

# Petal Scheduling

Schedule Management for Physicians

## CASE STUDY

# How an Automated Schedule Management Solution Helps Emergency Departments



## Executive summary

Emergency departments across Canada are under pressure to decrease wait times. As a result, they often end up increasing in size, which makes managing ED physicians' schedules more complex and can create a difficult working environment for many of them. Petal Scheduling facilitates schedule management and increases physician satisfaction through an automated procedure that takes into account physicians' availability and preferences. This procedure generates the most optimal schedule possible, which improves department physicians' quality of life.

This report is based on two hospital departments that use the Petal Scheduling physician scheduling solution on a daily basis. Dr. Friesen at the Peterborough Regional Health Centre saves nearly 100 hours of planning per year using Petal Scheduling. Similarly, Dr. Tse at the Children's Hospital of Eastern Ontario no longer has to worry about disseminating schedule changes to the 46 physicians in the emergency department: that is now done automatically and in real time.

*"I've experimented with other vendors and what I like about PetalMD is that they offer you a platform, but the planner still has full control of creating and managing the schedule."*

Dr. Sandy Tse

Master scheduler at the Children's Hospital of Eastern Ontario in Ottawa



*"The software automatically builds a schedule with shifts that are more spread out, which positively affects a physician's work life balance as they have more time to rest between shifts."*

Dr. Dale Friesen

Master planner at Peterborough Regional Health Centre

## Emergency groups are under pressure to perform

Emergency department (EDs) visits have been increasing across Canada. For example, in 2011, Quebec experienced a **3.4% increase of additional visits in comparison to the previous year<sup>2</sup>**. With the increase in emergency department visits, without the addition of attending physicians and inpatient beds<sup>3</sup>, emergency departments are increasingly under pressure to perform and reduce wait times. But patient wait time is directly related to physicians' availability and to the number and complexity of cases treated per hour.

## Canadian ER wait times are 19% higher than international standards.

According to a 2012 report by the Canadian Institute for Health Information<sup>(1)</sup>.

With the advanced scheduling module, PetalMD has tackled two factors affecting wait times: physician availability and performance. This module generates physician schedules based on rules, limitations and constraints specific to the emergency department, allowing schedulers to produce an optimal schedule in a timely manner.



**An international comparison of 11 countries found that at 31%, Canada has the highest wait-time of four hours or more before being treated; 19% higher than the average.**



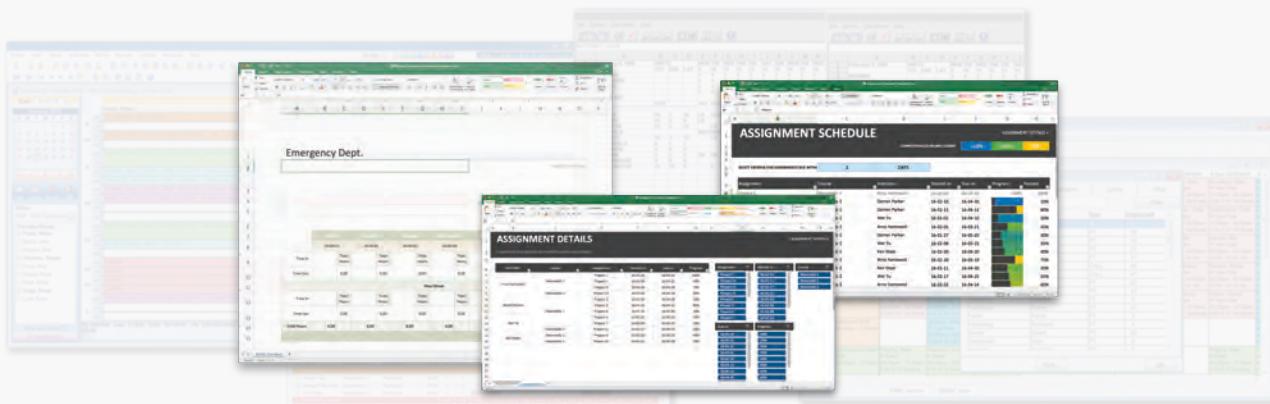
Canadian Institute  
for Health Information

Institut canadien  
d'information sur la santé

## Scheduling an emergency department is a complex task

Creating an emergency department schedule is more complex than any other department at a hospital. Unlike most specialties, emergency physicians have to cover an entire day while following shift coverage guidelines set for their specialty. In some cases, physicians also act as independent workers, with each physician having a contract to work a certain number of shifts per month. Moreover, physicians have personal preferences about which shifts they would like to work, which presents the additional challenge for schedulers of distributing tasks fairly.

