Impacts of a Centralized Scheduling Management Tool on Healthcare Professional Efficiency, Autonomy, and Satisfaction

A Case Study at the Centre Hospitalier de l'Université de Montréal (CHUM)

HSD51

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Background

- In hospitals, clinical coordination, communication, and schedule management rely on the ability to access in real time accurate, reliable, and up-to-date information on clinical coverage, including on-call and on-service clinicians, the services covered, and their contact information (1,2)
- In the context of workforce shortages, organizations are also seeking to optimize resource allocation, foster interprofessional collaboration and communication and improve work satisfaction to attract and retain staff (3,4)
- Before the implementation of a centralized scheduling management solution at CHUM, processes were decentralized and manually duplicated across multiple systems, resulting in fragmented and unreliable real-time information. This inefficiency increased administrative burden and contributed to coordination delays, errors, and reduced organizational performance in a complex care environment
- Between 2020 and 2022, the CHUM implemented the integrated PETAL Workforce solution that replaced manual processes and provided real-time visibility into on-call and on-service clinicians across the organization. The solution includes 3 modules
  - The coverage module
  - The schedule management module
  - The clinical communication module

Objective

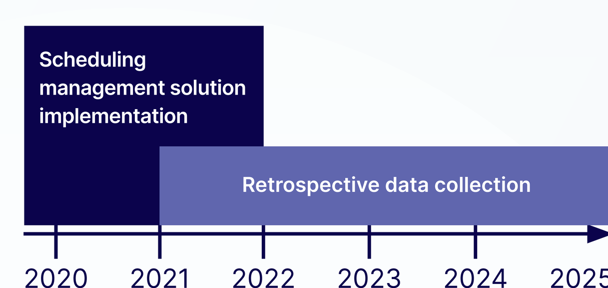
- To evaluate the impacts of the centralized scheduling management solution on healthcare professional's autonomy, efficiency, and satisfaction

Methodology

Data source and study design

- This retrospective study used administrative data provided by Petal and CHUM
- The centralized scheduling management solution was gradually implemented between 2020 and 2022 (Figure 1)
- Outcomes were collected between January 2021 and June 2025 (exact periods varied by endpoint)
  - Searches performed in the coverage module
  - Use of the schedule management module
  - Exchanges made via the clinical communication module
  - Call volumes to the switchboard team
  - Survey responses measuring user satisfaction and loyalty

Figure 1. Study period



Statistical Analysis

- Descriptive analyses were stratified by group type, schedule management module (automated vs. standard), and year
- Net Promoter Score (NPS) data were collected quarterly from regular members and planners to evaluate satisfaction and loyalty
- Multivariate linear regressions assessed associations between group characteristics and outcomes

Results

Group characteristics

102 groups using the centralized scheduling management solution, representing 2,519 members, were analyzed

- Use of the solution varied across groups (Table 1)
- **50% of the groups were physician groups**, 33% were medical residents & students, one group was pharmacists, and the others were nurses & technologists, and administrative teams
- **49% of physician groups published longer schedules** covering ≥2 months, while 74% of resident & student groups published schedules covering 1 month
- **Task type diversity differed** across groups, ranging from fewer than 5 to more than 50

Table 1 . Group characteristics

	All groups N=102	Physicians n=51	Residents & students n=34	Pharmacists n=1	Nurses & technologists n=6	Administrative teams n=10
Members on schedule, Mean ± SD [Median]	**30.3 ± 36.6 [16.0]**	**24.1 ± 24.4 [16.0]**	**42.3 ± 50.7 [21.0]**	**99.0 ± 0.0 [99.0]**	**28.0 ± 24.2 [21.0]**	**15.5 ± 20.3 [9.0]**
Schedule management module, n (%)						
Automated module	13 (13%)	12 (24%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)
Schedule publication frequency, n (%)						
1-6 per year	29 (28%)	25 (49%)	2 (6%)	1 (100%)	1 (17%)	0 (0%)
7-12 per year	30 (29%)	12 (24%)	7 (21%)	0 (0%)	4 (67%)	7 (70%)
> 12 per year	43 (42%)	14 (27%)	25 (74%)	0 (0%)	1 (17%)	3 (30%)
Number of task type per group, n (%)						
<5	38 (37%)	17 (33%)	10 (29%)	0 (0%)	3 (50%)	8 (80%)
5-10	29 (28%)	15 (29%)	9 (26%)	0 (0%)	3 (50%)	2 (20%)
11-50	29 (28%)	17 (33%)	12 (35%)	0 (0%)	0 (0%)	0 (0%)
> 50	6 (6%)	2 (4%)	3 (9%)	1 (100%)	0 (0%)	0 (0%)
Proportion of visible contact details, n (%)						
No members	12 (12%)	0 (0%)	3 (9%)	0 (0%)	3 (50%)	6 (60%)
< 10%	51 (50%)	22 (43%)	25 (74%)	0 (0%)	1 (17%)	3 (30%)
10-20%	30 (29%)	23 (45%)	5 (15%)	0 (0%)	1 (17%)	1 (10%)
>20%	9 (9%)	6 (12%)	1 (3%)	1 (100%)	1 (17%)	0 (0%)

