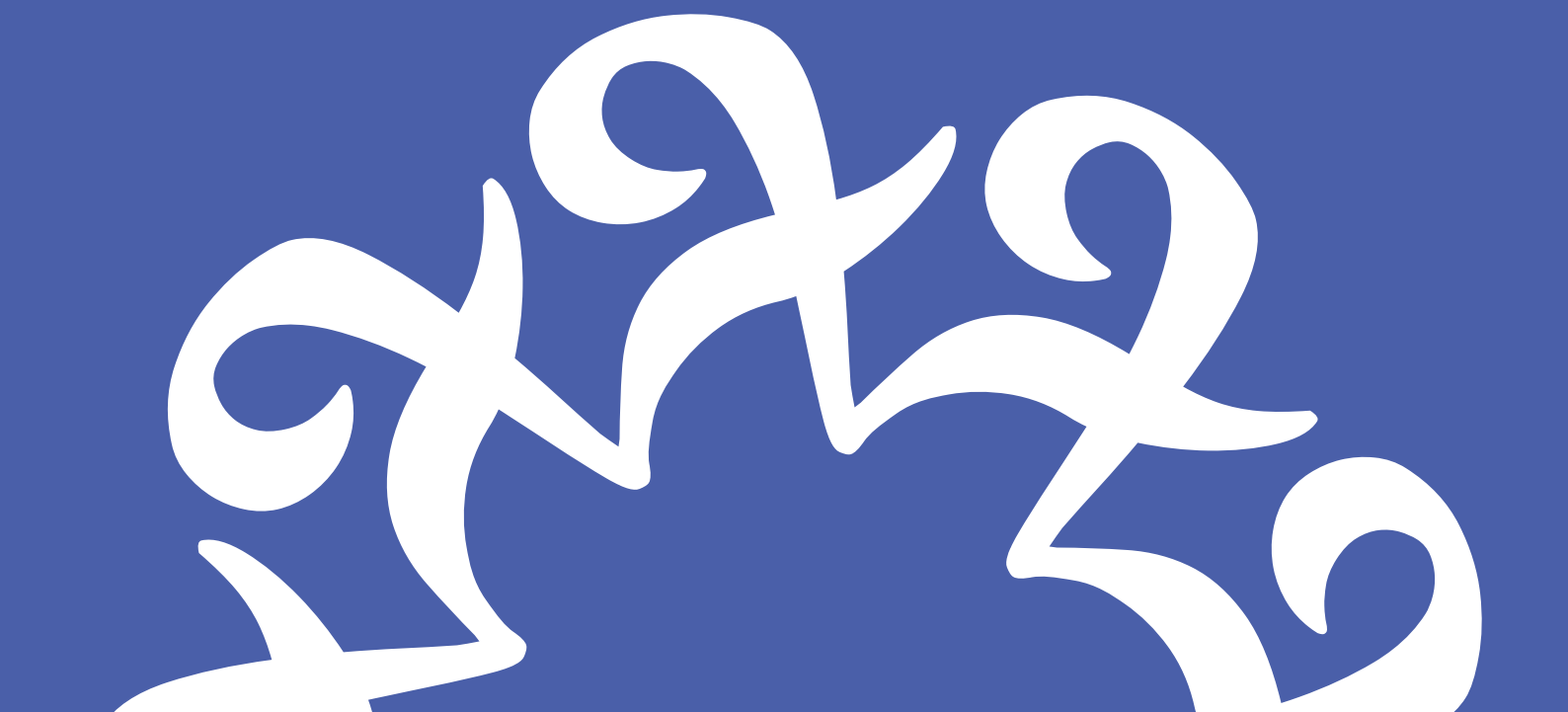
A. **Patients across Thimphu follow the** CORRECT REFERRAL PATHWAYS**, from first contact at primary care through to specialist referral.**

B. HOSPITAL APPOINTMENTS **move from being predominantly unscheduled and unpredictable walk-ins, to being predominantly pre-booked at all levels of outpatient care.**

C. MORE PATIENTS ARE SEEN**, in a smoother, more timely manner, and fewer patients are turned away when seeking care, with the goal that no patient is denied access.**

BACKGROUND REPORT

The following pages explain the Lab's specific approach to policy innovation during the health project, and outline its recommended series of interventions, before the testing phase.

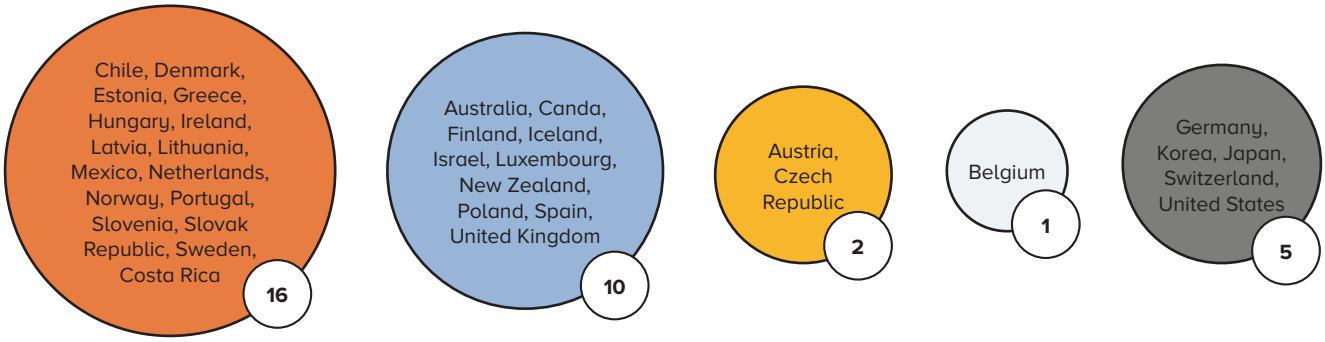


APPROACH AND DIAGNOSIS

15. **The global healthcare landscape is characterized by increasing complexity, necessitating systematic approaches.** Longstanding regulations on patient access and choice have gradually evolved over the past two decades, with gatekeeping helping to manage care and costs, while patient choice continues, in many cases, to drive competition, quality and satisfaction.[6] Within this environment, hospital appointment processes play a pivotal role, directly influencing patient experience, the effective allocation of resources, and the overall efficiency of healthcare services. Waiting times are a significant policy priority for many countries within the OECD, with 16 countries - including Denmark, Greece, and the Netherlands - classifying it as a high priority. This global emphasis reflects a growing recognition that long waiting times for healthcare services can undermine access, equity, and patient outcomes.

16. **These systems do not operate in isolation; they are embedded in a complex network of interactions involving patients, healthcare providers, administrative staff, technology, organizational policies, and national demographic and socioeconomic trends.** BIL believes that understanding and optimizing these systems require moving beyond traditional, linear problem-solving methods to embrace frameworks that acknowledge this interconnectedness.

17. **This background report explores the application of systems thinking as a valuable lens through which to analyze and ultimately enhance the performance of the hospital appointment process which has long persisted as an issue in Thimphu.** By examining the fundamental principles of systems thinking and their relevance to the components, processes, and challenges inherent in appointment management, this analysis aims to provide an understanding for healthcare administrators and policymakers seeking to improve this critical aspect of healthcare delivery.



Source: Based on responses from 34 countries to the OECD Waiting Times Policy Questionaire (information is missing from three countries: France, Italy and Turkey)

Fig 4. WAITING TIME AS A NATIONAL HEALTHCARE PRIORITY AROUND THE WORLD

[6] Reibling, N. and Wendt, C. (2012) 'Gatekeeping and Provider Choice in OECD Healthcare Systems,' *Current Sociology,* 60(4): 489-505.

Methodology

18. The Lab adopted a mix of conventional and innovative systems approach tools to understand and diagnose the issue at hand, across three phases: Sense-Making and Scoping, Co-Creation, and Co-Design:

Fig. 5. Methodological Phases

Sense Making and Scoping

19. **The Lab began by unpacking the perceived "issue" of "overcrowding and long wait times" to contextualize what they truly meant, and the experiences they were grounded in.** For example, the Lab explored whether waiting times were an issue across all dimensions of care, and what the perception of length referred to or was compared against. The Lab's research showed that the perception of long - or, more accurately, frustrating - wait times were mainly an issue for those seeking treatment in the General Outpatients Department of JDWNRH. This stage involved stakeholder mapping, to identify and understand the roles and influence of key players, including healthcare providers, policymakers, citizens and patients. Scoping meetings were then conducted to establish priorities and define the boundaries of the study.

20. **To gain deeper insights, the Lab deployed social listening techniques - including online data scraping - to capture public sentiment and concerns about healthcare services.** This formed part of a wider effort to understand qualitative perception, a patient perception survey that assessed how patients experienced and interacted with the system. The Lab collected further qualitative insights through focus group discussions with health agencies and allied Civil Society Organizations (CSOs) and in-depth interviews with the hospital staff (receptionists, doctors, nurses), allowing stakeholders to share their perspectives and challenges firsthand. Throughout the process, we undertook an extensive global literature review to analyze existing research and best practices in healthcare delivery around the world.

Diagnosis and Design

21. **Once the Lab established a foundational understanding, we then began a co-creation phase, where key stakeholders collaborated to refine the problem statement and identify critical "pain points" and "leverage points".** This phase began with a Systems Design Workshop, where participants (MoH, NMS, doctors, nurses, receptionists, CSOs, teachers, students, youth groups) worked together to map out inefficiencies, challenges, and opportunities for improvement. At this stage, the identification of pain and leverage points was crucial. Pain points represented barriers within the system, while leverage points highlighted areas where targeted interventions could lead to significant improvements. The Lab conducted validation ground visits to observe healthcare facilities, assess workflows, and verify data collected in earlier stages.

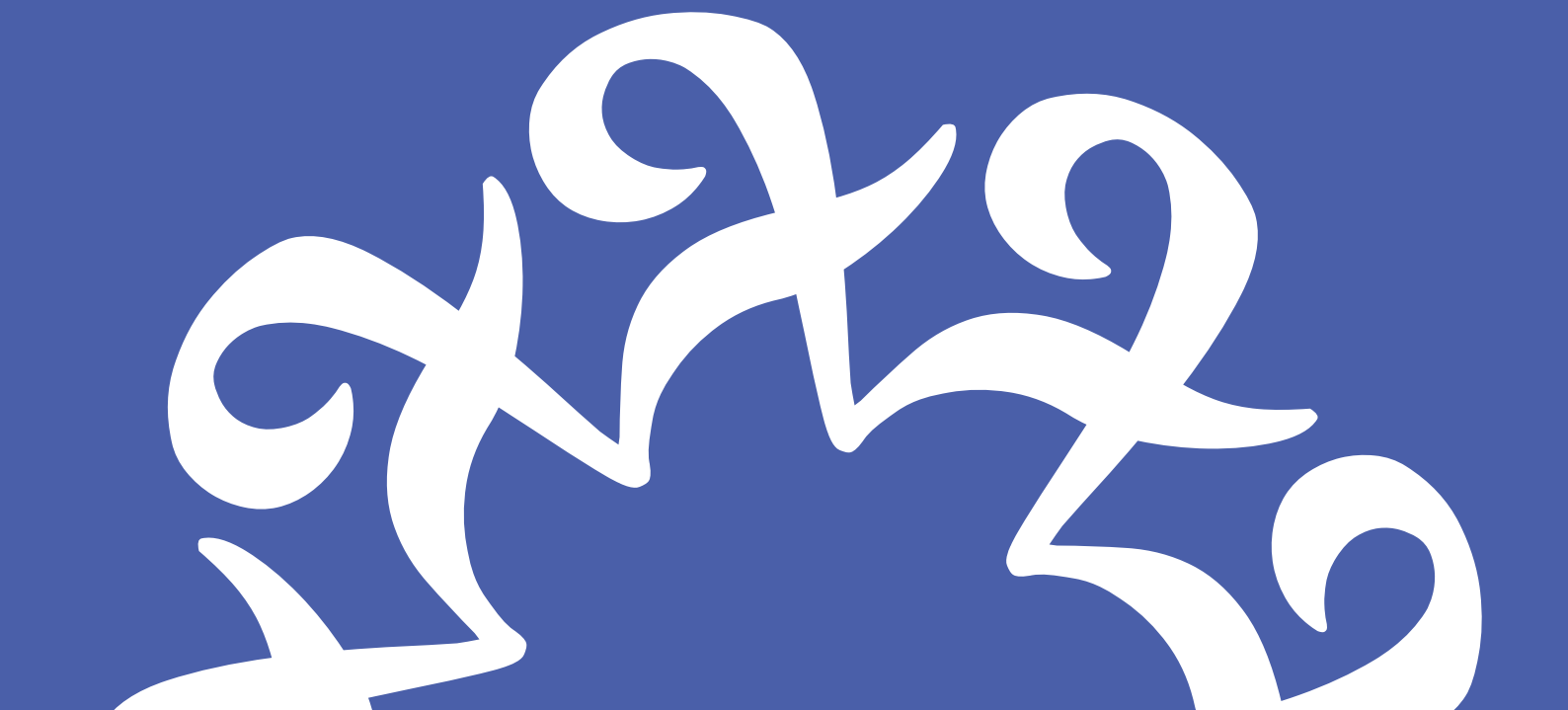
Fig 6. BIL in conversation with NMS President and JDWNRH Medical Superintendent.

