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Clearing and Holding: A 26-Month Interrupted Time-Series Evaluation of CAMHS Waiting-List Redesign in Qatar

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Abstract

Background

Clearing a waiting list is not the same as keeping it under control. Evidence on the durability of child and adolescent mental health service (CAMHS) waiting-list interventions under continuing or rising demand is limited. We evaluated an initial waiting-list reduction and 20 months of subsequent maintenance.

Methods

We conducted an interrupted time-series service evaluation at a pediatric tertiary center in Qatar using 800 consecutive daily census observations from 10 June 2024 to 18 August 2026, supplemented by referral-order, follow-up activity, and annual access data. In December 2024, parallel queues were consolidated, triage accountability was centralized, historical referrals were revalidated, and clinical time was concentrated on first assessments. Recurring protected assessment blocks were later intensified. Segmented regression used Newey-West standard errors.

Results

The redesign was associated with a modeled level change of -381.0 patients (95% confidence interval: -412.8 to -349.2); at the change point, the counterfactual pre-intervention and fitted post-intervention values were 510.5 and 129.5, respectively. The census reached a trough of 31 in August 2025. Mean monthly unique referral orders increased from 215 during June-August 2025 to 347 during September-November 2025 (61%), coinciding with a rebound. Across 19 complete months, referral volume and mean census were not significantly correlated ($r = 0.24$, $p = 0.33$). The mean census during September 2025-March 2026 was 126.3, 71% below the pre-intervention mean of 434.5, and returned to 115.1 during recovery. The 191 unique patients completing face-to-face assessment were numerically equivalent to 52.6% of the December calendar-month net census reduction; dispositions accounting for the remainder were not recorded.

Conclusions

The redesign produced a large, sustained reduction in the recorded waiting-list census without additional posts. Clearance required a concentrated backlog intervention, whereas maintenance required continuing monitoring and flexible protection of assessment capacity. Outcomes for patients removed through non-assessment pathways remain unknown.

Background

Long waits for child and adolescent mental health services (CAMHS) reflect an increasing imbalance between demand and specialist capacity. Globally, approximately one in seven adolescents experiences a mental health condition, yet timely care remains inaccessible to many families [1]. In England, more than one million children had an active referral in 2024–2025, including over 60,000 who had waited longer than two years [2]. Where access has improved, workforce expansion has often contributed: National Health Service (NHS) Scotland achieved its 18-week standard following a decade in which CAMHS staffing increased by 53% [3, 4].

Many services cannot expand their workforce. Across 42 low- and middle-income countries, the median one-year treated prevalence among children was 159 per 100,000, compared with 664 per 100,000 among adults [5]. In systems with established referral pathways, unmet demand becomes visible as a waiting list; elsewhere, it may appear as low treatment coverage, restrictive acceptance thresholds, or delayed entry into care [6, 7, 8]. The practical question is therefore what services can achieve by reorganizing existing capacity.

The evidence remains limited. A systematic review identified only 18 waiting-list interventions for children and young people, most of which supported families during the wait rather than reducing the queue [9]. A broader scoping review identified 119 reports, largely from the United Kingdom and Canada and commonly using uncontrolled before-and-after designs [10]. International reviews have also drawn predominantly on evidence from the Global North [11]. More importantly, evaluations commonly emphasize initial improvement without establishing whether it was sustained.

Clearing a backlog and maintaining control of the subsequent queue are distinct operational problems. Clearance is a time-limited intervention against an existing stock of patients. Maintenance requires ongoing alignment between referral inflow and assessment capacity, along with early corrective action when that balance shifts [12]. An intervention may therefore appear successful at six months yet fail when demand rises or the initial effort ends.

We evaluated a bundled waiting-list redesign at Qatar's pediatric tertiary center using 800 consecutive daily observations and 20 months of post-intervention follow-up. We organized its components as the CLEAR Access framework: **C**onsolidate parallel queues, **L**ead through accountable triage, **E**valuate the continuing need for historical referrals, **A**ccelerate face-to-face first assessments, and **R**eserve recurring assessment capacity. The primary objective was to estimate the change in waiting-list census associated with the redesign. Secondary objectives were to examine durability, the subsequent rebound and recovery, referral demand, access times, triage performance, and displaced follow-up activity. The evaluation therefore addresses not only whether the backlog was cleared, but whether the service could keep it under control.

Methods

Setting and design

The study was conducted within CAMHS at a pediatric tertiary referral center in Qatar. The division provides outpatient care and psychiatric consultation to inpatient and emergency services for patients aged 5–18 years. During the study, outpatient care was delivered by five consultant child and adolescent psychiatrists and four psychologists. An internal audit covering January 2023 to February 2024 estimated psychiatry activity at 116% of modeled capacity and psychology activity at 90%, indicating limited scope to absorb additional demand through routine clinical activity.

This retrospective, single-center service evaluation used an interrupted time-series design and was reported in accordance with SQUIRE 2.0 [13]. The intervention was introduced as routine service improvement. Under the hospital's institutional project-classification framework, the work met the criteria for service evaluation rather than research; formal institutional review board approval was therefore not required. The analysis used de-identified routinely collected operational data. Post-clearance drift and recovery were summarized using exploratory ordinary least-squares regressions fitted to all daily census observations within two windows identified after inspection of the series: 8 August 2025-12 January 2026 and 12 January-18 August 2026. These slopes estimate the average fitted trend within each window and do not represent arithmetic change between the observed endpoint values. Because the window boundaries were selected from observed extreme values, no confidence intervals or hypothesis tests were reported, and the slopes were not interpreted as intervention effects.