Coverage module

+191% growth in self-service search use: improved information access and direct communication

- Self-service searches to identify who's on-call/on-service and their contact information increased significantly between 2022 and 2024 (Figure 2)
  - From 69 to 350 per day (+407%) by groups
  - From 115 to 186 per day (+61%) by hospital personnel
  - From 1,433 to 1,836 per day (+33%) overall
- Over the same period, switchboard calls declined from 2,742 to 2,345 per day (-14%), reflecting a shift toward faster, more direct communications
- Multivariate analysis showed that search volumes increased over time (+42 per day from 2022 to 2024), particularly among automated schedule management module users (+68 per day), groups with longer schedule horizons (+22 per day), and medical residents & students (+25 per day vs. physicians)

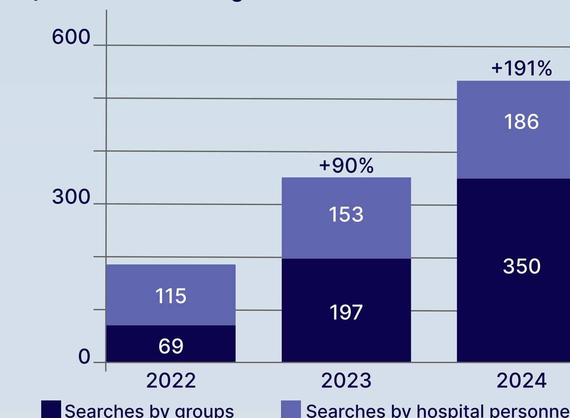


Figure 2. Daily searches in the coverage module (volume and % change since 2022)

Schedule management module

+330% increase in schedule modifications: greater flexibility and scheduling agility for clinicians

- Mean modification requests (absences and changes) per member per year rose from 13 in 2022 to 56 in 2024 ($p<0.001$), with an average of 160 requests in automated schedule management groups (Figure 3)
- After adjustments for group characteristics, differences between automated and standard groups remained significant ($p<0.001$)

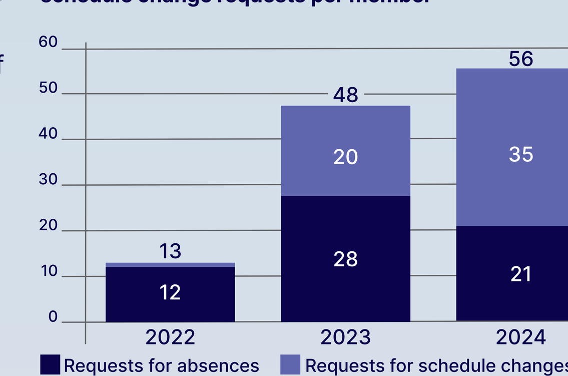


Figure 3. Change in mean annual absences and schedule change requests per member

Clinical communication module

Secure messaging use remained limited, suggesting reliance on alternative, potentially non-secure communication channels