For example, although the preference for night shifts is not popular, every physician takes a turn, often according to their own night shift preferences. For example, some prefer an orphan (non-consecutive) night shift, and others 3 or 4 consecutive night shifts. In order to maximize physician satisfaction in their department, schedulers must take these preferences into account when planning schedules. Of course, the more physicians work in an emergency department, the harder it becomes to reconcile these preferences with contracts and absences.



CILDREN'S HOSPITAL OF EASTERN ONTARIO

### A top-performing hospital department in Ontario – CHEO Emergency Department's 46 physicians turn to Petal Scheduling



The Children's Hospital of Eastern Ontario (CHEO), in Ottawa, is one of Ontario's top performing hospitals for its Emergency Department care, according to the National Research Corporation Canada<sup>4</sup>. Being one of the busiest paediatric emergency departments in Canada, the department is also one of the biggest with 30 full-time physicians, 6 in training, and 10-15 part-time. With the increase in patients visiting the ED, the pressure to optimize physician schedules has been building up.

*"I used to spend most of my time creating and managing the schedule, tinkering with multiple sheets in MS Excel"* says Dr. Tse, the master scheduler at CHEO for the emergency department since 1998. "Now, with Petal Scheduling, I don't have to worry about a physician forgetting to put the schedule into their calendar" which depicts a typical problem in keeping the emergency department running smoothly.

## ER Departments increasing in size makes manual schedule building difficult

Growing traffic in emergency departments is forcing an increase in the number of available examination rooms and physicians per shift. The higher number of physicians complicates schedule planning and makes it difficult to take into account all physicians' preferences and constraints when creating schedules manually.

A 2007 study showed that **the strongest predictor of physician burnout was the lack of control over their schedule and the hours they worked<sup>(5)</sup>**. Thus, taking into consideration a physician's schedule preferences is important in avoiding stress and burnouts.

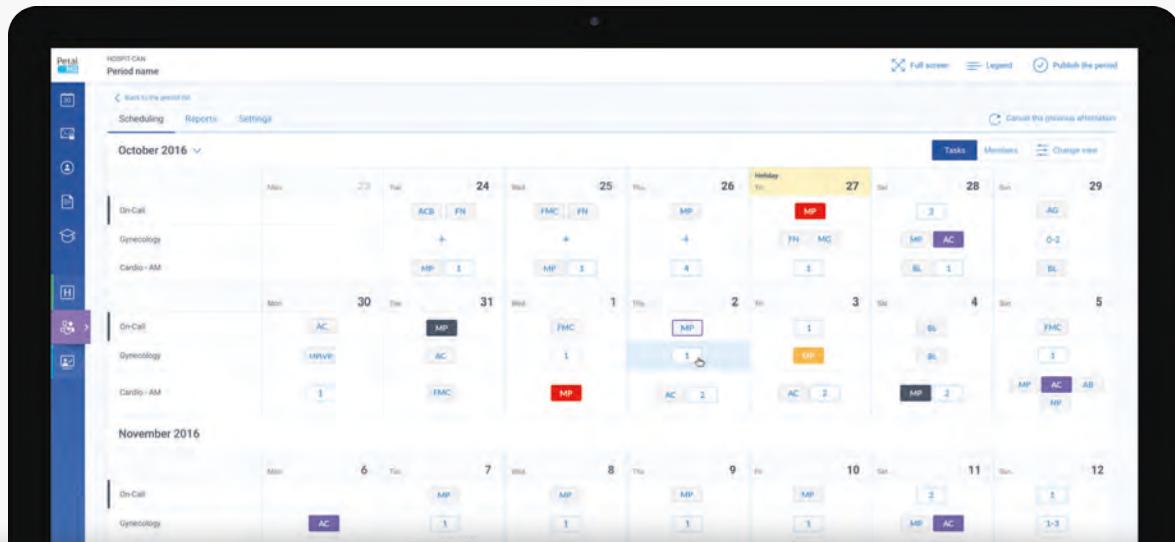
### PETERBOROUGH REGIONAL HEALTH CENTRE

#### **A physician spending 40 hours to build his department's schedule, in addition to clinical duties, is not sustainable**

The Emergency Department at Peterborough Regional Health Centre (PRHC) is extremely busy. It recently experienced a 12 percent increase in patient visits within a year – from 73,000 patients to nearly 82,000 patients. Dr. Friesen has been a planner at the PRHC since the 1980's, with more than 30 years of scheduling experience. Throughout most of that time, scheduling was relatively simple. He had a small group of 6 physicians, with 5 shifts a day to schedule. Today, however, with 32 physicians working in the ED and 11 shifts to fill per day, manually producing the emergency department's schedule every 3 months became unbearable.