Intervention

For reporting and replication, we describe the intervention as the CLEAR Access Model: **C**onsolidate parallel queues, **L**ead through accountable triage, **E**valuate the continuing need for historical referrals, **A**ccelerate face-to-face first assessments, and **R**eserve recurring assessment capacity. The intervention comprised separate clearance and maintenance phases.

Clearance phase (December 2024). Preparatory telephone contact began on 1 December 2024, followed by the formal intensive drive from 4 December. Separate psychiatry and psychology queues were consolidated into a single CAMHS queue, and one consultant psychiatrist assumed responsibility for triage, creating a single accountable entry point with consistently applied acceptance criteria. Protected administrative time was released, additional first-assessment capacity was created, and appointment duration was shortened from 90 to 60 minutes. Follow-up clinics continued during the drive.

The team attempted to contact every family on the waiting list to determine whether the referral still represented a current clinical need and to establish the appropriate pathway. Telephone contact was used to revalidate and triage referrals, not as a substitute for face-to-face specialist assessment. Patients continuing to require tertiary care were allocated to psychiatry or psychology and offered face-to-face first-assessment appointments. These appointments were distributed across subsequent weeks rather than confined to the drive month. Patients who no longer required care were removed from the waiting list, while those whose needs fell below the tertiary threshold were redirected to community services. The numbers reaching each disposition were not recorded separately. Existing hospital policy

permitted removal after three unsuccessful contact attempts on separate days. Patients who did not attend an appointment were offered one further appointment and discharged after a second non-attendance.

Maintenance phase (2025 onward). The unified triage pathway and consultant oversight were retained. Psychiatry-first routing became standard practice: each newly accepted patient received an initial psychiatric assessment and was referred to psychology when clinically indicated. Flexible weekly first-assessment capacity, including appointments released through cancellations, was used when the waiting-list census began to increase. A one-week backlog review was repeated approximately every six months, beginning in May 2025. In response to the later rebound, protected assessment blocks were intensified, with two faculty members rotating through one-week blocks devoted to new assessments.

No additional posts, technology, or recurrent funding were introduced. The intervention instead redistributed existing staff time, creating opportunity costs through displaced administrative and clinical activity.

Outcomes and data

The primary outcome was the daily census of patients awaiting a first CAMHS psychiatry or psychology appointment. A frozen full-history export provided 800 consecutive daily observations from 10 June 2024 to 18 August 2026, with no missing dates or duplicate observations. Because the live dashboard retrospectively recalculates historical values as records change, all analyses used this single dated export.

New referral demand was measured using patient-level referral-order records from January 2025 to August 2026. The extract contained 5,293 rows; removal of 60 repeated scheduling-event identifiers left 5,233 unique referral orders, which were aggregated by order month. Completed follow-up activity during the intensive drive was assessed using dashboard aggregates for 4–31 December 2024 and the immediately preceding matched 28-day period, 6 November-3 December 2024. Secondary operational outcomes included completed first assessments during the drive and changes in referral volume during follow-up.

Additional access outcomes comprised annual dashboard summaries of referral-to-appointment, referral-to-booking and booking-to-appointment intervals, triage-priority distribution, and compliance with priority standards. Monthly dashboard views were reviewed to determine whether the annual summaries were consistent with the underlying monthly pattern. A separate interrupted time-series analysis of access intervals was not undertaken because the December 2024 transition left only five complete pre-intervention months. Access outcomes were therefore reported descriptively, with their available record counts.

Clinical symptoms, patient-level safety outcomes, patient experience, re-referral, and outcomes following transfer to community services were unavailable. The evaluation therefore addresses access and service

flow rather than treatment effectiveness.

Statistical analysis

The primary interrupted time-series model estimated the change in waiting-list census associated with the formal intervention date. Segmented regression included an intercept, continuous time, an indicator for 4 December 2024, and time elapsed after that date [14]. The intervention coefficient represented the immediate level change, while the sum of the pre-intervention slope and slope-change coefficient represented the post-intervention trend. Newey-West heteroskedasticity- and autocorrelation-consistent standard errors were calculated using a Bartlett kernel with a maximum lag of six days [15].

Sensitivity analyses varied the Newey-West bandwidth and intervention date and fitted models incorporating day-of-week terms and feasible generalized least squares with AR(1) errors. Complete weekly means lying wholly within one study phase were examined using descriptive individuals-and-moving-range charts; the four-week intensive drive was excluded as a transition [16].

The upward drift and subsequent correction during maintenance were examined post hoc using ordinary least-squares regression of daily census on time, with periods bounded by the observed trough and peak. Because these boundaries were selected after inspection of the data, the resulting slopes are reported as descriptive estimates without inferential confidence intervals or hypothesis tests. Referral volumes were summarized descriptively by month and study phase. Pearson correlation was used as an exploratory analysis of the association between monthly referral volume and mean monthly census; it was not interpreted as evidence of causation.