22. **With a comprehensive understanding of the system and identified leverage points, the Lab transitioned into co-design: developing concrete solutions/interventions**. The first step in this phase was extensive data analysis, examining national healthcare availment patterns across a range of scenarios and care settings. Key takeaways from the workshops and validation visits were then decomposed into actionable recommendations. Using this information, the Lab developed co-design solutions in relation to consequential leverage points. These solutions aimed to address systemic inefficiencies, improve healthcare delivery, and create a more equitable system. Finally, the Lab deployed strategic challenge techniques, and an expert "red team",[7] to test the feasibility of these solutions, ensuring that they were practical, scalable, and sustainable.

[7] 'What is a Red Team?' https://www.civilservant.org.uk/process-red_teams.html (last accessed: September 2025).

THE CURRENT ECOSYSTEM

a systems approach to understanding the problem



23. **The healthcare system at JDWNRH is faced with significant challenges that contribute to inequitable, inefficient, and inconsistent access to healthcare services.** The issue is most visibly represented by overcrowding at the hospital, leading to long daily waiting times for walk-in outpatient appointments, excessive patient loads, in certain departments and at certain times, and system inefficiencies. While overcrowding is the most noticeable symptom, a deeper analysis reveals underlying patterns, structural weaknesses, and ingrained mental models that perpetuate these challenges.

24. **Currently, appointment scheduling in Bhutanese hospitals employs a combination of methods, both complementary and self-inhibiting.** Patients "walk into" the hospital to seek consultation, or via telephone calls, as is the practice at JDWNRH for specific outpatient departments. Additionally, the initial phases of the Electronic Patients Information System (ePIS) app[8] may offer some appointment booking functionalities. For walk-in patients, a token system exists at JDWNRH, where individuals queue to receive a token that determines their place in line to see a doctor. The presence of these multiple, sometimes disparate, unequally

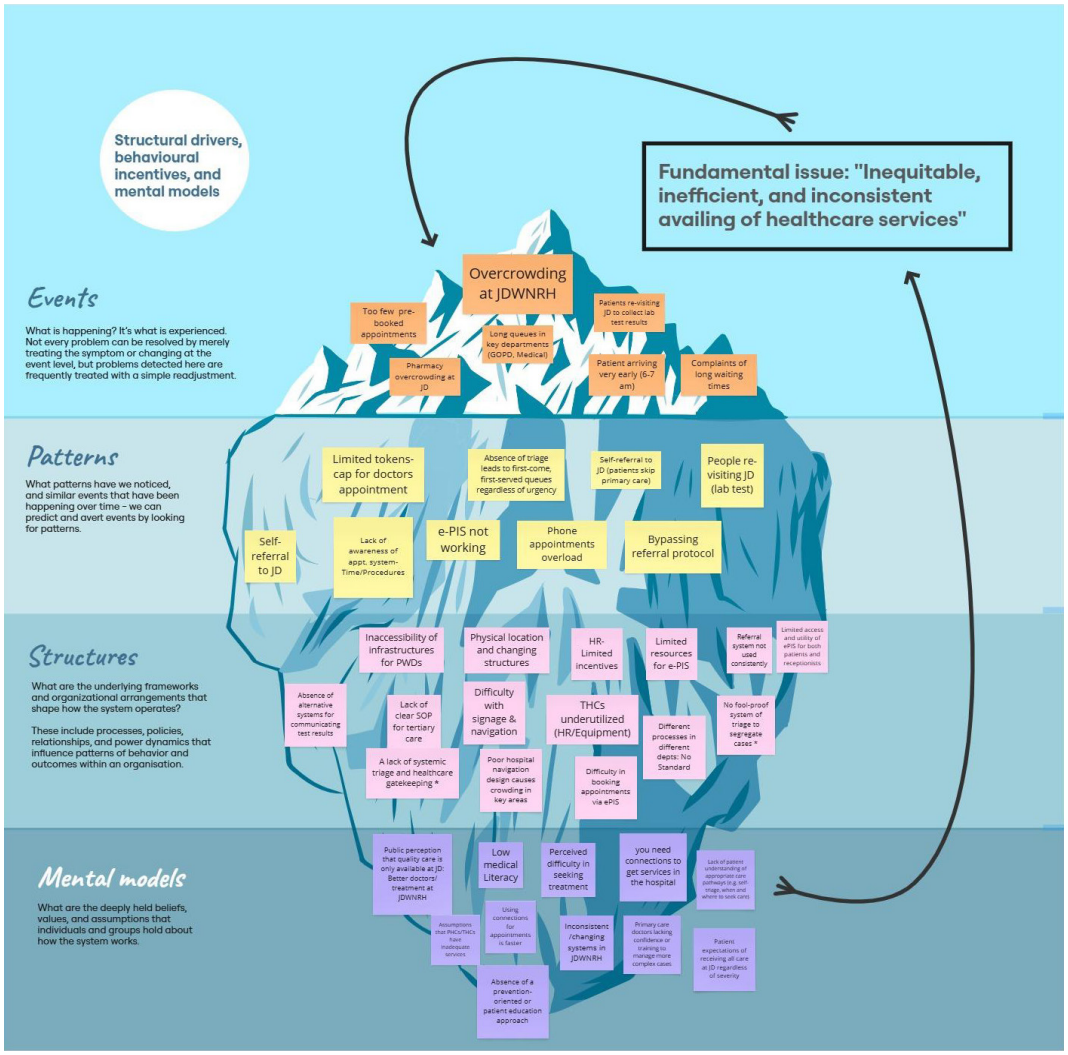


Fig 7. Unravelling Layers.

[8] Bhutan's Electronic Patient Information System (ePIS) is a comprehensive digital health platform launched in 2023 to modernize the country's healthcare infrastructure that integrates electronic medical records, laboratory and radiology data, immunization histories, and other clinical information into a unified system accessible across all health facilities (see: https://tech.gov.bt/epis-app-trial-at-jdwnrh/ date last accessed: September 2025).

implemented, and often unreliable systems symbolises a lack of standardization across healthcare facilities, which could lead to confusion for both patients and healthcare staff. This fragmented approach also results in inconsistencies in data management and service delivery.

25. **A closer look reveals a complex system of recurring patterns, structural weaknesses, and ingrained beliefs that drive the current inefficiencies.** To fully understand the issue, we need to examine the problem from different perspectives, starting from visible events and moving deeper into patterns, structures, and the mental models that underwrite them.

Events: The Visible Symptoms of the Problem

26. **At the surface level, the most apparent issue is overcrowding - at certain times, in certain places - at JDWNRH.** Patients experience long queues at key service points such as the General Outpatients Department (GOPD), Medical Units, and the hospital pharmacy. Many individuals arrive as early as 6AM in the hope of securing an appointment, reflecting a lack of confidence in the current booking system, or there-lack of. The situation is further exacerbated by the overuse of emergency services, where patients with non-urgent conditions bypass primary healthcare facilities[9] and go directly to JDWNRH. Complaints about excessive waiting times and limited availability of pre-booked appointments highlight inefficiencies in patient flow and scheduling. The congestion at the pharmacy also indicates delays in dispensing medication, as well as inadequate availability, in some circumstances, adding to overall frustration for patients seeking treatment.

Patterns: Recurring Trends That Indicate Deeper Problems

27. **Beyond these immediate symptoms, a pattern emerges in how patients access healthcare services.** One of the key issues is the limited number of appointment tokens available for consultations with doctors, leaving many patients unable to secure a visit. Additionally, self-referral to JDWNRH is common, as many patients prefer to go directly to the hospital rather than use primary healthcare centers. This leads to the bypassing of the referral system, which was designed to regulate patient flow and prioritize cases appropriately.[10]

28. **Another critical trend is the inefficiency of e-PIS, which is not functioning effectively for appointment scheduling; nor has its rollout been (equality) impact assessed or backed by a robust and directive communication campaign.** As a result, the phone appointment system is frequently overloaded, when used, or underused entirely because phones are switched off, or patients choose not to avail services that way, making it even more difficult for patients to book consultations. Moreover, there is a lack of awareness about the hospital's processes, such as appointment systems, triage protocols, and referral procedures, causing confusion, inconsistencies in approach, and

[9] Wangmo, S., Patcharanarumol, W., Dorji, T., Wangmo, K., and Tangcharoensathien, V. (2018) 'Bypassing Primary Healthcare in Bhutan: Complex Interplays between Demand and Supply-side Influences,' *Quality in Primary Care*, 26(5): 117-124.
[10] Amoro, V., Abiiro, G., and Alatinga, K. (2021) 'Bypassing primary healthcare facilities for maternal healthcare in North West Ghana: socio-economic correlates and financial implications,' *BMC Health Services Research,* 21: 545-555.

further inefficiencies. The pattern of repeat visits for follow-up lab tests also contributes to unnecessary congestion, as patients return to JDWNRH, and must queue again to receive results, where such repeat visits might be unnecessary because of the nature of the result, or displaced, by utilizing alternative facilities for their diagnostic needs. This is common practice around the world, where follow-up appointments following test results are pre-booked where they are necessary, delivered virtually[11] (e.g., via telemedicine or calls), or avoided altogether[12] by predicating a follow-up appointment on the nature of the result, and the need for further tests.

Fig 8. The Prime Minister addressing the BIL Systems Workshop, 6 March 2025.

[11] Capodici A., Noci F., Nuti S., Emdin M., Dalmiani S., Passino C., Hernandez-Boussard T., and Giannoni A. (2025). 'Reducing outpatient wait times through telemedicine: a systematic review and quantitative analysis.' *BMJ Open,* 30, 15(1): https://pmc.ncbi.nlm.nih.gov/articles/PMC11784372/ (date last accessed: 5 May 2025).

[12] Shen, J. et al. (2021) '"Without the need for a second visit" initiative improves patient satisfaction with updated services of outpatients in China,' *BMC Health Services Research,* 21(267).