*It took Dr. Friesen 40 hours every period to collect everyone's availabilities and constraints*, fit them into the 11 shifts that had to be covered every day, and then confirm the schedule with his team. Then there were always the necessary changes that would come up. To make things worse, all of this was done on multiple sheets of paper spread out on a desk to keep track of all the details. It's important to note that these extra 40 hours are in addition to his regular clinical duties in the emergency room, thus taking time away from his personal and family time. "*The time I spent on building my group's schedule was not sustainable*" says Dr. Friesen.

## The solution: An automated schedule creator



A powerful algorithm automatically takes into account the rules and constraints input by the scheduler when generating the schedule. The system uses this information to propose the best possible combination.

To solve the challenges that hospital departments face in managing physician schedules, PetalMD built the Petal Scheduling automated schedule creator. The tool guides schedulers while providing the necessary flexibility to select priority assignments. Schedulers can also make manual adjustments once a schedule is created. Meanwhile, emergency department physicians are free to exchange and transfer their tasks themselves, with or without the approval of their scheduler. An automated planning solution addresses the challenge of optimal shift distribution while taking into account department regulations and physician preferences. Among other things, Petal Scheduling enables:

### 1. Fair shift distribution

The engine was built to handle distributed equity and aggregated equity. This provides more accuracy for each physician's requirement for specific shifts. Shifts are thus fairly distributed among physicians who provide their preferences: the type of shifts they work (during the week vs. the weekend), holiday constraints, Friday nights (the busiest ER shifts) and many more.

### 2. Optimal grouping of Shifts

Some ED physicians prefer orphan, some consecutive night shifts. Either way, it's important to have a schedule optimized with both preferences. The schedule engine can be optimized for the grouping of night shifts and prevent isolated/orphan shifts for certain physicians. Adapting to an ED physician's personal preferences and resting cycles improves their well-being, performance and satisfaction.

### 3. A more enjoyable work week

Some physicians prefer to work several consecutive days or nights—for example, working many day shifts in a row followed by night shifts. Creating and maintaining a model schedule that satisfies everyone is essential for physicians, and doubly so for ED physicians, for whom resting between shifts is particularly important.

## Schedulers save precious time

Clearly, emergency departments would benefit greatly from optimized physician schedules, but the real problem lies in the time it would take to create and maintain such a schedule. For the physician

planner, manually creating and managing schedules involves many extra hours of administrative work and tinkering with Excel spreadsheets.

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### Dr. Friesen saves 100 hours per year with Petal Scheduling

After deciding that manual schedule planning was not sustainable, Dr. Friesen decided to try an American scheduling software. After a few months of usage, he determined that it was too expensive for a “schedule maintenance” software that was difficult to figure out, and did not actually save him any time. After a few colleagues and friends from other hospitals told Dr. Friesen about Petal Scheduling, he decided to try it out and loved it because **“we worked together to develop the script that would automate the schedule”** says Dr. Friesen.

Onboarding was easier than he expected, as Marie-Claude from the Services and Support team “was patient and always available.” She worked alongside Dr. Friesen to build the schedule according to his daily reality, needs and limits. Dr. Friesen appreciates the fact that the rules and constraints can be edited easily and small changes to the schedule can be done manually. Dr. Friesen estimated that with PetalMD’s scheduling solution, he spent 15 hours building his quarterly schedule, **thus reducing the time spent on schedule creation by 62% and eliminating most of the tedious work.** A time reduction from 40 hours in a 3-month period to 15 hours in the same period translates to 100 hours saved per year.



## A fair schedule increases job satisfaction

When shifts are fairly distributed in the emergency department, everyone wins. The schedule planner receives less change requests and shift trades. Having most of their preferences met, the physicians are more satisfied. When shifts are properly grouped and distributed, physician health is better,

providing them more time to rest between shifts. Having to trade less shifts may even improve the group dynamic in the department, thus leading to better performance.