Analyses were conducted in Python using NumPy, pandas and SciPy. Ordinary least-squares estimation and the Newey-West covariance matrix were programmed directly using Bartlett weights, and the primary results were independently verified using statsmodels version 0.14.6.

Use of generative AI

Generative AI was used to assist with language editing, code review, reference and citation formatting, and presentation of statistical results. The authors reviewed and verified all analyses, numerical results, interpretations, references, citations, and final text and take full responsibility for the content.

Results

Clearance

The census fell from 458 patients on 1 December 2024, when preparatory telephone contact began, to 98 on 13 December, a reduction of 360 patients over 12 days (Fig. 1). It was 336 on the formal intervention date of 4 December. Segmented regression estimated an intervention-associated level change of -381.0 patients (95% confidence interval − 412.8 to -349.2). At the 4 December change point,

the counterfactual pre-intervention fitted value was 510.5 patients and the fitted post-intervention value was 129.5, producing the modeled difference of -381.0. The observed census on that date was 336. The coefficient therefore represents the difference between fitted trajectories when the rapid multi-day transition is compressed into a step at the specified change point, rather than the removal of 381 patients on a single day. The estimate remained large when Newey-West lags were varied from 1 to 60 days and when intervention dates were examined between 1 and 13 December. The model explained 91.9% of the variance.

The estimated post-intervention trend was − 0.029 patients per day (95% CI -0.066 to 0.008), consistent with an approximately stable census after the initial reduction. The baseline slope was not interpreted because its direction was not stable in the AR(1) sensitivity analysis.

During December 2024, the recorded census fell from 458 patients on 1 December, when preparatory telephone contact began, to 95 on 31 December, a net reduction of 363. During the drive, 191 unique backlog patients completed 193 face-to-face assessments. Completed assessments were therefore numerically equivalent to 52.6% of the December calendar-month net reduction. At least 172 patients, or 47.4% of the net reduction, left the recorded census through other pathways. Because contemporaneous referral inflow and individual dispositions were unavailable, these pathways could not be quantified or classified, and the gross number of non-assessment exits may have been higher.

Follow-up care continued during the intensive drive, although at a reduced volume. During the formal drive from 4–31 December, 416 follow-up visits were completed, compared with 526 during the preceding matched 28-day period from 6 November to 3 December-a reduction of 20.9% (Fig. 2). The intervention therefore displaced some routine clinical activity but did not suspend follow-up care.

What happened next

The census remained substantially below baseline across the consolidation, demand-surge, and recovery phases (Table 1; Fig. 3). It reached an observed trough of 31 patients on 8 August 2025, while the descriptive mean for January-August 2025 was 115.0 patients.

The daily census reached an observed trough of 31 patients on 8 August 2025 and an observed peak of 214 on 12 January 2026. These were single-day extreme observations rather than endpoints of the fitted trend. An exploratory ordinary least-squares regression fitted to all 158 daily observations within this post hoc window estimated an average upward trend of 0.305 patients per day. The corresponding fitted values increased from 90.9 to 138.7; the slope therefore should not be interpreted as the arithmetic change from 31 to 214. During the broader September 2025-March 2026 demand-surge phase, the mean census was 126.3 patients, 70.9% below the pre-intervention baseline.

Referral volume subsequently declined to a mean of 265 unique orders per month during the four complete months from April through July 2026; August was excluded because data extended only through 18 August (Table 1). During the same period, protected assessment blocks were intensified.

From 12 January to the end of follow-up on 18 August 2026, when the observed census was 80, an exploratory regression fitted to all 219 daily observations estimated an average downward trend of 0.253 patients per day. The corresponding fitted values declined from 150.4 to 95.1. The mean census during April-August 2026 was 115.1, almost identical to the January-August 2025 mean of 115.0, indicating recovery to the earlier post-clearance level.

The trough, peak, and intervening slopes were identified after inspection of the data and are therefore descriptive rather than prespecified intervention effects. Because referral volume normalized while assessment capacity was intensified, the study cannot determine their separate contributions to the recovery.

What held and what did not

The intensive drive temporarily reduced routine follow-up activity rather than creating additional capacity. Completed follow-up visits fell from 526 in the preceding 28 days to 416 during the drive, a 20.9% reduction (Fig. 2a). Follow-up care continued, but this reduction reflects an operational trade-off during backlog clearance.

Before the redesign, triage priority provided little practical discrimination. Of 1,008 scheduled new appointments in 2024, 642 (63.7%) were assigned P2, indicating review within 14 days, while the 28-day category was used only three times. Only 8.1% of P2 appointments were completed within target; consequently, 590 scheduled P2 appointments exceeded the stated timeframe.

After triage was consolidated under a single consultant psychiatrist, the P2 share fell to 4% of scheduled new appointments in 2025 and 3% in 2026. Compliance with the P2 standard improved from 8.1% in 2024 to 16.7% in 2025 and 68.8% in 2026 (Fig. 2b; Table 2). These annual dashboard measures suggest that the revised priority distribution persisted despite subsequent demand pressure, although they do not permit month-by-month assessment of performance during the surge.

Access to first appointment

Median routine referral-to-appointment time fell from 70 days in 2024 to 18 days in 2025 and was 25 days from January to August 2026; corresponding urgent medians were 6, 5, and 2 days (Fig. 4a; Table 2). Among records with available routine-interval data, the proportion exceeding 60 days fell from 65% (223/343) in 2024 to 10% (4/41) in 2025 and to 0% (0/10) in 2026.