Structures: The systemic issues that sustain inefficiencies

29. **At a deeper level, some of the difficulties or inefficiencies in healthcare service delivery are linked to structural weaknesses within the system.** One of the most significant issues is the lack of a proper triage system, which means that patients are seen on a first-come, first-served basis rather than being prioritized based on urgency, complexity, need, or continuous care planning. The result is unnecessary delays for critical cases while potentially overwhelming hospital staff with clinically non-urgent cases. This highlights that an important area of opportunity lies in addressing the mismatch between patient and clinical perceptions of urgency: improving health literacy and patient knowledge can help manage expectations and ensure more efficient use of healthcare services.[13]

30. **Furthermore, physical accessibility challenges create additional barriers, especially for Persons with Disabilities (PLWDs), who struggle to navigate the hospital due to inadequate infrastructure and poor signage.** Human resource constraints contribute to these inefficiencies, as limited staff incentives reduce motivation, while relative underutilization of Thromde Health Centres (THCs) means that valuable resources remain unused, especially for conditions that can be treated before the secondary, or tertiary (referral) level. The cost of treating the same condition at the THC level rather than the JDWNRH / tertiary level can be as much as four times less expensive.[14]

31. **The failure of the referral system exacerbates these dynamics.** Patients frequently bypass primary healthcare facilities, either due to a lack of awareness or because they believe they will receive better treatment, appropriate to the nature of their condition, at JDWNRH. The difficulty in discharging patients down back through the tiered system, and the absence of structured follow-up mechanisms to ensure that primary care centers handle non-emergency cases, locks in these prohibitive system and individual behaviour patterns, leading to - what the Lab suspects is - an unnecessary concentration of patients in the hospitals.

Mental Models: deeply ingrained beliefs that perpetuate the problem

32. **At the core of these challenges are deeply rooted beliefs and perceptions that shape how patients interact with the healthcare system.** A significant issue is low medical literacy, which means that many patients do not fully understand their healthcare options, the severity and urgency of the ailment they are suffering and its relationship to the most appropriate place or time to seek care, or the importance of following referral procedures. Instead, there is a strong perception that JDWNRH provides superior healthcare, in all circumstances, encouraging in-turn a greater likelihood and incidence of "health seeking behaviours," leading to a preference for hospital-based treatment even when primary care centers could manage the condition, or when it might otherwise be managed at-home, or preventatively, with greater confidence.

[13] McIntyre, A., Booth, R., Shepherd, L., and Kerr, M. (2025) 'Emergency department patients' self-perceived medical severity and urgency of care: The role of health literacy, stress and coping,' *International Emergency Nursing"* https://www.sciencedirect.com/science/article/pii/S1755599X25000291 (date last accessed: 19 May 2025).

[14] Wangmo, S., Patcharanarumol, W., Dorji, T., Wangmo, K., and Tangcharoensathien, V. (2018) 'Bypassing Primary Healthcare in Bhutan: Complex Interplays between Demand and Supply-side Influences,' *Quality in Primary Care*, 26(5): 117-124.

33. **Another common belief is that navigating the healthcare system requires personal connections, discouraging patients who lack such networks from seeking timely treatment.** The frequent and inconsistent changes in appointment systems further contribute to confusion, as patients struggle to keep up with new processes. Additionally, health seeking behavior is largely reactive rather than preventive, meaning that people tend to visit hospitals only when their conditions worsen, rather than engaging in regular check-ups and early intervention measures.

AREAS OF LEVERAGE AND INTERVENTION

34. **After analyzing the problem through embedded systems, the Lab and its partners identified "Leverage Points" as strategic areas within the complex system where a small shift can lead to significant improvements.**[15] Identifying and acting on these leverage points was seen as essential to optimize patient flow, improve service accessibility, and enhance overall system efficiency. These points serve as opportunities for high-impact interventions that can address root causes of inefficiencies rather than merely managing symptoms. Through these strategic entry points, our aim is to deliver immediate relief to the pressures within the system, enhancing both patient and practitioner experiences in the short term, while simultaneously laying the groundwork for a longer-term system transition toward a sustainable, resource-efficient model built on effective scheduling, streamlined referral pathways, and greater digitization.

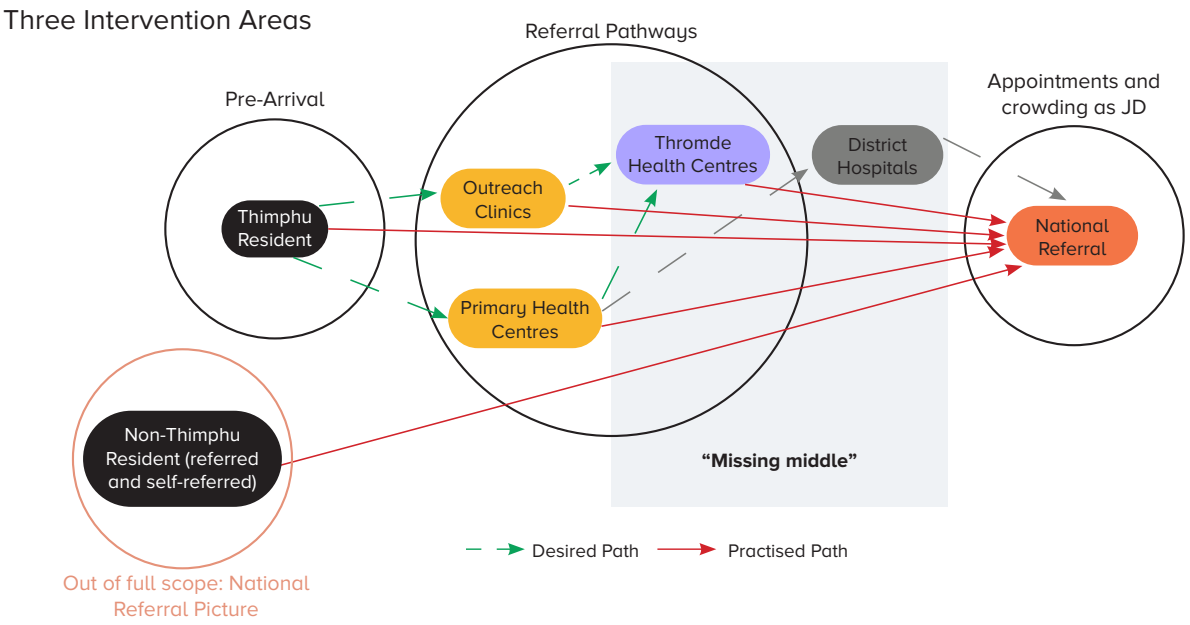


Fig 9. Patient By-Pass.

[15] Meadow, D. (1997) 'Leverage Points: Places to Intervene in a System', Whole Earth, 91(1).

35. **The patient journey diagram illustrates the three primary intervention areas BIL targeted as primarily relevant to managing appointments and overcrowding at JDWNRH.** First, interventions within JDWNRH aim to improve appointment systems, triaging, and patient flow management to reduce bottlenecks. Second, interventions in the referral pathways focus on strengthening and streamlining the roles of outreach clinics, Thromde Health Centres, and primary health centres - collectively referred to as the "missing middle" - to ensure patients are appropriately managed or referred before reaching JDWNRH. Lastly, pre-arrival interventions aim to influence patient behavior and decision-making before they seek care, such as promoting better health literacy, managing perceptions of urgency, and encouraging the use of local health facilities.

Token cap

36. **The token system at JDWNRH is designed to regulate patient access to doctors, but its current implementation presents significant challenges in efficiency, accessibility, and patient experience.** Although the token counters officially open at 8.30AM, patients begin queuing as early as 6AM due to concerns that the limited tokens may run out before they get their turn. The patient satisfaction survey, conducted biannually, also indicates that the appointment and token system are among the top three areas that require improvement.

37. **An analysis of data from JDWNRH on patient visits saw July as a critical month for patient volume across many departments, signaling the need for enhanced staffing and resource mobilization during that period.** Simultaneously, low-visit departments may require further evaluation to assess underutilization, or targeted interventions to better serve niche patient groups. These findings underscore the importance of seasonal planning, department-specific strategies, and data-driven resource allocation for effective hospital management.

38. **An analysis of patient load and token cap efficiency at the GOPD and Medical OPD from January to December 2024 highlights contrasting patterns in utilization and offers targeted recommendations for improvement.** The GOPD operates below capacity for most of the year, with a significant spike in attendance only during peak months. This results in underutilization of resources and inefficiencies during off-peak periods. The Medical OPD consistently operates over capacity, exceeding its 30-patient-per-doctor limit. This leads to extended wait times, increased patient dissatisfaction, and a heavy workload for medical staff.

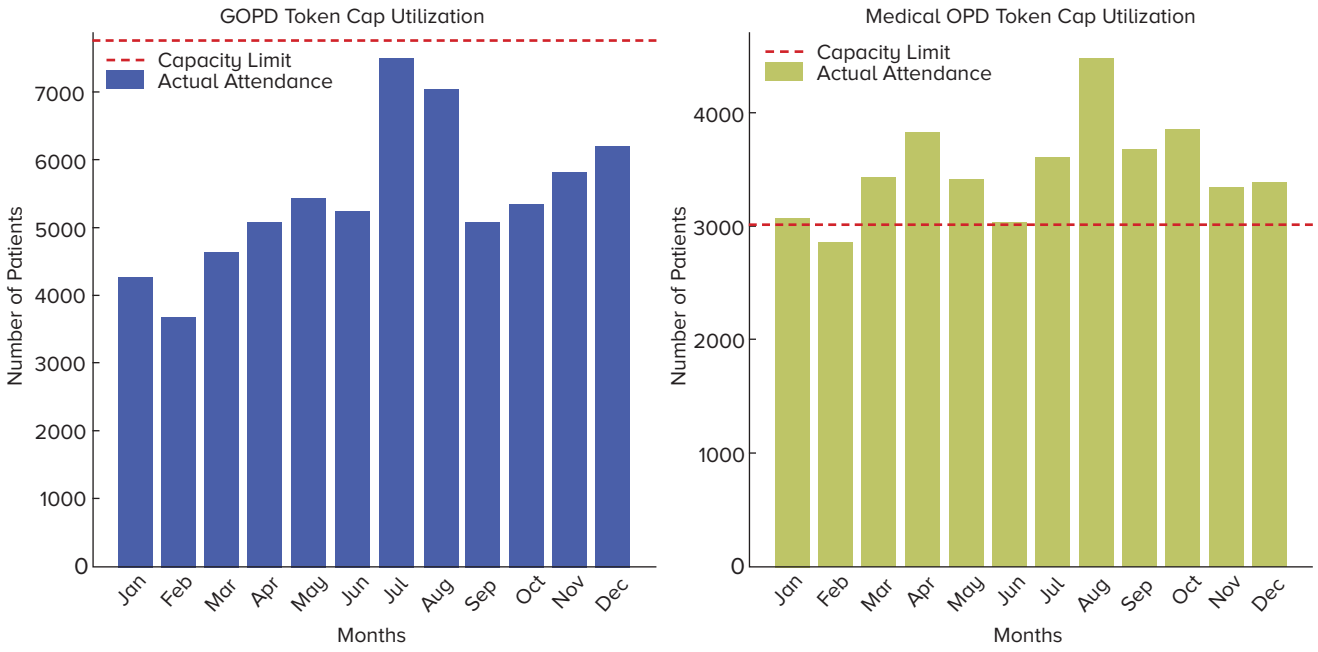


Fig 10. Token Cap Utilization Analysis (2024).