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### Physicians are more comfortable with their schedule

Dr. Friesen's emergency department schedule has not only saved him considerable creation time, it is also more equitable. *"The software automatically builds a schedule with shifts that are more spread out, which positively affects a physician's work-life balance as they have more time to rest between shifts,"* says Dr. Friesen.

Each physician can now take into consideration their personal comfort zone when it comes to how many shifts they can realistically work within a period of time. For Dr. Friesen, for example, his comfort zone is 5 shifts for every 7 days, which he can happily schedule with Petal Scheduling.



## Optimal schedules reduce medical errors

### Fatigued physicians are more likely to make mistakes.

According to an article published in the New England Journal of Medicine<sup>(6)</sup>.



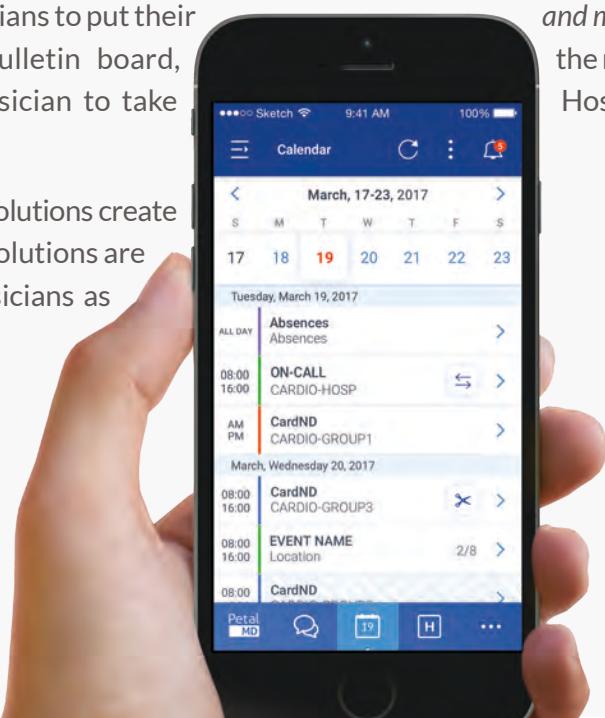
The time of day at which a patient is admitted to the emergency room has a big impact on quality of care. Patients suffer higher rates of death, complications, and medical errors when they are treated during low staffed hours, which are typically nights and weekends. Using a schedule optimizer directly addresses this issue, as it ensures an even shift distribution and appropriate shift coverage. Another reason for the increased medical errors is that fatigued physicians are more likely to make mistakes. So, how does one create a smart schedule to minimize the impact? By avoiding orphan shifts, physicians have a better chance of adapting to a series of night shift routines.

### Physicians have more control of their schedule

The nature of the emergency room workflow doesn't allow for much interaction between physicians. Thus, they often rely on the planner to change their shifts. **A web-based scheduling solution gives physicians full control to change and transfer their shifts from any computer or smart device.** In addition, Petal Scheduling allows physicians to put their shifts on the virtual bulletin board, allowing any other physician to take their shifts.

Many schedule building solutions create a fixed schedule. These solutions are not popular among physicians as

planners require flexibility and control. The software should complement and support the planner in managing the group's schedule while saving them time. *"I've experimented with other vendors and what I like about Petal Scheduling is that they offer you a platform, but the planner still has full control of creating and managing the schedule"* says Dr. Tse, the master scheduler at the Children's Hospital of Eastern Ontario.



# Petal Scheduling, an effective solution for emergency departments

PetalMD has built an automated schedule management and creation solution which addresses the complexity of ED scheduling and their increasing size trend. The solution addresses the growing necessity for emergency departments to perform, saves physicians a significant amount of time and creates more fairly distributed schedules.

It indirectly reduces medical errors and allows physicians to have better control of their schedules. The case studies involving the Children's Hospital of Eastern Ontario and the Peterborough Regional Health Centre illustrate the benefits of adopting PetalMD's advanced scheduling solution.

*"The support team is excellent! If not immediately, I get an answer within 24 hours of my request"*  
says Dr. Tse at the Children's Hospital of Eastern Ontario.

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# PetalMD

PetalMD is an innovative Canadian company founded in 2009 that offers IT solutions to simplify the daily lives of over 32,000 physicians. Dedicated to improving access to health care, the company provides web-based tools that alleviate administrative burdens and save valuable time for various hospital and clinic stakeholders, including administrative staff, physicians and managers.

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