



**Mesh AI**

FAIR CLINICIAN SCHEDULING IN ONE CLICK

CASE STUDY

**An innovative physician  
scheduling system for hospitals  
to reduce errors and losses**

MESH AI 2018



## SUMMARY

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Located approximately 100 kilometers east of Toronto, Northumberland Hills Hospital (NHH) delivers a broad range of acute (including emergency and intensive care, medical/surgical care, obstetrical care and palliative care), post-acute (including restorative care and rehabilitation), outpatient (including mental health care, chemotherapy, dialysis and 16 other ambulatory care clinics), and diagnostic services (including magnetic resonance imaging (MRI), computed tomography (CT) and mammography). NHH is a 137-bed hospital which employs over 700 full-time and part-time staff and relies on the additional support provided by physicians, midwives, and volunteers.

**745**

Full-time and part-time staff

**181**

Medical Practitioners

\*At the time of this study

## NEED

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The hospital was experiencing a high administrative error rate resulting from poor scheduling maintenance and communication. The NHH organization decided to look for a solution that would reduce these errors with a more consistent physician on-call and on-site scheduling system. Cost, rollout speed and efficiency, and ease of use were important considerations in the process of choosing a solution. After some unsatisfactory experiences with another scheduling SaaS vendor, Dr. Mukesh Bhagarva, the NHH Chief of Staff and his team selected Mesh AI among more than a dozen solutions.

# CHALLENGES FACED BY NHH

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## 1. Risk of errors related to shift swaps

Manually creating schedules had become an extremely tedious process at NHH. In addition to the time spent creating the schedules themselves, once finalized the hospital still needed to handle shift 'swaps' between physicians that happen throughout the year. Swapping shifts became a larger headache as one swap spiraled into many required changes needed to conform to the schedule's equalization rules. This resulted hours or even days spent sorting through schedule changes- involving many administrators.

## 2. Time spent creating schedules and managing conflicts

Paper and digital spreadsheet schedules became obsolete as soon as changes were made to accomodate member availability. Physicians at NHH struggled with lack of up-to-date shift trading and availaibility information, making it difficult to maintain an accurate schedule. This further led to operation errors and issues resulting from the constantly-changing schedule.



## CHALLENGES FACED BY NHH

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### 3. Ensuring fair and equal distribution of shifts

Ensuring equal and fair shift distribution across all members presented challenges without the help of digital assistance; with human errors causing inequalities in the schedule. Not only did this lead to dissatisfaction among hospital staff, but presented problems in the distribution of hours that physicians were obligated to work. This would potentially affect employee-employer relationships and lead to low staff morale.

### 4. Communication channels burnout

Commonly, physicians are not provided a formal way to communicate work-related preferences. Some prefer to use email, others might choose phone calls or another form of instant messaging. At NHH, there was no centralized communication channel to exchange information around call schedules. As a result, messages were getting lost in email inboxes, voicemails, etc.

#### Did you know...

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- Studies show that **14%** of pages were sent to the wrong on-call physician.
- Miscommunication is the **no. 1 cause** of delayed treatment
- There is a **\$4 Million** cost of inefficient communication for a 500-bed hospital