Median referral-to-booking time fell from 14 days in 2024 to 1 day in 2025 and remained at 1 day in 2026 (Fig. 4b). In 2024, this administrative interval alone equaled the full 14-day routine target; its subsequent reduction was sustained through the end of follow-up. Although the 2026 year-to-date routine median was 7 days longer than the 2025 median, it remained 45 days, or 64%, below the pre-intervention value. Access therefore remained substantially improved during the period of increased demand.

Table 1
Waiting-list census and referral demand by study phase

Phase	Dates	Days	Mean daily census	New referrals/month
Baseline	10 Jun-3 Dec 2024	177	434.5	—
Intensive drive	4–31 Dec 2024	28	150.5	—
Consolidation	1 Jan-31 Aug 2025	243	115.0	232.3
Demand surge	1 Sep 2025-31 Mar 2026	212	126.3	304.4
Recovery	1 Apr-18 Aug 2026	140	115.1	265.0

Referral orders were deduplicated using the scheduling-event identifier. The recovery-phase referral average uses the four complete months from April through July 2026; August was excluded because data extended only through 18 August. The dash indicates that comparable referral-order data were unavailable.

Table 2
Access and triage measures by calendar year

Measure	2024	2025	2026
Routine referral-to-appointment, median (mean) days	70 (126)	18 (22)	25 (25)
Urgent referral-to-appointment, median (mean) days	6 (11)	5 (9)	2 (2)
Routine referral-to-booking, median (mean) days	14 (46)	1 (10)	1 (3)
Routine seen within 14 days	10% (33/343)	39% (16/41)	60% (6/10)
Routine waiting beyond 60 days	65% (223/343)	10% (4/41)	0% (0/10)
P2 share of scheduled new appointments	64%	4%	3%
P2 compliance with 14-day standard	8.1% (52/642)	16.7% (5/30)	68.8% (11/16)

2026 data extend through 18 August. Measures are descriptive dashboard aggregates, and the number of available records differed substantially between years.

Discussion

Principal findings

A bundled access redesign implemented without additional posts was associated with a large reduction in waiting-list census, faster first appointments, and sustained changes in triage practice. After the initial clearance, the redesign encountered an unplanned test: mean monthly unique referral orders increased

by 61.3%, from 215.3 during June-August 2025 to 347.3 during September-November 2025. The census subsequently rose to an observed peak of 214 patients, but the mean during the broader demand-surge phase remained 70.9% below the pre-intervention baseline. During the recovery phase, the mean census returned to 115.1 patients, almost identical to the earlier post-clearance mean of 115.0. An important qualification is that the mechanism of the initial reduction was only partly documented. Completed face-to-face assessments accounted for 52.6% of the December calendar-month net reduction. At least 172 patients, or 47.4%, left the recorded census through pathways for which individual dispositions were unavailable. The study therefore demonstrates sustained control of the recorded queue but cannot establish that clinical need was appropriately resolved for every patient removed.

The finding we regard as most useful is not the initial clearance. A determined team working against a fixed backlog can clear a queue, and the literature already contains reports of such initiatives [10]. The more informative finding is what the following 20 months revealed about which components persisted and which required continuing protection.

Clearing and holding are different problems

The distinction is one of queuing behavior rather than clinical technique [12]. Clearance operates against an accumulated stock. It is bounded, can be addressed through a time-limited effort, and its success is immediately visible. Maintenance operates against a continuing flow that varies over time and may increase. These problems require different mechanisms, and our experience suggests that those mechanisms also differ in their durability.

The single queue and unified triage threshold were structural changes that did not require periodic reimplementation. Consolidated triage nevertheless required continuing protected senior clinical time. Annual priority data suggest that the revised allocation of urgency persisted despite subsequent demand pressure, although annual aggregates cannot establish that month-to-month performance remained unchanged during the surge.

The throughput component behaved differently. First-assessment capacity is consumed as it is used and can be progressively displaced by follow-up demand as the treated population grows. Maintaining access therefore required continuing protection through held appointments, flexible use of canceled slots, and recurring assessment blocks. Demand-and-capacity models developed for child mental health services rest on the same premise [17, 18, 19, 20].

This distinction has a practical implication. A service planning backlog clearance should identify in advance which elements of its redesign are structural and which require recurring capacity. In our service, protected assessment blocks were intensified only after the census had drifted upward for several months. Earlier or stronger protection might have reduced this drift, although the present design cannot test that hypothesis. We therefore report the timing as a limitation of our planning rather than as a demonstrated effect of the intervention.

Demand is a major threat to durability

The rebound did not necessarily indicate that the redesign had worn off. Deduplicated referral-order data showed that it coincided with a substantial increase in demand beginning around the start of the school year. However, only one such cycle was observed, and the study cannot establish that the increase represented a recurring seasonal pattern.

The redesign did not make the service insensitive to demand. During the demand-surge phase, the mean census increased from 115.0 to 126.3 patients and the observed daily census reached a temporary peak of 214. The mean subsequently returned to 115.1 during the recovery phase. Services should therefore expect a redesigned pathway to continue responding to changes in demand and should assess durability through the magnitude and duration of any rebound and the subsequent speed of recovery, rather than through the absence of any fluctuation.

