Introduction

Asthma, a condition involving chronic airway inflammation, is common among children (1). It is estimated that 11-16% of Canadian children are affected by the disease (2). Asthma exacerbations, which may be defined as the acute or sub-acute worsening of symptom control causing distress and increased health risks to the patient, often necessitate assessment and treatment by a healthcare provider (1). Exacerbations are a common cause of emergency department visits in children with asthma and are the leading cause of hospitalization in children (3).

Appropriate management of asthma exacerbations in the emergency department is essential in order to ensure the best possible outcomes for patients. Using evidence-based guidelines can help improve outcomes (4). Although guidelines and recommendations on asthma exacerbation management are available, compliance with the guidelines remains a concern. In conjunction with the Winnipeg Regional Health Authority (WRHA), the Interlake-Eastern Regional Health Authority (IERHA) has created standardized forms that can be used for the management of pediatric asthma exacerbations in the emergency department. These forms cover many areas of care including assessment, treatment, disposition, and follow-up. By looking at the use of these standardized forms and the overall management of pediatric asthma exacerbations in the emergency department, the IERHA can begin to evaluate its’ practices and potentially identify areas for improving the quality and consistency of care.

Methods

Charts from all pediatric visits to IERHA emergency departments in the previous 12 months were reviewed to isolate cases of asthma exacerbations. Children under two years of age or over 11 years of age were excluded. This is consistent with the Canadian Thoracic Society guidelines that classify children who are 12 years of age and older as adults with regards to asthma management. Children under 2 years of age were excluded due to the increased complexity of managing infant asthma. Other exclusion criteria included children with no previous asthma diagnosis, children with evidence of an upper airway obstruction, and children with active chicken pox. Although all regional sites were included in the initial search, a handful did not have any patients meeting the inclusion criteria for the audit.

Based off of the IERHA standardized forms for managing pediatric asthma exacerbations in the emergency department, a tool was created to gather information during the chart audit. The form allows for comparisons between management guidelines and current clinical practice within the IERHA. Collected information includes the patient’s age, weight, length of stay, signs and symptoms, diagnostics, exacerbation severity classification, medications administered in the emergency department, discharge conditions and prescriptions, and follow-up provided. Information was also collected on whether the IERHA Emergency Department Pediatric Asthma Assessment Record and the Emergency Department Pediatric Asthma Care Map Physician Standard Order Sheet were used. Charts were retrospectively reviewed by a University of Manitoba pharmacy student. Data from the chart audits was entered into an Excel spreadsheet for analysis.
Results

Demographics:
A total of 24 charts were reviewed. This represents all un-excluded cases of asthma exacerbations treated in IERHA emergency departments in children 2-11 years of age in the past 12 months. The mean age of the reviewed patient charts was 6 years old and the median age was 5 years old. Males accounted for 83.3% (n=20) of the sample, while females accounted for 16.7% (n=4) of the sample. Of the patients who had their weight clearly indicated on the charts, the mean weight was 20.7 kg and the median was 17.0 kg. Ten of the 24 patients did not have a weight clearly listed. No patient charts met inclusion criteria from the emergency departments in Pine Falls, Teulon, Beausejour, or Pinawa. The remaining sites (Stonewall, Selkirk, Gimli, Arborg, Eriksdale, and Ashern) provided all 24 charts in the sample. Complete demographic information is shown in Table 1.

<table>
<thead>
<tr>
<th>Pediatric Asthma Exacerbations (n=24)</th>
<th>Location</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>StoneWall</td>
<td>7</td>
<td>29.2</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>Selkirk</td>
<td>7</td>
<td>29.2</td>
</tr>
<tr>
<td></td>
<td>Gimli</td>
<td>2</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>Arborg</td>
<td>4</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Eriksdale</td>
<td>2</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>Ashern</td>
<td>2</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Length of Stay:
All 24 patients were discharged directly from the emergency department within 24 hours of arrival.

Patient Presentation:
The proportion of patients with various presentations indicative of an acute asthma exacerbation are illustrated in Figure 1. The most common patient presentation was shortness of breath, with 70.8% (n=17) of patients reporting this symptom.