# OUR SOLUTION

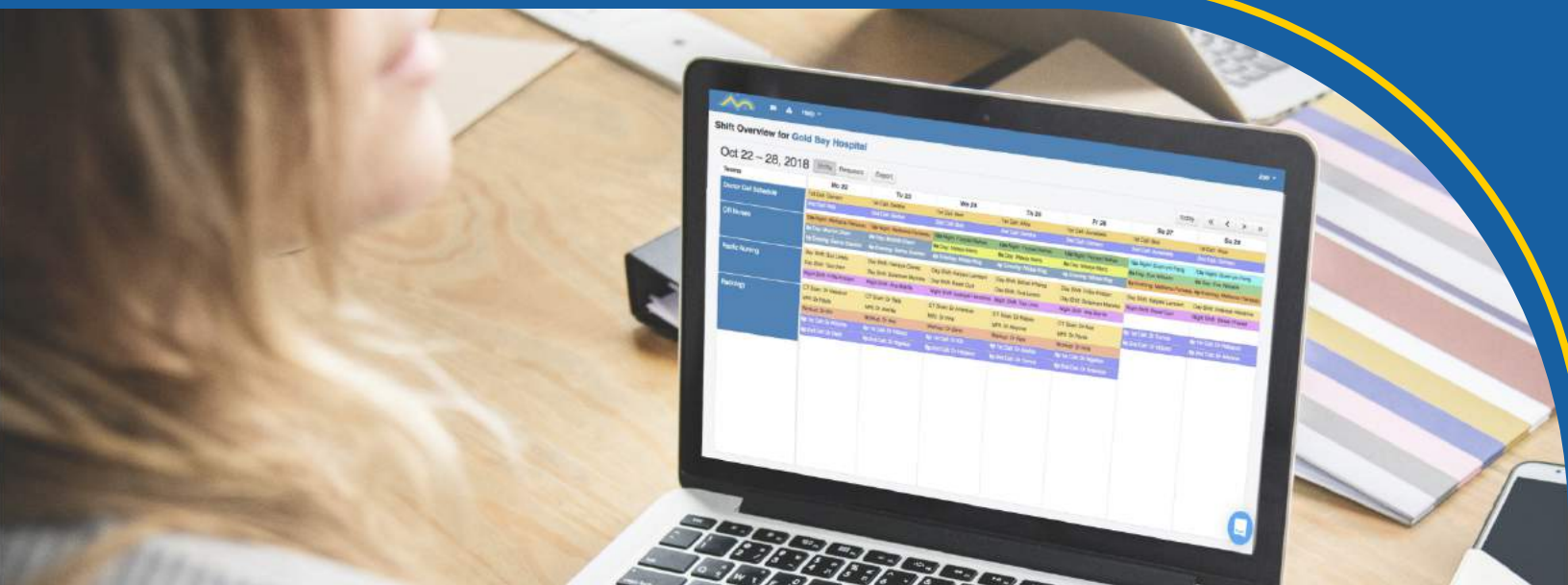
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## 1. Organizational shift overview

Managers and switchboard operators at NHH received viewing access to an organization shift overview, showing on-call schedules for all physicians and staff. This dashboard provided a clearer, more accurate view of shift information on a daily basis. This alone reduced a large portion of human error regarding staff placements across the hospital. In addition, it is now easier for switchboard operators to direct calls to physicians and page the appropriate person at any time. Not only does this reduce the workload on switchboard operators, but also it improves patient and third-party experience for those needing to reach a clinician or practitioner quickly from inside or outside the unit.

## 2. Automated Scheduling

With the automation provided by the Mesh AI Autoscheduler, physician leads and administrators can now easily create perfectly distributed schedules for their team. The Mesh AI system takes into account job qualifications, employee requests, and even shift “preferences”, all of which can be entered by the staff themselves, or by their designated administrator. This allows for “Smart Suggestions” that help both manual schedulers and Mesh AI’s Autoscheduler to choose the perfect physician for any given shift. In addition, this information allows for the addition of extra, non-templated shifts to accommodate for busy days and unique scheduling circumstances.





## OUR SOLUTION

### 3. Cross-department staff requests

With many physicians working across various units in the hospital, communicating shift and time-off requests between departments was becoming a nightmare. It is critical to centralize data and allow staff to smoothly exchange and transfer information across teams. Therefore, another unique customization was delivered to NHH. Physicians now only need to submit their time-off requests once to Mesh AI, where they will automatically be sent to all units they are affiliated with in the hospital, reducing the risk of errors when staff requests are made.

### New Request

Timeframes

AM

PM

From \*

2021/01/01

To \*

2021/01/08

☒ All day

Team \*

Doctor Call Schedule

Request type \*

☐ Leave

☐ Prefer Off

☐ Prefer On

☐ Require Off

☐ Require On

☒ Vacation

Note (Optional)