Monthly referral volume and mean monthly census were positively but not significantly correlated across the 19 complete months with referral data ($r = 0.24$, $p = 0.33$). This reflects both the limited number of observations and the fact that queue length depends on the balance between inflow and outflow rather than referral volume alone. The increase in referrals is therefore a documented and plausible contributor to the drift, but it cannot be considered a demonstrated cause.

What this required, and what it cost

The redesign added no posts, new technology, or recurring funding, distinguishing it from capacity-expansion approaches and making it potentially relevant where expansion is unavailable. It was not, however, resource-free. Administrative and clinical time was reallocated during the intensive drive, senior clinical time was committed to continuing triage, and protected assessment blocks displaced other activity whenever they operated. The intervention components, resource requirements, and transferability are summarized in Table 3. Follow-up care continued during the intensive drive, but completed follow-up visits were 20.9% lower than during the immediately preceding 28 days: 416 compared with 526. Because only one preceding comparison period was available, the study cannot determine how much of this reduction resulted from the intervention rather than seasonal variation. Nevertheless, the balancing measure demonstrates that backlog clearance involved a temporary operational trade-off rather than the creation of additional capacity. The more consequential balancing-measure gap concerns patients removed without a documented face-to-face assessment. The available data cannot distinguish appropriate clinical redirection, improvement while waiting, consolidation of duplicate entries, removal after unsuccessful contact attempts, other administrative delisting, or removal despite continuing need. Follow-up volumes describe the effect on patients already receiving care but provide no information about the safety or subsequent outcomes of those removed from the waiting list. Future implementations should prospectively record every disposition and monitor re-referral, urgent presentation, subsequent access elsewhere, and continuing unmet need.

Table 3
Intervention components by phase, resource requirement and transferability

Component	Phase	Resource requirement	Transferability
Merge discipline-specific queues	Clearance and maintenance	Initial administrative coordination and continuing governance	High where governance permits
Waiting list census monitoring	Clearance and maintenance	Basic information system or spreadsheet with recurring review	High
Consolidate triage under one senior clinician	Clearance and maintenance	Continuing protected senior clinical time	Depends on workforce depth
Whole-team backlog review	Clearance	Time-limited redeployment of existing team	Requires sufficient existing capacity
Redirect referrals below the specialist-service threshold	Clearance and maintenance	Community services able to receive	Depends on local provision
Use held and canceled appointments flexibly	Maintenance	Continuing scheduling coordination and control of appointment templates	High when team scheduling permits
Recurring protected assessment blocks	Maintenance	Recurring displacement of other clinical activity	Requires a team able to rotate

Where child and adolescent psychiatrists number fewer than one per million population, a psychiatrist-led triage model may not be feasible. A nurse-assisted intake step within a psychiatrist-inclusive multidisciplinary triage process has been described in Qatar [21]; where specialist capacity is more constrained, task-sharing under specialist supervision may provide an appropriate alternative [22]. The transferable principle is the distinction between structural changes and components that consume recurring capacity. That principle does not depend on a particular professional configuration.

Limitations

This was a single-center uncontrolled evaluation and supports association rather than causation. The drift and recovery windows were defined after inspection of the series using observed extreme values as boundaries. This selection predisposes the fitted regressions toward an apparent rise followed by decline. The resulting slopes are therefore exploratory descriptions of average within-window trends rather than confirmatory estimates, endpoint change rates, or evidence that maintenance activity caused the recovery. They are therefore descriptive and do not establish that intensification of the maintenance blocks caused the recovery; reduced referral volume and other unmeasured changes may also have contributed. Newey-West estimation provided uncertainty estimates robust to serial correlation and heteroskedasticity but did not explicitly model the underlying error process. An AR(1) sensitivity analysis supported the overall level reduction while showing that its decomposition into immediate and trend components was less stable.

Access measures were annual dashboard aggregates with substantially different record counts between years. In particular, routine referral-to-appointment data were available for 343 records in 2024, 41 in 2025, and 10 in 2026. These comparisons are therefore descriptive. Patient-level referral-order data were unavailable before January 2025. Demand during the baseline and intensive-drive periods could consequently not be measured directly. August 2026 contained only 18 days of referral data and was excluded from complete-month referral averages and correlation analysis.

Individual dispositions were not recorded during the intensive drive. Although 191 unique backlog patients completed face-to-face assessments, these assessments were numerically equivalent to only 52.6% of the December calendar-month net census reduction. At least 172 patients left the recorded census through other pathways, and the gross number may have been higher because contemporaneous referral inflow was unavailable. The study cannot determine how many were appropriately redirected, had improved while waiting, represented duplicate entries, were removed after unsuccessful contact attempts, or continued to require care. No subsequent linkage was available to assess re-referral, urgent presentation, access through another provider, or continuing unmet need. This is a central limitation because sustained reduction in the recorded census cannot be assumed to represent sustained resolution of clinical need.