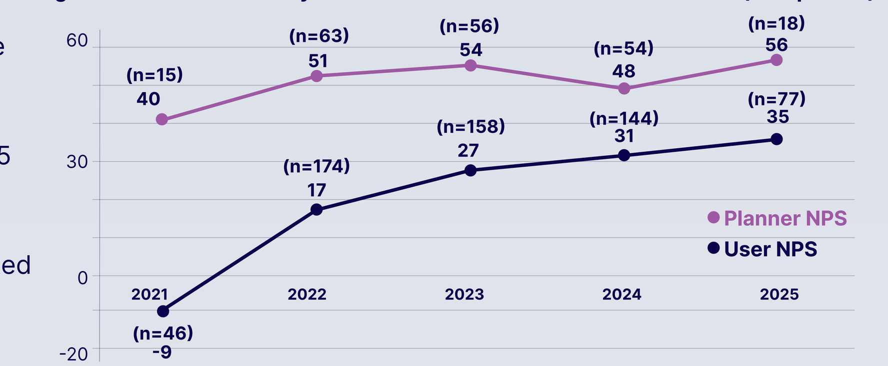
- Only 22% of groups used secure messaging regularly in 2024 (≥1 message per month for ≥10 months)
- Pharmacists used secure messaging substantially more than physicians did (86 vs. 8 messages per member/month)
- Use was higher groups using in automated schedule management module (32 vs. 7 messages per member/month)

User satisfaction

Satisfaction improved significantly over time, particularly among planners and automated schedule management module users

- Annual survey responses included ~50-60 planners and ~140-175 users, corresponding to a 5-10% response rate (Figure 4)
- Satisfaction increased significantly over time, with higher scores in 2024 and 2025 compared with 2021 ($p<0.05$)
- Adjusted analyses showed higher satisfaction among planners and automated schedule management module users ($p<0.05$)

Figure 4. Satisfaction survey and the Net Promoter Score (NPS) over time (n responses)



Key areas for additional efficiency gains

1. **Optimize contact information sharing within the coverage module to reduce delays and reliance on switchboards**
   - Enable faster, more direct searches across the organization, minimizing intermediaries and improving responsiveness
2. **Increase adoption of the automated schedule management module to improve efficiency and workforce flexibility**
   - Enhance flexibility and autonomy for healthcare professionals in managing their schedules
   - Improve coordination of group schedules, reducing administrative burden and inefficiencies (5)
   - Maximize use of platform capabilities, generating broader operational benefits across teams
3. **Expand the use of secure messaging to reduce communication risks and improve coordination**
   - Replace non-secure channels with compliant, integrated communication, ensuring safer information exchange and more efficient collaboration

Limitations

- This retrospective observational study describes associations between use of the solution and outcomes and does not establish causality
- Findings reflect a large tertiary academic hospital and may not be fully generalizable to other settings
- Adoption and intensity of use varied across groups and configurations, likely contributing to heterogeneity in efficiency, communication, and satisfaction outcomes
- Concurrent organizational and operational changes were not fully controlled for and may have influenced observed trends
- Satisfaction and NPS results were based on voluntary surveys with relatively low response rates, introducing potential response and selection bias
- Efficiency measures were based on solution usage and activity data and did not directly assess clinician time use or downstream clinical outcomes

Conclusions

- In just a few years, the centralized scheduling management solution has become a core information infrastructure at this university hospital, supporting direct access to reliable and real time scheduling and coverage information across clinical teams
- Implementation of the solution was associated with increased autonomy for health care professionals and teams, improved clinical coordination and communication efficiency, and sustained increases in user satisfaction, particularly among planners and users of the automated schedule management module
- Broader and more standardized use, including promoting contact information sharing, wider adoption of the automated schedule management module and more systematic use of the clinical communication modules, could further optimize use and organizational benefits

References

1. Kurt, N., et al. (2024). Time Scheduling for Staff in Hospitals and Health Care Centres. In: Decision Making in Healthcare Systems (pp. 417-427).
2. Little, C., et al. (2022). A Review of the Scheduling Problem within Canadian Healthcare Centres. Appl Sci.
3. Figueroa, C. A., et al. (2019). Priorities and challenges for health leadership and workforce management globally: a rapid review. BMC Health Serv Res.
4. McLaney, E., et al . (2022). A framework for interprofessional team collaboration in a hospital setting: Advancing team competencies and behaviours. Healthcare Management Forum.
5. Lafeuille, M.-H., et al. (2025). Cost-benefit analysis: Petal healthcare workforce management. Report. Analysis Group, Inc.

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