![Figure 1: Patient presentation/symptoms](image)

Patient Assessment:
The IERHA’s Emergency Department Pediatric Asthma Assessment Record was used in the assessment of 20.8% (n=5) of patients. The standardized forms were not used in 75.0% (n=18) of patients. It was unclear in one patient whether the pediatric assessment form was used. This information is illustrated in Figure 2. Two of the 18 patients who were not assessed with the IERHA’s standardized pediatric form were assessed with a standardized adult assessment form. These patients were 5.5 and 8.8 years of age.
The standardized forms used by the IERHA include a Pediatric Respiratory Assessment Measure (PRAM) score. This is a commonly used method for assessing the severity of pediatric asthma exacerbations. Accordingly, 20.8% (n=5) of patients had a PRAM score clearly indicated. The remaining 79.2% (n=19) did not.

In most patients (n=16), there was no severity classification of their asthma exacerbation clearly indicated. In the remaining patients, four were classified as mild, three were classified as moderate, and one was classified as both mild and moderate. The distribution of patients according to severity classification is shown in Figure 3.

Figure 4 illustrates the proportion of patients assessed using some common diagnostic methods. One of the 24 patients is not included in these results as the diagnostic methods used were unclear. Vitals were taken in all but 1 patient (95.7%). Blood gases were measured in 19 patients (82.6%) and chest x-rays were ordered in three patients (13.0%). Spirometry was not used for any patients.

**IERHA Standard Order Sheet Use:**

The Emergency Department Pediatric Asthma Care Map Physician Standard Order Sheet was used for 29.2% (n=7) of patients. The remaining 70.8% of patients (n=17) did not have a form.
completed. A standardized adult order sheet was used for one of these patients. The patient was 8.8 years of age. This is shown in Figure 5.

Figure 5: Pediatric order sheet use – Proportion of patients treated using the IERHA’s Emergency Department Pediatric Asthma Care Map Physician Standard Order Sheet

The standardized form is not intended for exacerbations that are classified as mild in severity. Table 2 shows a breakdown of the use of the standard order sheets based on the patient’s severity classification.

Table 2: Standard Order Form Use

<table>
<thead>
<tr>
<th>IERHA Standard Order Form Use By Severity Classification (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Mild/moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
<tr>
<td>Impending failure</td>
</tr>
<tr>
<td>Not given</td>
</tr>
</tbody>
</table>

Oxygen Administration:

An oxygen saturation of >92% on room air was maintained in 70.8% of patients (n=17). Oxygen saturations on room air fell to 92% or lower at some point in 20.8% of patients (n=5). In the remaining 8.3% of patients (n=2), the oxygen saturations were not clearly indicated. No supplemental oxygen was given to any of the 24 patients.

First Face Mask:

All but two patients were treated with an initial face mask containing salbutamol. Of the 22 patients (91.7%) that received salbutamol, 14 were also given ipratropium bromide in the first face mask. This is illustrated in Figure 6.

Figure 6: First Face Mask Medications – Proportion of patients receiving various medications in the first face mask

Three different doses of salbutamol were used in the first face mask. The most commonly prescribed dose was 5.0 mg, given to 50.0% (n=11) of the patients who received salbutamol. The next most commonly prescribed dose was 2.5 mg, given to 40.9% (n=9) of patients; followed by 1.25 mg, given to
9.1% of patients (n=2). Of the 14 patients given ipratropium bromide, 13 were given 250 mcg and one was given 500 mcg. This information is presented in Table 3.

**Table 3: First Face Mask Medication Doses**

<table>
<thead>
<tr>
<th>First Face Mask Medication Doses (n=22)</th>
<th>Ipratropium bromide (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose (mg)</td>
<td>n</td>
</tr>
<tr>
<td>1.25</td>
<td>2</td>
</tr>
<tr>
<td>2.5</td>
<td>9</td>
</tr>
<tr>
<td>5.0</td>
<td>11</td>
</tr>
</tbody>
</table>

The mean time from patient assessment to the administration of the first face mask was 15.3 minutes, while the median time was 13.0 minutes. Four of the 22 patients who received the face mask were excluded from this calculation as the time of medication administration was unclear. Figure 7 illustrates the distribution of the times from assessment to administration.

**Corticosteroids:**

Sixteen of the 24 patients (66.7%) were given corticosteroids. Eight patients (33.3%) weren’t given any corticosteroids. Prednisone/prednisolone was the most commonly prescribed corticosteroid, given to a total of 7 patients. Dexamethasone was used in the treatment of 6 patients and Pulmicort was used in the treatment of 5 patients. Two of the patients treated with Pulmicort were also treated with another corticosteroid. One was given dexamethasone and the other was given prednisone/prednisolone. Figure 8 shows the proportion of all patients (n=24) receiving various corticosteroid treatments.