The 177-day baseline was insufficient to estimate seasonal effects, and the referral series contained only one apparent school-year increase. The study therefore cannot distinguish a recurring seasonal pattern from a one-time change in demand. Balancing measures were also limited. Staff burden, urgent presentations, re-referral, and demand transferred to community providers were unavailable, while the follow-up comparison was restricted to the intensive drive and one immediately preceding 28-day period. The sharp decline in records with computable access intervals after 2024 was unexplained and may reflect changes in dashboard capture, coding, or referral-to-appointment linkage; consequently, these annual access comparisons should be interpreted cautiously and may not represent the full referred population.

Conclusions

A bundled redesign implemented without additional posts produced a large and sustained reduction in the recorded waiting-list census at a tertiary pediatric CAMHS. However, documented face-to-face assessments accounted for only 52.6% of the December calendar-month net reduction, and individual outcomes for patients removed through other pathways were unavailable. The study therefore demonstrates sustained control of the recorded queue but cannot confirm that clinical need was appropriately resolved for every patient removed. Structural changes-a single queue and unified triage threshold-did not require periodic reimplementation, although consolidated triage continued to require protected senior clinical time. Throughput components required recurring protection and were intensified only after the census had begun to rise.

Services planning similar work should distinguish structural changes from components that consume recurring capacity, protect first-assessment capacity prospectively, and anticipate variability in referral demand. The absence of any fluctuation is not a realistic measure of sustainability; the magnitude of a rebound and the speed with which the service recovers may provide more informative indicators.

Abbreviations

AR(1), first-order autoregressive; CAMHS, child and adolescent mental health services; CI, confidence interval; CLEAR, Consolidate, Lead, Evaluate, Accelerate and Reserve; NHS, National Health Service; OLS, ordinary least squares; P2, priority 2; SQUIRE, Standards for Quality Improvement Reporting Excellence.

Declarations

Ethics approval and consent to participate

The project was classified as a service evaluation under Sidra Medicine's institutional governance framework; institutional review board approval was not required. The analysis used de-identified routinely collected operational data, and individual consent to participate was not required.

Consent for publication

Not applicable.

Availability of data and materials

The frozen daily census dataset may be available from the corresponding author on reasonable request, subject to institutional approval.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

MWA, MA, and AN contributed to the conception or design of the service evaluation, the interpretation of the findings, and the critical revision of the manuscript. All authors read and approved the final manuscript.

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Figures

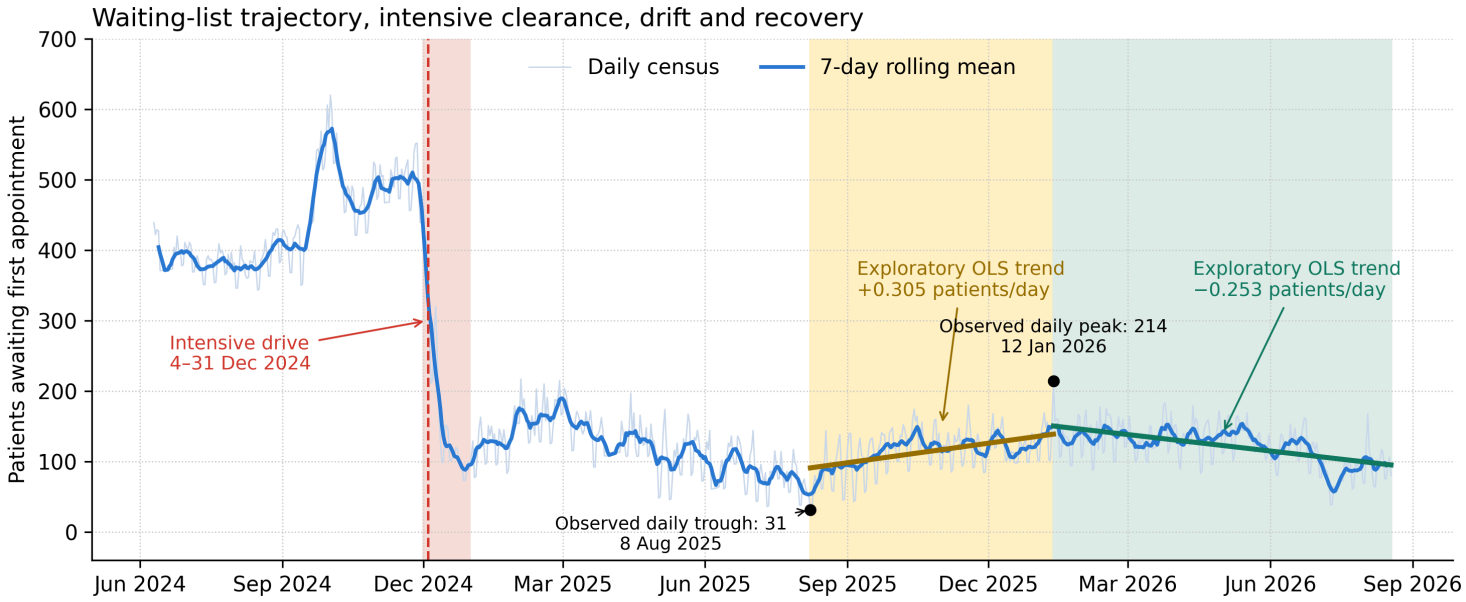


Figure 1

Daily CAMHS waiting-list census and seven-day rolling mean, 10 June 2024 to 18 August 2026. The dashed line marks the formal intervention date of 4 December 2024, and the adjacent shaded band marks the intensive drive. Later shading identifies the periods used for post-hoc descriptive estimates of upward drift and subsequent correction. The trough, peak, and segment slopes were identified after inspection of the data and should not be interpreted as prespecified change points or causal effects. The post-clearance rising and recovery lines are exploratory OLS trends fitted to all daily observations within post hoc, data-selected windows. They do not connect the observed trough and peak values and should not be interpreted as endpoint change rates or intervention effects. At the 4 December change point, the counterfactual pre-intervention and post-intervention fitted values were 510.5 and 129.5 patients, respectively; their difference is the modeled -381.0 level change.