Working Hours and HR Management

39. **Compared to global norms, Bhutanese doctors have shorter official working hours.** The World Health Organization (WHO) does not mandate a fixed number of working hours for doctors, but generally recommends a 40-hour workweek as a standard. This aligns with many global healthcare systems where doctors work 8-hour shifts across a five-day workweek. However, the WHO also acknowledges that the demands of the medical profession often require flexibility, leading to extended shifts in certain departments, particularly in emergency and critical care settings. While the comparatively low working hour for Bhutanese doctors may contribute to better work-life balance, given the growing healthcare demands, factors such as patient load, doctor availability, and service efficiency need to be considered when evaluating the effectiveness of the current working hour structure.

40. **Moreover, an analysis was conducted to assess the impact of the special consultation service on patient load and to determine whether the objective of decongesting the OPD at JDWNRH during regular working hours was achieved.** Most departments offering off-hour services, such as Medical, Surgical, Gynecology, Dental, and Ophthalmology, saw increases in patient visits, suggesting that these extra hours accommodated more patients rather than reducing daytime loads.

Navigation/Accessibility

41. **While there is no data on people raising concerns on hospital navigation/wayfinding and signage, the inference from the Patient Satisfaction Survey is that it is not easy to navigate around the multiple storeys and departments within the current set up.** Another issue that may stem from this is unnecessary crowding in areas that could otherwise be freed for other patients. The current signage is mostly in English with some Dzongkha. To appeal among the illiterate and less educated section of the population, the signages could be made more inclusive with universal symbols such as

an eye for the eye department, ear/nose for the ENT, etc. To help patients locate departments and services better, it is recommended to place information desks in strategic areas such as near the main entrances.

Revisitation

42. **Patients due for follow-up care - who are often more vulnerable and require continuity of care - in most cases, also wait in the same physical line as new patients, even if they have been given a date to revisit** (Fig. 11). This effectively undermines the intended benefits of revisitation appointments and contributes to inefficiencies. Moreover, the absence of a dedicated and enforceable revisit appointment slot means that revisit patients often face delays/longer wait times in accessing necessary follow-up care, which can lead to worsened health outcomes and unnecessary congestion in outpatient departments. Contributing to this problem is the lack of clear protocols on how revisit appointments should be scheduled, recorded, and honored. There is no system-wide integration of revisit appointments with doctor availability or service load, and current practices rely heavily on manual entries or informal arrangements.

Referral Pathway

43. **Many cases currently referred to JDWNRH - such as diabetes check-ups, basic diagnostic procedures, and treatment for minor injuries - could be effectively managed at lower-tier facilities.** However, patients frequently bypass local clinics and health centers. This is driven in part by a deeply rooted "walk-in culture," where patients expect direct and immediate access to specialists without going through a formal referral system. THCs are inconsistently equipped, both in terms of staffing and the range of services they offer. The limited availability of diagnostic tools and specialist care at lower-level facilities often necessitates referrals that could otherwise be avoided. Additionally, inadequate staffing at THCs contributes to delays in care, reinforcing patient preference for JDWNRH. Furthermore, primary care providers are not consistently functioning as gatekeepers[16] to regulate access to specialist services, weakening the overall efficiency of the referral system.[17]

First, Second, "Repeat", and "Frequent" Outpatient Visit Types

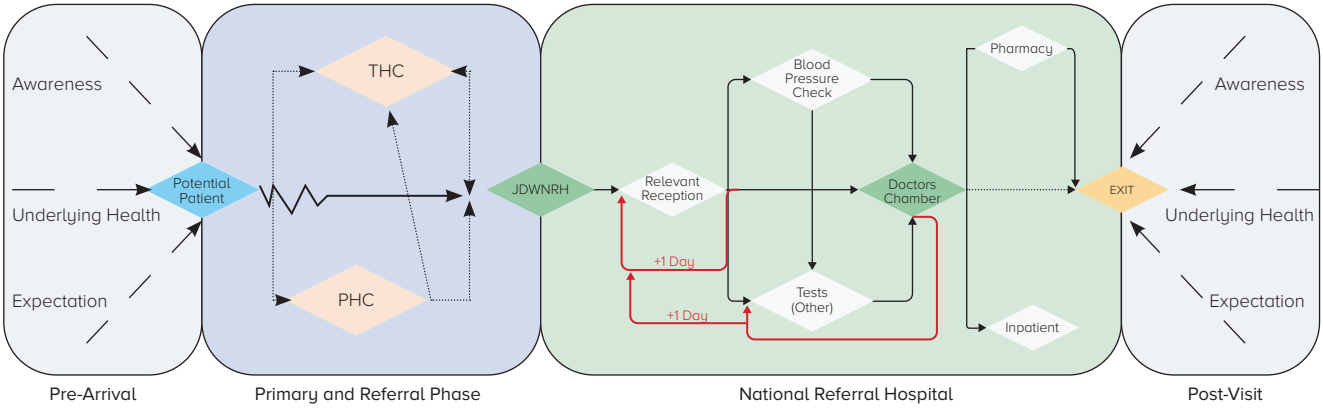


Fig 11. Unreinforced Referral Pathway.

[16] Reibling, N. and Wendt, C. (2012) 'Gatekeeping and Provider Choice in OECD Healthcare Systems,' *Current Sociology,* 60(4): 489-505.
[17] Ntais, C., Kontodimopoulos, N., and Talias, M. (2024) 'Gatekeeping or Provide Choice for Sustainable Health Systems? A Literature Review on Their Impact on Efficiency, Access, and Quality of Services,' *Journal of Market Access and Health Policy,* 12: 378-387.

44. **The introduction of four THCs in Thimphu in 2024 aimed to ease the burden on the national referral hospital by providing essential healthcare services closer to residents' homes.** These centers currently offer Maternal and Child Health (MCH) services, X-ray, ultrasound, rapid lab tests, and pharmacy services. They do not have an In-Patient Department (IPD). To evaluate the effectiveness of these THCs in reducing the patient load at the national referral hospital, BIL analysed whether the initiative successfully met its objective of decentralizing healthcare services and improving accessibility.

45. **Despite offering a range of basic medical services - including lab tests, imaging, oral and eye care, minor surgery, and family health - THCs have had mixed impact.** Some departments at JDWNRH, such as Dermatology (-10.47%), Diabetic Clinic (-9.10%), and Orthopedics (-5.45%), saw slight decreases in patient visits, likely due to THCs handling minor conditions and medication refills. However, key departments including General OPD (+15.19%), Psychiatry (+15.62%), and Nephrology (+47.68%) experienced significant increases, indicating that THCs have - thus far - not effectively reduced demand at JDWNRH, especially for cases that could have been managed at the primary level. Overall, the data suggests that while THCs may have partially diverted some cases, they have not - on their own, absent a significant communications campaign and other complementary measures - sufficiently alleviated the burden on the referral hospital.

46. **Observations in three of the four THCs revealed that these facilities have been constructed based on 10-bedded hospital standards, so there is no further space for expansion in case required once the referral system is strictly enforced.** This points to a lack of integrated planning, based on current and projected patient load, and population change within the capital. More worryingly, it also suggests that the THCs were designed without a full stress-test of their ability to reinforce and uphold the correct patient referral pathways. We expect THCs to be further pressured, as they currently attend to more than 50 to 60 patients per day.

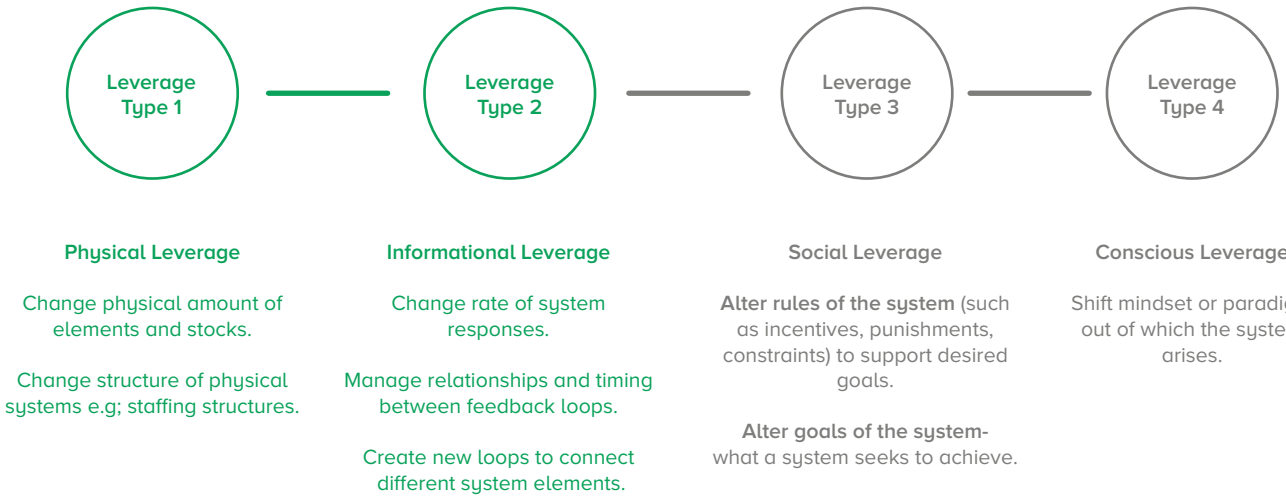


Fig 12. Dimensions of Leverage (Donella Meadows, 1997 - 'Leverage Points: Places to Intervene in a System').

Health Literacy

47. **A critical yet often overlooked challenge in Bhutan's hospital appointment system is the low level of public confidence in THCs, compounded by limited health literacy among patients.** Insights from co-design workshops and stakeholder consultations revealed that many patients - especially those in urban and peri-urban areas - bypass Thromde and primary health centres and head directly to the national referral hospital. This behavior is driven in part by a perception that THCs lack the capacity, resources, or authority to manage even basic consultations, referrals, or follow-up care.

48. **This lack of confidence is closely tied to health literacy.** Many patients are unclear about how the referral system is intended to function, what services are available at the Thromde level, or how to interpret medical advice and instructions. As a result, they often self-refer to tertiary hospitals, contributing to overcrowding and delays. Additionally, some patients report feeling uncertain or intimidated when interacting with healthcare workers and navigating procedures, leading to missed appointments and reliance on informal networks for guidance.

49. **Building both confidence in THCs and broader health literacy is essential for addressing these systemic inefficiencies.** Interventions may include standardizing service quality across thromde facilities, strengthening provider-patient communication, improving signage and orientation at all levels of care, and conducting targeted public awareness campaigns that clarify the roles of different health centres and promote appropriate care-seeking behavior.

HOW TO INTERVENE

50. **Global healthcare improvement orthodoxy provides a series of well-trodden intervention areas, not least: non-communicable disease (NCD) prevention campaigns, the training and recruitment of specialists, and a focus on providing relief for waiting lists, elective and otherwise.** It is, indeed, clear that the NCD burden is growing in Bhutan, rising in line with dramatic changes in its population pyramid (with the proportion of over 65s set to almost triple to 16% by 2050 from 6% in 2020 according to the World Bank): 'Utilization data from Bhutan's highest level referral hospitals shows that nearly 6% of all inpatient department (IPD) admissions during the 2018/19 financial year could be attributed to the single NCD, hypertension. A further 3.2% of all admissions were attributed to diabetes.'[18] This accounts for over 5% of the entire national health budget, where curative care far outstrips preventative expenditure. It is not a new suggestion to say that targeting specific lifestyle diseases and cultural phenomena - such as smoking, doma consumption, and alcohol - will help reduce morbidity. This is generally a health system fact; *everywhere*. But our keenest interest, and what the Lab judged the area of greatest impact, is in tackling conditions which do not need to be seen at national referral hospitals or can be managed preventatively or at home: from flu, to standard prescription issuance for chronic conditions, and from BP monitoring for hypertension, to even some of the causal factors in Bhutan's relatively high "fall fatality" rate in men.