The mean time from patient assessment to the administration of the corticosteroid was 39.7 minutes, while the median time was 30.0 minutes. Three of the 16 patients who received the corticosteroids were excluded from this calculation as the time of medication administration was unclear. Figure 9 illustrates the distribution of the times from assessment to administration.
Figure 9: Time (min) to administration of corticosteroid – Distribution of the time (in minutes) from patient assessment to administration of the corticosteroid. Note – one patient was given Pulmicort and Prednisone/Prednisolone at different times. Both times are reflected in this distribution giving a total 14 different patient times for 13 patients.

Second Face Mask:
A second face mask of salbutamol was given to 45.8% (n=11) of patients. Nine of these patients were also given ipratropium bromide in the second face mask. The remaining 13 patients did not receive a second face mask. This is shown in Figure 10.

Figure 10: Second Face Mask Medications – Proportion of patients receiving various medications in the second face mask. (None – no second face mask given)

Four different doses of salbutamol were used in the second face mask. Doses of 2.5 mg, 5.0 mg, and 10.0 mg were prescribed in equal frequencies with each being given to 3 of the 11 patients who received salbutamol (27.3%). One patient was given 1.25 mg of salbutamol and in one patient the salbutamol dose was not clearly indicated in the chart. Of the 9 patients given ipratropium bromide, 6 were given 250 mcg and 2 were given 500 mcg. The ipratropium bromide dose was unclear in one patient. This information is presented in Table 4.

Table 4: Second Face Mask Medication Dose

<table>
<thead>
<tr>
<th>Second Face Mask Medication Doses (n=11)</th>
<th>Ipratropium bromide (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salbutamol (n=11) Dose (mg) n. %</td>
<td>Ipratropium bromide Dose (mcg) n. %</td>
</tr>
<tr>
<td>1.25 1 9.1</td>
<td>250 6 66.7</td>
</tr>
<tr>
<td>2.5 3 27.3</td>
<td>500 2 22.2</td>
</tr>
<tr>
<td>5.0 3 27.3</td>
<td>Unknown 1 11.1</td>
</tr>
<tr>
<td>10.0 3 27.3</td>
<td></td>
</tr>
<tr>
<td>Unknown 1 9.1</td>
<td></td>
</tr>
</tbody>
</table>

The mean time from patient assessment to the administration of the second face mask was 50.5 minutes, while the median time was 52.5 minutes. One of the 11 patients who received the second face mask was excluded from this calculation as the time of medication administration was unclear. Figure 11 illustrates the distribution of the times from assessment to administration.
Figures 10: Time to administration of the second face mask – Distribution of the time (in minutes) from patient assessment to administration of the second face mask.

**Third Face Mask:**

One patient was given a third face mask in the emergency department containing 5 mg of salbutamol and no ipratropium bromide. It was administered 122 minutes after the patient’s assessment.

**Discharge:**

The Emergency Department Pediatric Asthma Care Map Physician Standard Order Sheet outlines a number of discharge criteria. The chart audit conducted in this research included a review of whether these criteria were being met. The first criterion states that the patient should have an oxygen saturation of >92% on room air prior to discharge. In four patients, the oxygen saturation at discharge was unknown. The remaining 20 patients had oxygen saturations of >92% on room air at discharge. There was no evidence of any patients being discharged with an oxygen saturation on room air of ≤92%.

Additionally, the standard order form states that respiratory, neurological, and cardiovascular status should be stable for 60 minutes without bronchodilator therapy prior to discharge. Five patients (20.8%) clearly met this criterion, while 15 patients (62.5%) did not. It is unknown whether the remaining four patients (16.7%) met this criterion. Many of the patients who did not meet this criterion were discharged less than 60 minutes after the administration of a bronchodilator. This is illustrated in Figure 11.

**Figure 11:** Proportion of patients with stable respiratory, neurological, and cardiovascular status for at least 60 minutes without bronchodilator therapy prior to discharge

The IERHA standard order form also indicates that an asthma discharge plan should be discussed with and provided to patients at discharge. None of the 24 charts had any indication that a discharge plan was provided to the patients at discharge. It is important to note that these could have been provided without documentation in the chart.