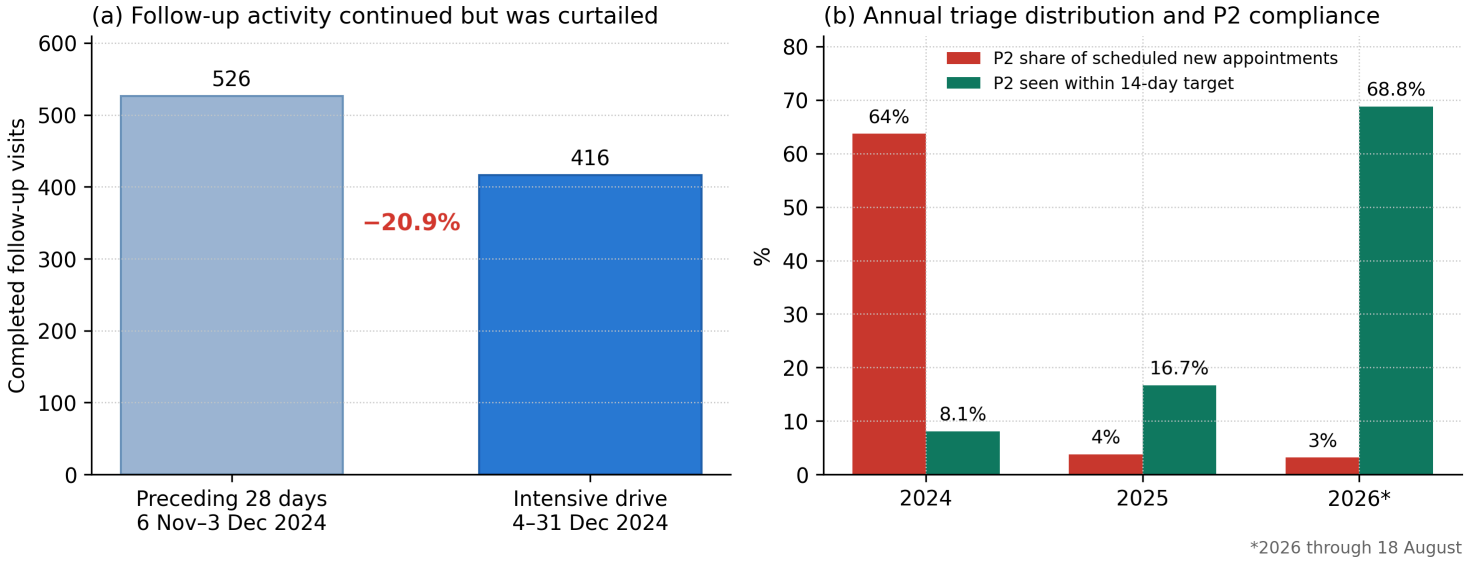


Figure 2

Balancing and structural measures. (a) Completed follow-up visits in the 28-day intensive drive compared with the immediately preceding 28 days. Follow-up activity continued but was 20.9% lower during the drive (416 versus 526 completed visits). (b) Annual proportion of scheduled new appointments assigned P2 priority and proportion of P2 appointments completed within the 14-day target. Measures are descriptive dashboard aggregates; 2026 data extend through 18 August.