I will be out of town for a family event

☐ Set this as my default request note

\* Denotes Required Field

Cancel

Submit

Team Calendar				
February 2022				
Shifts Requests Published Shifts				
Sun	Mon	Tue	Wed	Thurs
30 On-Call: (Empty)	31 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	1 Night Call: (Empty) On-Call: (Empty)	2 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	3 Night Call: (Empty) On-Call: (Empty)
6 On-Call: (Empty)	7 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	8 Night Call: (Empty) On-Call: (Empty)	9 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	10 Night Call: (Empty) On-Call: (Empty)
13 On-Call: (Empty)	14 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	15 Night Call: (Empty) On-Call: (Empty)	16 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	17 Night Call: (Empty) On-Call: (Empty)
20 On-Call: (Empty)	21 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	22 Night Call: (Empty) On-Call: (Empty)	23 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	24 Night Call: (Empty) On-Call: (Empty)
27 On-Call: (Empty)	28 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	1 Night Call: (Empty) On-Call: (Empty)	2 Night Call: (Empty) On-Call: (Empty) 12p Urgent Care: (Empty)	3 Night Call: (Empty) On-Call: (Empty)

## IMPLEMENTATION

1

In late March 2018, all necessary information was received by the Mesh AI team and a dedicated Mesh AI Concierge was assigned to NHH for platform setup and customization.

2

A full-day on-site training was carried out at the hospital for physician leads and switchboard operators.

3

Within the same week, approximately 2,300 shifts were created using Mesh AI and approved by the hospital administration team.

4

Team administrators, regular staff members, and switchboard operators were invited to Mesh AI.

5

On April 1, 2018, the platform was officially launched.



Total Implementation time: 10 days

# RESULTS

The resulting product created by Mesh AI was a physician-centric automated scheduling system that addressed the challenges NHH was facing. The Mesh AI Autoscheduler takes in rules, regulations, and requests off the hands of admins and translates them into fair and accurate schedules. This solution saved significant time and eliminated human error. Team administrators are now able to create new schedules from pre-programmed templates (composed of recurring shifts and positions), and can then populate these shifts with a single click.

In addition, physicians can now access their schedules from anywhere on their iOS or Android mobile devices using the Mesh AI mobile app. The system’s built-in communication platform, dubbed the MESHage system, also allows Mesh AI to serve as a single source of truth for all the group’s scheduling needs. This gives members the ability to message other members or specifed groups regarding availabilities, vacations, shift trades, or any other issues. All changes are applied in real-time and recorded in the Mesh AI system.

Mesh AI Usage		
22	250	38
Teams scheduled across the hospital	Users including physicians, administrators, managers, and switchboard operators	Shifts generated on average per day

\*Data based off current NHH organization statistics in Mesh AI



## RESULTS

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Upon schedule creation, access to real-time on-call schedules gave administrators and switchboard operators the most updated information and avoided the risk of errors during their operation flow. Creating and maintaining a hospital-wide physician on-call and on-site schedule became a simple task, instead of a long, tedious process.

Mesh AI designs and improves high-tech healthcare solutions with machine learning. As a result, the new system was well received and has been continuously used throughout the hospital since its initial implementation. As the needs of the hospital change from time to time, new features and adjustments have been delivered since as needed.

**“We are extremely pleased with the scheduling tool and various functionality offered. The support team did an exceptional job in on-boarding our individual team needs within a very short turn-around-time. We launched hospital-wide physician scheduling platform in record time, including planner and staff training. User feedback has been supportive and positive.”**

**-M. BHARGAVA, MD, CHIEF OF STAFF**


## ABOUT US

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Mesh AI (by Mesh Scheduling Inc.) is a powerful automated scheduling platform built for hospitals, clinics, and office practices. Its proprietary intelligent engine creates ideal schedules while considering vacations, scheduling conflicts, workplace rules, equality, work preferences, and many other rules your workplace may require. Fully customizable, the engine also provides administrators with powerful insights for manual schedule adjustments with Mesh auto-suggester.

Members can check their schedules, enter vacations, and swap shifts from anywhere on Mesh AI's powerful and intuitive web or mobile apps. Mesh AI acts as the single source of truth for scheduling, making sure that everyone is on the same page and changes are easy to make and immediately known by all parties.

About the company: Mesh Scheduling Inc. is a healthcare software/SaaS company based out of Kingston, Canada and San Francisco, USA. Built on a foundation of more than twenty years of academic and industrial research and development, thousands of healthcare providers in Canada, the US, and as far away as Australia benefit from Mesh AI as a partner to improve upon the work-life conflicts experienced in healthcare



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## CONTACT US

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