One of the 24 reviewed charts indicated that educational resources were provided to the patient at discharge. The same patient was also referred for asthma education. The remaining 23 charts did not have any indication that the patients were given resources or referred for education, despite both of these being part of the Emergency Department Pediatric Asthma Assessment Record. Again it should be noted that these could have been provided without documentation in the chart.
In the charts reviewed, none clearly indicated that Winnipeg Children’s Hospital was consulted. The standard order form states that a consultation should occur if there is a lack of improvement or worsening condition in the patient, neither of which were apparent in any of the cases reviewed. The proportion of patients receiving various prescriptions at discharge is shown in Figure 12. Most patients (n=14 or 58.3%) received at least one prescription at discharge. Ten patients (41.7%) did not receive any discharge prescriptions. The most commonly prescribed medication was salbutamol, given to 37.5% (n=9) of patients. The next most commonly prescribed medications were antibiotics and fluticasone, both prescribed to 25% (n=6) of the patients. This was followed by prednisone (given to two patients), prednisolone (given to one patient), and advair (given to one patient).

![Figure 12: Proportion of patients receiving various prescriptions at discharge.](none–no prescription given. Other – 1) Isopropyl ear drops, Claritin/Aerius and 2) Restart steroid puffer, 2 puffs BID, return prn)

Discussion

A few demographics were collected during the chart review. One interesting observation from this analysis was the high proportion of males in the sample. Of the 24 pediatric cases meeting inclusion criteria, 20 (83.3%) were male. Another interesting note is that 10 patients did not appear to have a weight clearly indicated in the chart. Pediatric weights are important when calculating medication doses.

This audit included an analysis of patient assessment, a critical step in the management of asthma exacerbations. The IERHA’s Emergency Department Pediatric Asthma Assessment Record was used for 5 patients (20.8%). In one patient it was unknown whether this standardized assessment form was used. Two patients were assessed using adult forms, despite being 5.5 and 8.8 years of age. In both of these cases, the pediatric form would have been more appropriate. This form is intended for children who have been triaged as having moderate respiratory distress. As such, it is difficult to determine how many more children the form could have been used for as many did not have the severity of their asthma exacerbation clearly indicated. The standardized form used by the IERHA is very similar to the one that is currently being used at Winnipeg Children’s Hospital.

According to the Canadian Pediatric Society, the Pediatric Respiratory Assessment Measure (PRAM) score and the Clinical Assessment Score are reliable for assessing the severity of acute asthma exacerbations (1). The asthma assessment record used by the IERHA includes a PRAM score. As such 20.8% of patients (n=5) had a PRAM score assigned. In addition to the 5 patients assigned PRAM scores, 3 other charts had severity classifications clearly indicated. The remaining 16 charts did not have a clear indication of the severity of the asthma exacerbation. This is a potential area of concern as the severity of the exacerbation influences its management and would therefore be an important piece of information to be clearly communicated to all healthcare providers involved in the patient’s care.

Vitals were taken in 22 of 23 patients. One of the 24 patients was not included in these results as the diagnostic methods used were unclear. According to the Canadian Pediatric Society, vitals, including oxygen saturations, should be taken in all patients (1). A section for vitals is included in the...
IERHA’s standardized assessment form. Although blood gases were obtained in 82.6% of patients, the Canadian Pediatric Society states that these are not routinely required for assessment unless the patient does not show any clinical improvement with highly aggressive therapy (1). Winnipeg Children’s Hospital’s standard order sheet includes an option in the general orders that may be checked off to obtain a blood gas. Blood gases are not included on the IERHA’s standardized assessment or order forms. The Canadian Pediatric Society also does not recommend the use of chest x-rays for the routine assessment of asthma exacerbations in children (1). Only three patients from our chart review had a chest x-ray ordered. Although no patients in our sample were assessed using spirometry, the Canadian Pediatric Society views this as a useful objective measure that should be included in patient assessment when possible (1). The potential lack of access to spirometry in rural hospitals may be a concern.

The IERHA’s Emergency Department Pediatric Asthma Care Map Physician Standard Order Sheet is intended to be used for asthma exacerbations classified as being moderate in severity. It was used in 29.2% (n=7) of the audited cases. Again it is difficult to determine how many more children the form could have been used for as many did not have the severity of their asthma exacerbation clearly indicated. However, it is likely that it would have been applicable in a number of the 17 patients who the form was not used for. Among the four patients identified as having a moderate asthma exacerbation, two were treated based on the standard order form and two were not. The IERHA’s standard order form is very similar to the one currently being used at Winnipeg Children’s Hospital. Unlike the form used at Winnipeg Children’s Hospital, the IERHA’s form does not include methylprednisolone as an option for corticosteroid treatment or a general order for a capillary blood gas (requiring a check for activation). Winnipeg Children’s Hospital has a standard order form for use with a Metered-Dose Inhaler/Spacer (MDI) and a standard order form for use with a nebulizer. Their standardized assessment form refers to the use of an MDI, rather than a nebulizer. The standardized assessment and order forms used by the IERHA are based on the use of a nebulizer. The Canadian Pediatric Society recommends the use of an MDI with a spacer over the use of a nebulizer for bronchodilator delivery, except for severe exacerbations with impending respiratory failure (1). The IERHA’s order form has an additional section on consulting Winnipeg Children’s Hospital if there is a lack of improvement.