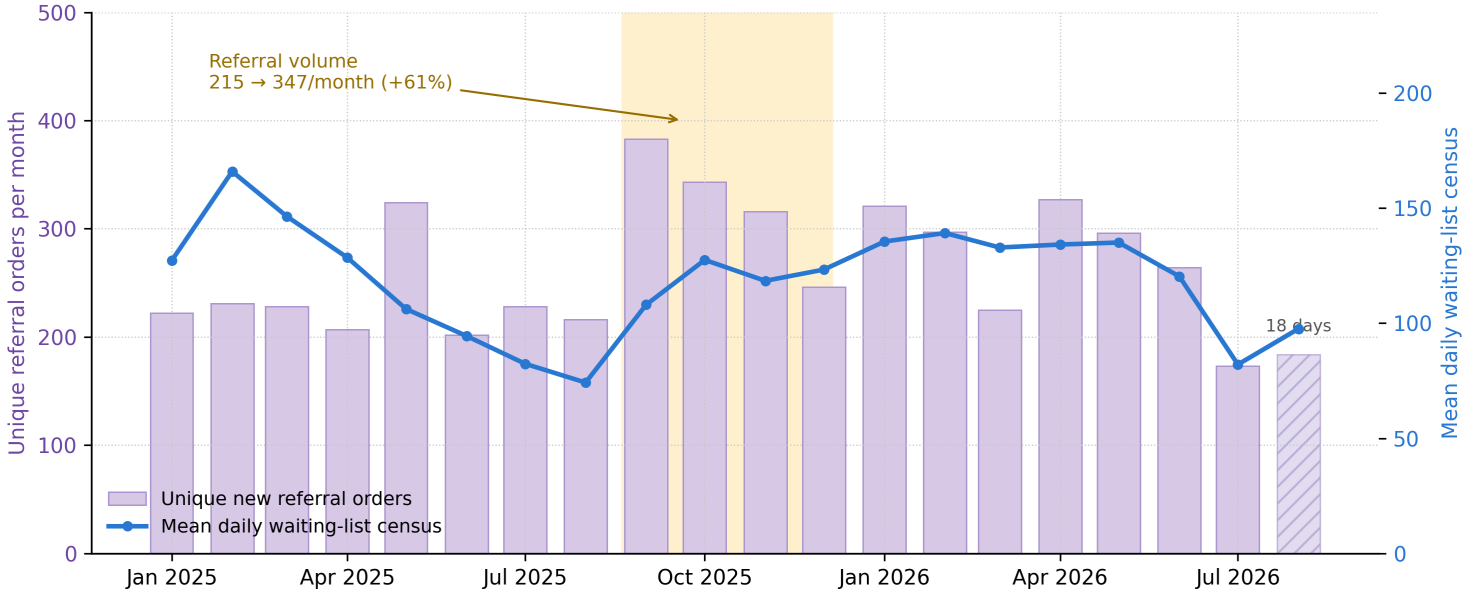


Figure 3

Monthly unique new referral orders and mean daily waiting-list census, January 2025 to August 2026 . *Referral orders were deduplicated using the scheduling-event identifier. Mean monthly referral volume increased from 215.3 during June-August 2025 to 347.3 during September-November 2025, an increase of 61.3%. Although the referral increase coincided with a rise in the census, monthly referral volume and mean monthly census were not significantly correlated across the 19 complete months with referral data (r=0.24, p=0.33). August 2026 was excluded from this calculation because it contained only 18 days of data.*

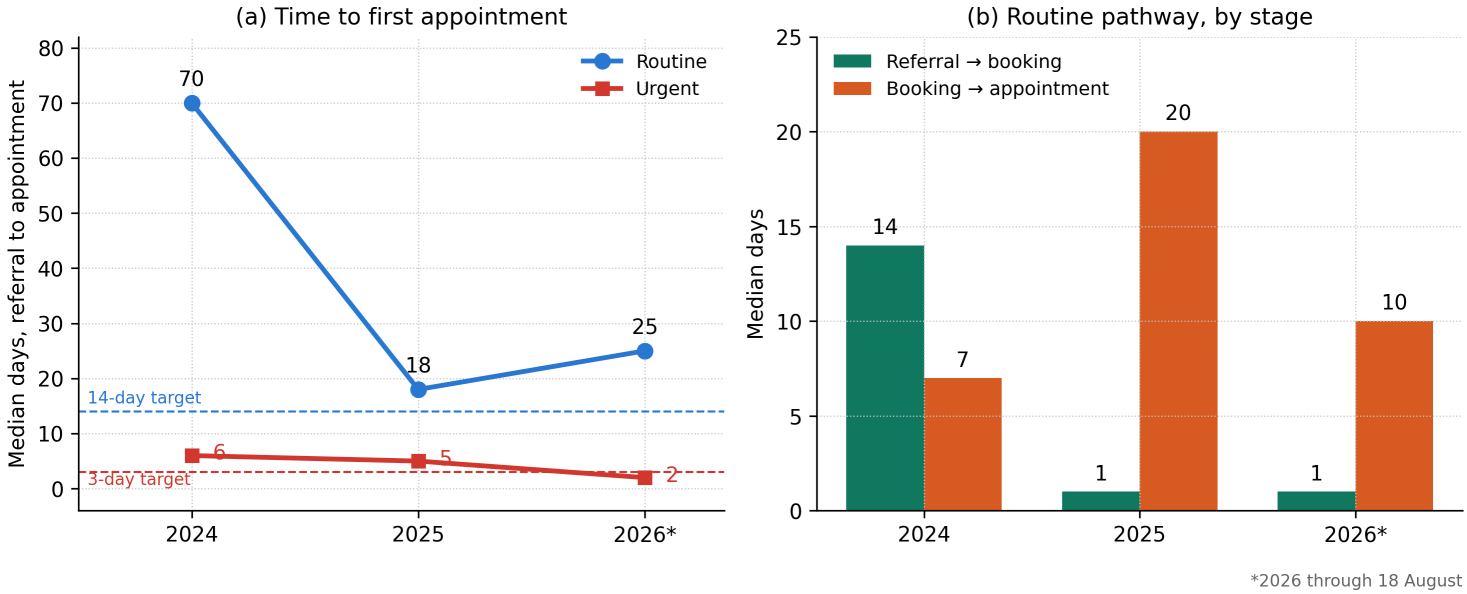


Figure 4

Annual access measures from the appointment dashboard: (a) median referral-to-appointment interval for routine and urgent appointments; and (b) median component intervals for the routine pathway. Component medians were calculated separately and therefore do not necessarily sum to the overall pathway median. Values are descriptive annual aggregates with changing record counts; 2026 data extend through 18 August.