[18] 'Issue Brief Series on: Sustainable Health Financing in Bhutan' World Bank 2024: 5.

51. **The portfolio of interventions we developed through leverage point analysis was aimed at addressing systemic inefficiencies contributing to overcrowding at JDWNRH.** This approach involved mapping the patient journey and identifying key intervention points where strategic changes could shift behavior, redistribute demand, and improve health system performance (Figs. 13). By examining the underlying structures, feedback loops, and decision-making patterns within the current system, the analysis revealed high-impact opportunities for change. The Lab clustered these points of intervention into coherent areas of action - pre-arrival literacy and system navigation (green), referral pathway reforms ("empanelment", orange, and "availability", blue), and in-hospital process optimization in reducing overcrowding ("navigation", light grey, "availability", dark grey) - culminating in a comprehensive, systems-informed portfolio designed to ensure patients receive care at the *right place, at the right time*.

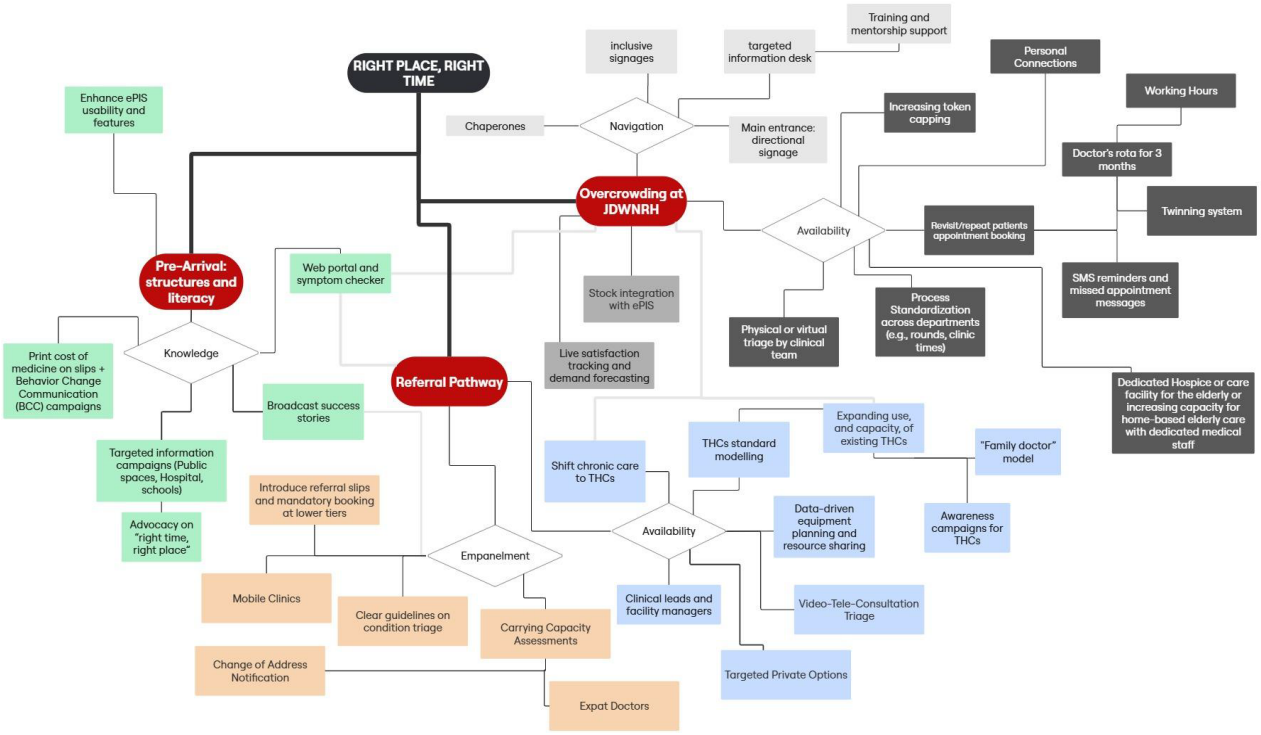


Fig 13. The full portfolio.

In-Hospital Processes and Overcrowding

52. **This portfolio tackles the most immediate and visible problem - overcrowding at the national referral hospital - through two critical meta-themes: Availability and Navigation.** Under "Availability," the focus is on maximizing the hospital's ability to deliver timely and efficient care. Key clinical measures include physical or virtual triage by clinical teams, which ensures that patients are assessed and routed appropriately based on urgency. Process standardization across departments, such as synchronizing clinic rounds and appointment schedules, helps streamline operations. Additional steps like increasing token capping and revisiting appointment booking systems for repeat and revisit patients aim to regulate and manage daily patient volumes more effectively and streamline predictability of patient load.

Fig 14. GOPD JDWNRH, March 2025.

System-wide integration is also vital. This includes stock integration with the ePIS to ensure medicine availability and reduce patient revisit cycles, and live satisfaction tracking with demand forecasting to enable real-time, data-driven management of hospital capacity.

53. **The second meta-theme, Navigation, addresses how patients move through the hospital physically and psychologically.** Overcrowding is often exacerbated by confusion and inefficiencies in patient flow. To counter this, the plan includes inclusive signage, directional signs at the main entrance, and targeted information desks to orient patients upon arrival. Importantly, the deployment of chaperones provides hands-on support for vulnerable patients navigating the system. These measures are supported by softer but equally important interventions like training and mentorship support for staff, doctor's rota visibility for three months, and a twinning system to ensure continuity in care teams. On the patient side, tools like SMS reminders, missed appointment messages, and more flexible scheduling all contribute to a better managed, less crowded facility. Finally, targeted - long-term - interventions such as dedicated hospice or elderly care capacity for home-based treatment, help shift demand away from the hospital and into more appropriate care settings.

Referral Pathway

54. **The Referral Pathway portfolio is centered on the meta-theme of Empanelment, which refers to upholding structured, tiered access within the health system.** Central to this is the introduction of referral slips and mandatory booking at lower-tier facilities, ensuring that patients are filtered through appropriate levels of care rather than heading directly to JDWNRH. This process is strengthened by clear guidelines on condition triage and carrying capacity assessments to inform facility readiness.

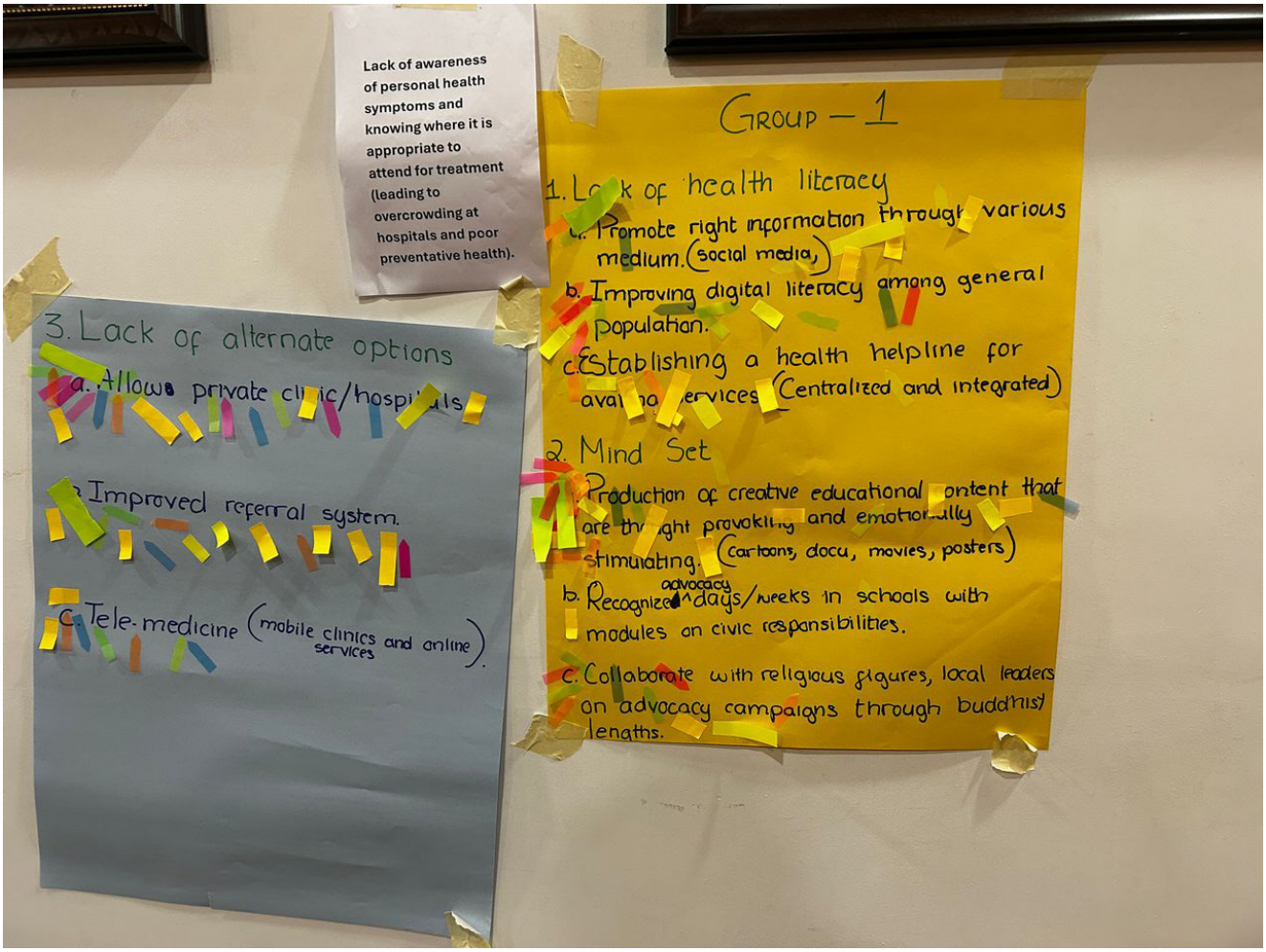


Fig 15. Workshop Idea Generation on Literacy.

Supportive mechanisms include mobile clinics and change of address notifications, helping improve access and maintain accurate patient location data. The availability of expat doctors in areas of acute demand, or under-provision, whether at lower-tier facilities or - more likely - in highly specialised, high growth areas such as dementia and Alzheimer's treatment, provides a longer-term, overall capacity enhancement whose trickle-down effects will contribute relief. Clinical coordination is emphasized through the establishment of clinical leads and facility managers, separating some of the operational responsibilities to better match both capacity and expertise, rather than unnecessarily overburdening doctors, and diluting their clinical practice. In addition, shifting chronic care to the district-level THCs is a strategic move to reduce burdens on JDWNRH. This is reinforced by the standard modeling of THCs, expansion of their use and capacity, and data-driven equipment planning and resource sharing. Complementary approaches such as video-teleconsultation triage, the "Family Clinic/ Doctor" model,[19] and awareness campaigns for THCs promote continuity and familiarity in primary care settings.

[19] Lee, H., Kim, C. W., Jang, S. I., & Park, E. C. (2023). Association between having a family doctor and medical care utilisation: a cross-sectional study in Korea. *BMJ Open, 13*(2).

