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Children admitted with asthma leave hospital sooner, thanks to new CHEO study

By Rina Gibbons

In the arena of research, patience is a virtue. It can take years to conduct a study and even more to implement change at the bed side. Then, once in a blue moon, for all the right reasons, an innovative idea leads to a successful study, which has practice-changing results, and becomes a hospital clinical pathway immediately - even before the study is published.

That is exactly what happened when CHEO resident Dr. Victoria Gelt came to Dr. Catherine Pound, pediatrician at CHEO and assistant professor at University of Ottawa. Dr. Gelt noticed that the procedure in which children with severe asthma were being weaned from their Ventolin was resulting in longer hospital stays. She suggested that the nurses, who were already responsible for noting when a child should be weaned, should be given more control in the process. Together they came up with the protocol for a randomized controlled study, which is considered the gold standard of clinical trials.

Typically, physicians wean children off of Ventolin. The nurse would call the resident and tell them that a child was ready to be weaned. If this occurred in the middle of the night for example, residents were finding that they were occupied with the children who weren't doing well and thus higher priorities. Without the ability to be assessed by the resident, the children who were ready to be weaned would have to wait, thus extending the amount of time that they were staying in the hospital.

“Really, the nurses were already observing the children and then picking up the phones to say that the child was ready. That’s why I thought it was such a great idea, if we could give that power to the nurses then they don’t need to call us anymore. In order for that to happen, we had to have every physician on board to sign the medical directive that it was okay for the nurses to do that,” states Dr. Pound.

With the help of respirologist, Dr. Tom Kovesi, they designed the pathway to make sure it would function within CHEO’s best practice framework. The study ran for two years and focused on the medical units, which is where children with serious asthma stay overnight. Nurses were trained on the Pediatric Respiratory Assessment Measure (PRAM) score, an evidence-based tool designed to assess asthma. PRAM scores involve assessing measurable and objective markers like the patient’s breathing, seeing if they are using accessory muscles (those that aren’t typically used for breathing), using stethoscopes to listen to the patient’s lungs, the rapidity of their breathing, and their oxygen saturation. A score less than three means you can be weaned, three to seven means you stay on your prescribed Ventolin, and if it’s higher than seven, you give extra doses of medicine.

“The beauty of this pathway is that it is simple and easy to apply,” says Dr. Pound, “It’s very objective, and the only thing that needs to be taught to the nurses is how to use the PRAM. They already know how to use stethoscopes and look for muscle use - it’s all knowledge they currently have.”

Physicians still see the patients during their daily rounds, or as often as they want. Ultimately, they sign the discharge papers for each patient. Nurses monitor the child during their stay and adjust their Ventolin as required based on the PRAM score. Once they have weaned the child down to two puffs every four hours (the magic recipe) the child is ready to go home.

“One of the biggest considerations that went into the study was safety. We found that there was absolutely no difference in terms of safety, whether a nurse or physician was weaning the child,” says Dr. Pound, “And now we have a way to assess asthma in an objective, measurable way. The care of asthma at CHEO has become very standardized.”

Results of the study showed a decrease in length of stay of 18 per cent for the children whose nurses used the pathway. In addition, the qualitative data from the patients, residents, and nurses showed that everyone was satisfied with the pathway and comfortable with the changes. The patients were happy; they saw no difference in whether the physicians or nurses were doing the weaning. They even found that they were given extra coaching, possibly due to the fact that the nurses had more time. The residents were glad that they weren’t being called in the middle of the night to wean and the nurses, of course, loved it.

Leadership at CHEO recognized that this study led to an ideal scenario where everyone wins. Asthma care is enhanced, nurses are empowered, patients and their families are going home faster, and residents are able to focus on the higher-risk children. With results like this, they wasted no time in implementing this change in practice.

We’re happy to report that this paper published today in *Hospital Pediatrics*, and has been making an impact at CHEO since January 2016!

When the winds of change blow, some people take cover, at CHEO, researchers build windmills.