Pre-arrival Structures and Literacy

55. **The meta-theme of Knowledge under this portfolio focuses on preparing the public before they even enter the healthcare system.** A strong emphasis is placed on public education through targeted information campaigns in public spaces, hospitals, and schools, alongside advocacy on the principle of "Right Time, Right Place" to guide appropriate healthcare-seeking behaviour. Enhancing transparency and patient awareness is supported by actions such as printing the cost of medicines on slips and integrating Behavior Change Communication (BCC) campaigns. Digital tools also play a pivotal role in pre-arrival readiness. Enhancements to the ePIS usability and the creation of a web portal and symptom checker aim to empower patients with knowledge, helping them decide when and where to seek care. These interventions are complemented by broadcasting success stories to reinforce positive health-seeking behaviors.

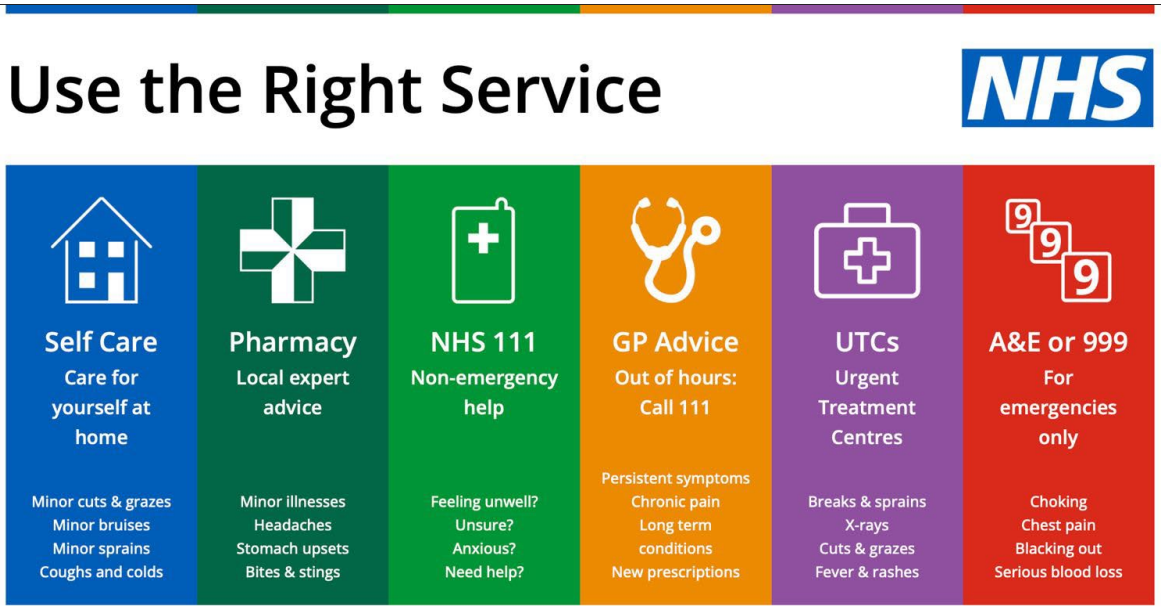


Fig 16. National Health Service UK public information campaign.

EXPERIMENTATION DESIGN

56. **To stress-test, refine, and prepare the most promising, easily implementable, and most necessary approaches from these portfolios, the Lab designed both a four-month "delivery unit" style implementation plan and a critical experimentation phase.** The experimentation process was intended to follow a structured "Rapid Cycle Testing" methodology designed to deliver iterative learning and quick adaptation, involving five core stages:

    a. **Assess and Understand** – Conducting situational analysis and stakeholder consultations to understand the problem and context.

    b. **Design** – Formulating hypotheses, defining measurable outcomes, and identifying minimum viable products (MVPs).

    c. **Implement and Observe** – Rolling out the experiments in cycles, with continuous observation and feedback collection.

    d. **Analyze and Learn** – Evaluating both quantitative and qualitative data to generate insights and identify trends.

    e. **Pause and Decide** – Reflecting on findings, making course corrections, and refining solutions for scale or next-phase testing.

57. This agile and iterative approach ensures experiments are grounded in real-world data while remaining adaptable to emerging insights. The Lab designed three experiments:

Experiment One: Increasing Uptake of Thromde Health Centres (THCs)

This experiment aims to reduce patient load at JDWNRH by encouraging patients to access nearby THCs for primary care.

Hypothesis: If the public is made aware of the services at THCs and these centres are adequately staffed and equipped, more patients will use them, easing pressure on the hospital.

Key Interventions: Development and dissemination of curated awareness materials (infographics, videos) via platforms like Facebook, TikTok, and WhatsApp. Collaboration with NMS and JDWNRH to ensure full service availability at THCs.

Metrics: Patient volume shift from JDWNRH to THCs, awareness engagement via QR codes, and patient feedback on access and quality.

Experiment Two: Strengthening Referral Pathways and Increasing Pre-booked Appointments[20]

This intervention targets inefficiencies in the patient referral system within JDWNRH.

Hypothesis: If referral slips are standardized and integrated with appointment systems, and if follow-ups are pre-booked, then congestion and confusion at reception and specialist chambers will reduce.

Key Interventions: Introduction of color-coded referral slips issued from General OPD (GOPD). Pre-booking systems for referrals and follow-ups using reception coordination or telephone booking. Integration with electronic patient information systems (ePIS).

Metrics: Increase in valid referrals, reduction in walk-ins, higher proportion of pre-booked appointments, and decreased crowding at registration desks.

Experiment Three: Optimizing Token Cap for Improved Utilization and Patient Flow in GOPD

This experiment tests different daily patient caps to find the most efficient balance between access and quality.

Hypothesis: If token caps are adjusted (e.g., 60 on weekdays, 50 on Saturdays), then patient flow can be optimized without overburdening staff or compromising service quality.

Key Interventions: Testing three scenarios with varying token caps. Use of social media and SMS blasts to inform the public.

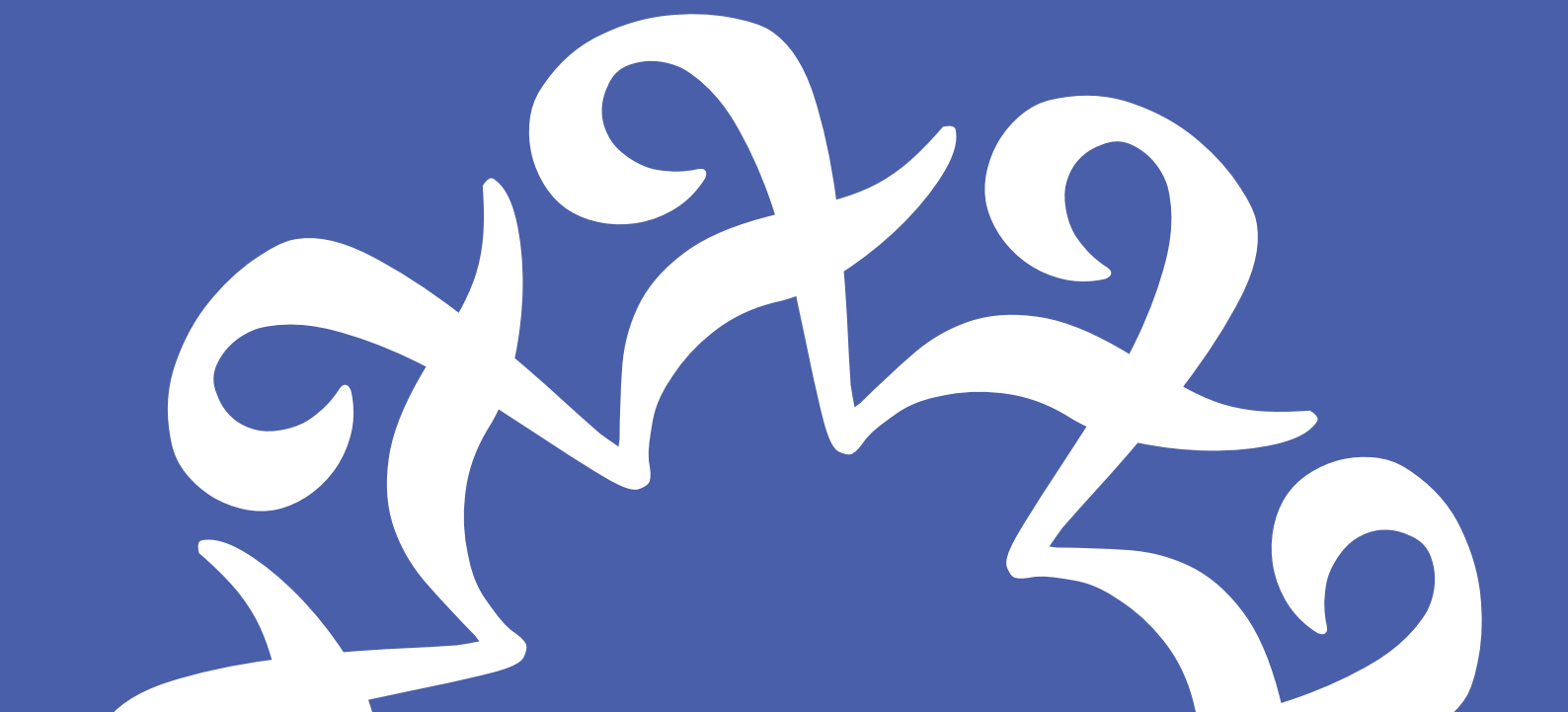
Metrics: Token utilization rate, number of patients seen, average wait times, patient rejection rates, and staff satisfaction.

57. Recognising the urgency and national significance of addressing overcrowding at Thimphu health facilities, and more effectively distributing patients throughout the day and across healthcare infrastructure, the Lab's recommended "experimentation" phase was paused by the Prime Minister in a request for immediate action. The Lab handed over full delivery ownership in summer 2025 to the health authorities.

[20] For example, a 2018 study by Monash University showed that implementing a system where patients are invited to schedule appointments at their convenience led to a significant reduction in failure-to-attend (FTA) rates, from 13–15% down to 7–8%. This approach also decreased cancellations and administrative workload, while boosting patient satisfaction.

Clay, F., Corey, J., Melder, A. (2018) 'Best practice for managing outpatient bookings: Evidence Review.' *Centre for Clinical Effectiveness,* Monash Health, Melbourne, Australia.

ANNEX: INTERVENTION DETAIL



Area of Issue: Physical Overcrowding at JDWNRH

Problem	Interventions	Details
Avoidable overcrowding in specific high-traffic areas due to navigation issues	1. Inclusive signages (universal symbols, visual, visible).	**Detail:** Trial directional, informational, and identificatory signage focusing on the highest traffic and busiest areas. Within that, focus on areas with the highest rate of first-time visitors. Remove out-of-date arrows that no longer relate to the current location of certain departments. Make legible through symbols, coordinated colour, and follow established global hospital wayfinding standards. Signage coupled with department placement for strengthened relationship and ease of access for patients. **Intended effect:** Reduce stress, disperse crowds more effectively, keep critical arteries free from crowds, and provide a filtering effect on blockages. Connecting a revised hospital layout to modern understandings of the routes patients take through the hospital, and what the strongest travel relationships are between departments (e.g., orthopaedic and X-Ray; cardiology and EEG testing) wayfinding will become more logical, stress will decrease, and crowds will dissipate.
	2. Directional signage at entrance gate and at general reception counter.	**Detail:** Direction pointing visual immediately after the main entrance showing location of different departments and services indicated by universal visual signages. **Intended effect:** From patients' first encounter with the physical hospital the direction they should take will be clear, and their movement more focused, less confusing, and more efficient. It is also part of the first impression patients have of JDWNRH. Simplicity and clarity here reduces the risk of stress and improves patient experience.
	3. Introduce a targeted information desk.	**Detail:** Install at main entrance (informational and visible), with trained guides who can advise patients where to go and identify vulnerable patients who may need support. Eventually, this desk might also contain information on high priority conditions and health related topics for improved literacy and self-management: NCDs, lung cancers, diet etc. **Intended effect:** improve hospital flow, reduce risk of people queuing in the wrong place, provide inclusive support to vulnerable groups, and improve awareness about targeted topics such as hospital layout and high priority conditions.
	4. Chaperones.	**Detail:** To have Chaperones (trained to spot and support high risk patients) to help and guide the elderly/vulnerable groups for general navigation around the hospital for positive hospital experience. **Intended effect:** reduce stress, disperse crowds more effectively, keep critical arteries free from crowds, and provide a smoother flow of patients to avoid blockages.
Provide physical relief to JDWNRH by greater use of proper referral pathways and primary care for relevant conditions requires primary care facilities to have physical capacity to cope with increased demand	5. Modelling THC's physical capacity based on expected demand in the locality (by population, illness profile, and demographic characteristics).	**Detail:** THC capacities should be responsive to the current and expected demand in each locality, taking note of demographic factors and their connection to disease and morbidity types. Locate future THCs in accordance with the predictive model (above). THCs need to be future proofed if they are to withstand, and carry the confidence, of increased usage, with the more successful use of referral pathways. This should consider future population trends and be matched to the *Thimphu Structure Plan (https://veplatformuatstg.virtual-engage.com/content/assets/Thimphu_Structure_Plan_summary_c6336ccac9.pdf)*. **Intended effect:** With the goal of increasing the use of health facilities at the primary level, these facilities must be able to cope with additional load; a strong model allows for both adaptive resource allocation AND a pragmatic assessment about whether increased usage is reasonable or requires deeper change: e.g., expand buildings, create new satellite clinics etc.
	6. Expanding use, and capacity, of existing THCs.	**Detail:** Provisioning physical space and design to be appropriate, where necessary, for a utilization rate that matches the rate expected for the services provided and the area they serve. This will also include car parks (e.g., different THCs have different capacities), and the amount of equipment, as well as human resources. **Intended effect:** in order for patients to receive high-quality primary health care, primary care facilities must be both accessible (facilities are physically present and accessible to populations in terms of geographic proximity, cost, and convenient hours of operation and waiting times) and acceptable (trusted and valued by users).
	7. Reassessing what services should be provided at THCs.	**Detail:** Measured, quality-checked coherence between services intended, services required, and services provided at THCs. **Intended effect:** Ensure alignment between community health needs and service delivery; identify and address service delivery gaps or mismatches; support data-driven planning and resource allocation.

Avoidable revisits to the hospital (and queuing) for lab test results	8. Communicate whether a revisit is necessary after a doctor's review of lab test results through ePIS or calls/texts.	**Detail:** Follow global practice (e.g., GP surgery visits in the UK) where patients are informed whether they need to return to the hospital for further consultation (after the Doctor has reviewed lab results). **Phase 1:** communicate through ePIS with a remark that says whether or not a revisit is required. **Phase 2:** communicate with a phone call to the patient along with ePIS with a remark that says whether or not a revisit is required. **Intended effect:** Reduce unnecessary re/visits to the hospital and keep critical arteries free from crowds.
	9. Booking appointments with a time slot for repeat/ regular patients.	**Detail:** Providing specific time slots for regular patients in order to avoid having to queue for revisit (e.g., patients being required to come to the hospital over at least two days). **Intended effect of wider expansion:** Connected to THC referral recommendations: *eventually shift chronic patient management to appointment-based outpatient care rather than walk-in; phase out walk-in entirely.*
No fool-proof system of triage to segregate cases - meaning that opportunity is lost to increase the number of necessary cases receiving treatment	10. Greater gatekeeping through triage at the hospital, with the aim to transition away from out-patient triage at JDWNRH by using systemic triage earlier on in the healthcare process.	**Detail:** Clinically informed triage (e.g., doctor/nurse redeployed to reduce number of patients requiring treatment in chamber). Clinical team to triage patients based on rapid assessment of the severity or non-severity of their ailments/symptoms. Possible high impact trial areas could focus on lower risk and upper respiratory infections. This assessment can be PHYSICAL (for those in the queue) or VIRTUAL (for those who call before travelling). GOPD doctors should practice pre-booked appointments for those patients they refer. GOPD to transition over time to either (or both) district hospital format and THC. **Intended effect:** reduce difficult-to-manage physical overcrowding at the hospital but only as an emergency measure. Triage should happen systemically via the THCs.
Crowding and long-waits at pharmacy for medicines	11. Integrate stock management of meds with doctor's dashboard (ePIS).	**Note:** The specific experiences within the pharmacy department were not examined in detail. Further in-depth research is necessary; this also applies to the Emergency Department (out of scope). **Intended effect:** reduce crowding and long waits at the pharmacy by enabling doctors to prescribe only in-stock medications and suggest alternatives in real time. This minimizes prescription fulfillment delays, reduces unnecessary back-and-forth between patients and pharmacists.*Connected to prescription printing behavioural intervention.*
Avoidable visits of elderly population for palliative care	12. Dedicated Hospice or care facility for the elderly or increasing capacity for home-based elderly care with dedicated medical staff.	**Detail:** An increasing number of elderly visit the hospital for palliative care and are admitted to the hospital, increasing the burden on the limited in-patient ward beds. Not examined in detail but recommendations available, e.g.: elderly and palliative care, repeat visits in late-life care; and connection to preventative / literacy initiatives. There is a need to conduct an assessment of whether home-visit services can be expanded.[21] **Suggested intervention to be combined with:** *a new, voluntary contribution for Bhutanese nationals overseas who intend to return to Bhutan in the latter stages of their lives to pre-emptively contribute to their future care.* This could help support growth in this area. There is a connection here to recommendations in the 10x Economic Vision proposals on elderly care. **Intended effect:** to reduce stress on the limited beds in the wards, enable quicker admission of patients that require admission at the hospital.

[21] Wangmo, T., Tshering, D., Choden, D., Tshering, D., Dendup, T., Yangchen, P., Pelden, D., Tshering, T. and Wangchuk, D., 2024. 'Palliative care services in Bhutan: Current progress and future needs,' *Journal of Palliative Care,* [online] Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11866669/ last accessed: May 2025.

Token capping system for the 3 departments (GOPD, Medical and dental) restricts the number of patients seen and partly causes behavioural responses that lead to overcrowding and long waiting times (e.g., arrival at 06:30 AM).	13. Increasing capping to 60 tokens per day (in GOPD).	**Detail:** Overcrowding has only exacerbated over the years, the capping system hasn't resulted in decreasing the crowd at JDWNRH. Initial analysis showed that THCs cater to more than 50-60 patients in a day and there is room for increasing utilization rate for the GOPD beyond the 50 cap that is currently fixed. **Intended Effect:** make room for more patients; reducing the number of patients queuing only to be turned back. Again, only a temporary measure while the system transitions away from GOPD.
	14. To increase the doctors' roster to three months for information to patients.	**Detail:** To provide patients greater insights into the schedule[22] of specialist doctors the information on doctors' appointment roster should be increased to three months (ideally) from the current practice of 1 week. **Intended effect:** Transparency and predictability for repeat patients will be improved, allowing them to better plan their visits and reduce uncertainty about doctor availability and reducing unnecessary waits at hospital.
	15. Use of auto-answer phone messages for calls to clinics once tokens are depleted or a clinic has closed.	**Detail:** Clearer communication to patients about opening hours and the appointment process should help encourage behaviour change over time. Auto-answers that communicate that the department/hospital is not taking in calls/appointments at that particular time and that they can come to emergency if their case requires emergency care. **Intended effect:** To provide real-time information to patients on the status of appointments and reduce walk-ins over time.
	16. Use live satisfaction monitoring ("Five Smileys").	**Detail:** Using real-time feedback to help understand live pain points and enable immediate responses. Data from these feedback points could be used for evaluation of individual performance which could merit recognition or action for improvement. **Intended effect:** enhance visitor experiences, enabling hospitals to identify and address service gaps proactively.
	17. Explicit rules about the use of personal connections to secure a token or appointment within core clinic hours (9AM-3PM).	**Detail:** Non-token appointments or appointments secured via personal connections reduce the likelihood of a queuing patient being successful in their attempt to be seen. *Related to: trust in system, hierarchy / power dynamics, overall capacity for clinical treatment and requires increase in bookable appointments.* **Intended effect:** encourage greater compliance with the system's rules, reinforcing its processes and protecting fairness.
	18. Mandatory frontline workforce training modules for better patient experience.	**Details**: In partnership with the Public Service Delivery Division, Office of the Prime Minister and Royal Civil Service College, design and deliver curated training programmes such as empathy training, etc. **Intended effect**: Enhance the overall patient experience by equipping frontline staff with essential skills in communication, empathy, and efficiency. By standardizing service protocols, improving responsiveness to patient needs, and fostering a welcoming environment, clearer information dissemination, and greater patient satisfaction.
	19. Carrying capacity assessment at JDWNRH departments.	**Details:** It appears that demand within JDWNRH can vary by season and between departments. An adaptive assessment based on data and forecast of demand may allow for greater carry capacity. Assessing capacity in relation to illness type, and whether or not that illness needs to be seen at the national referral level will also reduce overburden. **Intended effect:** It will ensure that staffing, infrastructure, and medical resources are aligned with demand and improve patient flow management.

[22] Lewis, A., Taylor, N., Carney, P., and Harding, K. (2019) 'Specific Timely Appointments for Triage (STAT) to reduce wait times in medical outpatient clinics: protocol of a pre-post study with process evaluation,' *BMC Health Services*, 19(1): 831. https://pmc.ncbi.nlm.nih.gov/articles/PMC6852965/ last accessed: May 2025.

Area of Issue: Strengthening Referral Pathways

Problem	Interventions	Details
Inconsistent human resource and equipment capacity across THC/PHCs in Thimphu, this both restricts the ability for future demand increases, and may disincentive current and future service availability.	20. Ensure adequate capacity through responsive HR apportionment in healthcare facilities, within general guidelines, rather than fixed, centrally derived staffing decisions.	**Detail:** Many healthcare facilities are experiencing gaps in staff continuity that disrupt service delivery. To address this, staffing decisions should be informed by real-time, data-driven insights rather than static, centrally imposed norms. By leveraging an integrated data dashboard—which reflects live indicators such as patient inflow, bed occupancy, and OPD queues—facilities can ensure adequate and flexible deployment of human resources. This approach promotes responsive staffing, enabling healthcare teams to dynamically adjust to actual service demand and maintain continuity of care. **Intended effect:** Optimize HR Deployment: Align staffing levels with actual service pressure (e.g., more doctors in overburdened THCs, OPDs). Enable Dynamic Response: Quickly reallocate or scale up staff during peak periods or months, or in overburdened departments.
	21. Non-clinical management. Use of facility managers (either within a single healthcare facility, or across several to lead non-clinical resources and administrative duties), relieving pressure.	**Detail:** Remove some of the burden of non-clinical responsibilities from clinical experts and empower non-clinical facility managers to ensure "right place, right time" delivery: workforce planning, equipment allocation, and maintenance. Clinical staff in many healthcare settings are often overburdened with administrative and operational responsibilities, diverting their focus from direct patient care and overseeing clinical excellence. This intervention proposes the deployment of dedicated non-clinical facility managers—either embedded within individual facilities or shared across multiple—to oversee administrative and logistical tasks. In contexts where a standalone manager is not feasible, healthcare providers should be supported with basic training and tools in resource planning and management, ensuring non-clinical duties are efficiently handled without compromising clinical quality. **Intended effect:** The core idea is to relieve clinical staff from non-clinical duties, thereby improving productivity, staff morale, and overall system efficiency, while professionalizing the operational side of service delivery.
	22. Introduce clinical supervisory roles, where a clinical lead is responsible for a series of clinics in a given geographic area.	**Detail:** While clinical leadership roles are common within hospitals, primary healthcare settings often lack structured clinical oversight. This intervention aims to replicate the model of clinical leads—designated senior medical professionals—within clusters of PHCs or Basic Health Units (BHUs) across a defined geographic area. These clinical leads would be responsible for upholding clinical standards, monitoring performance, resource allocation and workforce planning. To enhance system coordination, each clinical lead would work in tandem with a non-clinical supervisor responsible for workforce deployment, facility management, and logistical support in the same area—ensuring both clinical quality and operational readiness go hand-in-hand. **Intended effect:** Improve quality of care in primary-level facilities through consistent clinical oversight and mentorship; develop community trust in local facilities (THC, PHC) by improving clinical consistency and patient outcomes; create a link between policy and practice, ensuring standards reach the frontlines effectively; train, mentor, and empower junior doctors to carry the confidence of the localities they serve.
	23. Targeted services through mobile clinics driven by data.	**Detail:** Mobile clinics offer a flexible and cost-effective approach to expanding healthcare access, particularly in underserved or hard-to-reach areas. However, their effectiveness depends on targeting the right services to the right populations. This intervention proposes that the deployment of mobile clinics should be data-driven, prioritizing areas or communities with: • High disease incidence • Frequent but preventable health service use • Barriers to timely care-seeking Knowing how best to target this type of intervention will begin by collecting and analyzing data on common, high-burden, yet preventable or delayable illnesses—such as skin infections, early-stage NCDs, maternal health issues, or seasonal illnesses (e.g., respiratory infections). Mobile services can then be tailored to deliver specific services (e.g. NCD screening, antenatal care, health education) in identified hot spots, rather than offering general coverage everywhere. **Intended effect**: Reduce avoidable visits to central hospitals for basic or preventable conditions; enable proactive, preventive care through outreach (e.g., NCD checks, maternal follow-ups).

	24. Carrying capacity assessment of THCs.	**Detail:** To ensure that healthcare services are both efficient and appropriately utilized, it is essential to understand whether primary health facilities (e.g., THCs, PHCs) are handling the right types of cases — and whether they have the capacity to do so effectively. This intervention involves conducting a systematic carrying capacity assessment, by collecting and analyzing data on: • The types and volume of illnesses presenting at each THC or PHC • Whether these cases fall within the intended scope of care for primary health facilities • Whether the available infrastructure, human resources, and equipment are sufficient to meet that demand **Intended effect:** ensure THCs can handle greater service utilisation, and enable greater long-term planning based on service usage change and population shifts.
	25. Twinning system.	**Detail:** Formalize "twinning systems" for human resources, where specific roles or institutions are paired to share workload, ensure continuity, prevent service gaps, and make healthcare delivery more predictable and efficient. **Intended effect:** Continuity of care: reduces disruptions in service delivery due to absences, leave, or high patient volume; reduced burnout and shared workload: balances human resource demands and prevents staff fatigue, especially in overburdened facilities; predictability & resilience: creates a more stable system by embedding backup capacity and improving planning and scheduling.
Inconsistently utilized equipment across primary healthcare facilities	26. and 27. Improve the relationship between equipment availability and demand across primary care, ensuring a data-responsive approach to meet demand and expectation and achieve high utilization.	**Detail:** Analyze historical patient load, seasonal disease trends, and equipment usage patterns to forecast demand. **Intended effect:** Improved Resource Allocation: enables better planning for staffing, equipment, and facility usage, minimizing overburdened services and underutilized assets. Reduced wait times: anticipating demand helps avoid bottlenecks during high-volume periods, leading to smoother patient flow. **Detail:** Develop a resource-sharing mechanism where underutilized equipment can be reassigned between facilities based on real-time demand. **Intended effect:** Increased equipment utilization: Ensures that costly medical assets are not sitting idle, especially in lower-demand facilities.
	28. Expatriate Doctors (particularly specialists in overburdened or underrepresented areas).	Detail: Facilitate international doctors to volunteer or find employment in critical specialized areas - encourage learning exchange and mentorship for junior doctors and medical professionals. Intended effect: to fill in the gaps of inadequate specialists with specialists from international volunteers such as Greyhair Volunteers, UN Volunteers etc.

A lack of systemic triage and healthcare gatekeeping causes major patient flow issues, where patients bypass primary care and often seek treatment at the national referral.	29. Introduce clear guidelines (e.g., SOPs like for diabetes care).	**Detail:** Learn from positive experience with MCH uptake and usage at primary level; encourage similar SOPs for other medical types. **Intended effect:** with clear guidelines for clinical care and referral pathways for different departments designed in a collaborative manner, it will provide clarity to the THCs and PHCs in terms of identifying patients for referral. One clear case in point is the guidelines for NCD screening.
	30. Mandatory referral slips and referral booking at primary level.	**Detail:** Create standardized referral slip templates (paper and digital) that include key patient details, diagnosis, urgency level, and referring physician's details. **Intended effect:** putting in place the mandatory referral slips will act as a gatekeeping mechanism to filter out non-serious cases from tertiary level care, with more time and quality care being provided to critical care. This is expected to also help streamline processes, hence ensuring specialists time is diverted towards important cases.
	31. "Family doctor"[23] model for THC (go-to clinic).	**Details:** Identification/placement of a 'go-to' clinic for the members of the community in times of sickness closer to home. The doctor at the PHC/THC works as the first point of contact for people within the community or the entry point into the healthcare system. However, to effectively implement this, the PHC/THCs and District hospitals may require a greater number of doctors catering to the population. **Intended effect:** improve accessibility to timely and continuous care; reduce pressure on tertiary hospitals by managing cases effectively at the primary level; promote early diagnosis and treatment through a trusted local healthcare provider.
	32. Firms rule that patients must update change of addresses in their medical app (EPIS) and / or register with the local clinic for access to primary healthcare services.	**Details:** ePIS to have a user profile where personal details can be kept up-to-date: current address and information required by the health system. Make it mandatory and a prerequisite for access to primary healthcare. For the digitally illiterate, receptionists and health workers to begin recording in the electronic patient record and to ask whether there have been any address changes since the last visit, where appropriate. **Intended effect:** this intervention intends to support better decision making based on user profiles such as their location and illness type to provide targeted interventions. For example, localities with higher cases of NCDs could have curated, targeted programmes.
	33. Video tele-consultation as a triage mechanism to gatekeep non-serious cases and/or for quick prescription reissuance or other more common primary illnesses.	**Details:** Introduce telemedicine services in select PHCs / THCs to pilot test video-consultation. **Intended effect:** reduce the number of self-referral cases to JDWNRH for minor symptoms or non-serious cases. It is also a mechanism through which to ensure greater national access to healthcare, especially in remote areas.
Areas of care beyond Basic Primary and non-essential healthcare leading to crowding at JDWNRH	34. Adopt a negative list for private participation.	**Detail:** Current guidelines on private participation are vague and do not provide clarity on allowable services. It encourages a proposal basis, but this may have discouraging effects. The government should clearly outline "negative lists" where private actors cannot operate. **Intended effect:** Greater policy clarity and confidence; encourages meaningful private participation by removing ambiguity and setting clear expectations.

[23] Fu, P., Wang, Y., Zhao, D., Yang, S., Zhou, C. (2024) 'Does contracting family doctor promote primary healthcare utilization among older adults? - evidence from a difference-in-differences analysis,' BMC Geriatrics, 24(749) https://bmcgeriatr.biomedcentral.com/articles/10.1186/s12877-024-05336-z (last accessed: 10 May 2025).

Area of Issue: Health Literacy and Pre-Arrival

Problem	Interventions	Details
Symptom Management	35.Web portal on health care. (e.g., NHS UK symptom checker or e.g., NHS 111 - a non-emergency helpline and website) 36. Communication guidelines at healthcare touchpoints.	**Detail:** Create an inclusive portal for users to access general health information (symptoms, first point of contacts, etc.). **Intended effect:** Reduce pressure on Tertiary Care: Encourages appropriate use of local health facilities by clarifying when and where to seek care.
		Detail: Doctors and nurses can also educate patients after consultation by sharing brochures/flyers that are easy to use on triage, appointment system, and specific high-target conditions, for example. **Intended effect:** Improved Health Literacy: empowers users with basic knowledge about symptoms and treatment options.
Expectations of healthcare service	37. Print cost of medicine on pharmacy tickets. 38. Text message prompts (incl. the cost of missed appointments). 39. Targeted posters in healthcare settings or other public spaces.	**Detail:** To build narrative and change perspectives of people on the free medical services provided. **Intended effect:** changing behavior of the general public towards availing health services: "Long" "emergency" and "symptom" are subjectively and varyingly understood in the absence of information campaigns that help inform, reassure, and de-mythologise common healthcare questions. (e.g., posters: focus on managing patient expectations about waiting times and service. Focus on: emergency departments; as well as places for positive narratives: e.g., Bhutan's elective surgery waiting time compared to countries in the wider region e.g., Australia, where patients in Bhutan can be seen faster for things like knee surgery).
Awareness of service delivery (Right place. Right time)	40. Advocacy on THCs and services (e.g., targeted text message awareness campaign).	**Detail:** National Advocacy campaign on THCs - focusing on services and other important information like location - through social media, text messages, influencers, etc. Creative information dissemination on pathways to contact hospitals for appointments. Strategic advocacy approaches may also include the use of local leaders, monastic community, large religious gatherings etc. for awareness and information dissemination. Focus on a small number of evidenced-based messages: e.g., Right Place, Right Time + looking at a particular demographic group or illness type / profile. **Intended effect:** can vary, depending on the advocacy aim, but - broadly - this is about targeted, national, consciousness raising and awareness.
Assumption of general population of inadequacy of services at THCs or PHCs	41. *User.* Broadcast positive experiences of patients visiting THCs on various media channels.	**Detail:** Once capacity has been strengthened at the primary level, we will need to encourage patients to avail services at this level. Example: Gather stories from the diaspora to share experiences and locals for positive experiences. **Intended effect:** build confidence and trust in the system to increase the rate of compliance.
Confidence and capacity building may be required for primary practitioners to be able to retain and care for patients at the primary level. *More data required*	42. *Practitioner.* Ensure adequate support to young, recent graduate doctors in primary settings such that they have the confidence to retain treatment at the primary level and reduce referral rates where not necessary.	**Detail:** Are doctors at the primary level supported adequately, particularly in rural areas, to treat and retain long-term primary cases (e.g., certain NCD management), and to receive patients who have been discharged from care at the referral level? Literature evidence is inconclusive. Further examination required. Connected to "clinical supervisory" support. **Intended effect:** strengthen the primary level to function as it is meant to according to the national referral protocols.

Enabling Factors (pre-arrival)

Problem	Interventions	Details
Limited access to, and utility of, ePIS for users	43. User focused features integration such as profile updates including present location.	**Details:** Improve user friendliness: more user features in the ePIS app (e.g., updating profile information, address, and other critical identifiers). **Intended effect**: Patients will no longer have to manually update information across different hospitals. Supports data-driven policy-making, ensuring the areas receive necessary medical staff, supplies, and mobile health services.
Limited access of ePIS for receptionists	44. Twinning system integration.	**Details:** The main purpose of twinning is the transfer of relevant operational knowledge, including managerial, financial, and technical skills and systems, between doctors, nurses and administrative staff, as a critical facilitator or form of adaptive resource management. **Intended effect:** enhance hospital administration to improve service efficiency, establish a self-sufficient healthcare system with trained existing professionals; enhance hospital infrastructure and digital health systems.