No patients were given supplementary oxygen while in the emergency department, despite the fact that five patients (20.8%) were measured as having oxygen saturations of ≤92% on room air sometime during their visit. In two patients the oxygen saturation was not clearly indicated in the chart. Based off of the IERHA’s standard order sheet, as well as the Canadian Pediatric Society Guidelines, oxygen should be administered when a patient’s oxygen saturations are ≤92% on room air (1).

According to the Canadian Pediatric Society, salbutamol should be used as a standard treatment for asthma exacerbations, even in mild cases (1). Of the 24 patients, 22 (91.7%) received at least one dose of salbutamol. The most commonly used dose of salbutamol in the first face mask was 5.0 mg, given to 50.0% (n=11) of the patients receiving salbutamol. Others doses prescribed were 2.5 mg (given to 9 patients) and 1.25 mg (given to two patients). A second dose of salbutamol was given to 45.8% (n=11) of patients. Doses of 2.5 mg, 5.0 mg, and 10.0 mg were each given to 3 patients. Additionally, one patient was given 1.25 mg, and the dose given to one patient was unknown. A third face mask containing 5.0 mg of salbutamol was given to one patient. The IERHA’s physician order form includes a standard order (that must be specifically adjusted if it is not intended to be carried out) for two face masks of salbutamol, the first containing 5.0 mg and the second containing 10.0 mg. An optional third dose of 5.0 mg is included on the standard order form (requires a check for activation). When using a nebulizer, the Canadian Pediatric Society recommends administering 5.0 mg of salbutamol every 20 minutes for 3 doses in moderate exacerbations (1). Mild exacerbations can be treated with 1-3 doses of 5.0 mg salbutamol (1). Although it is again difficult to assess the appropriateness of the medications given without knowing all patients’ severity classifications, it appears as if there may be some concerns with the dosing of salbutamol being used, as well as the number of patients who were not given a second salbutamol treatment.
In exacerbations that are classified as moderate or worse in severity, it is recommended that ipratropium bromide is used in conjunction with salbutamol (1). Our results show that 14 patients received ipratropium bromide in the first face mask and 9 received it in the second face mask. A dose of 250 mcg was used in the first face mask for 13 of the 14 patients. This is consistent with the dosing on the IERHA’s order form. One patient was given 500 mcg. Although the IERHA standard order form includes a dose of 500 mcg of ipratropium bromide in the second face mask, most patients were only given 250 mcg in the second face mask. Three patients given the first dose of ipratropium bromide were not given the second dose of ipratropium bromide that they should have been given. The Canadian Pediatric Society recommends that children less than 20 kg be given 250 mcg of ipratropium bromide every 20 minutes for up to 3 doses (1). Children over 20 kg can be given 500 mcg of ipratropium bromide every 20 minutes for up to 3 doses (1). Based on our results, it appears as if many patients may be receiving lower total doses of ipratropium bromide than recommended by either the standard order form or the Canadian Pediatric Society.

Corticosteroids were given to 66.7% (n=16) of patients. The IERHA standard order form contains an order for either prednisone/prednisolone or dexamethasone in patients with moderate asthma exacerbations. Ten patients were given prednisone/prednisolone or dexamethasone Although the patients’ weight is very important in order to calculate the appropriate dose, some patients did not have their weight clearly indicated on the chart. For mild asthma exacerbations, the Canadian Pediatric Society states that inhaled corticosteroids can be given (1). Five patients in our chart audit received Pulmicort.

Rapid administration of medications is critically important for optimal patient outcomes. The mean time from assessment to administration of the first face mask was 15.3 minutes, while the mean was 13.0 minutes. Five patients were treated more than 20 minutes after assessment. The Canadian Pediatric Society states that the first dose of salbutamol (and ipratropium bromide if applicable) should be administered as soon as possible after the patient’s assessment (1). Corticosteroids were given a mean of 39.7 and a median of 30.0 minutes after assessment. Three patients were given corticosteroids more than an hour after their assessment. It is again recommended that these medications be given as soon as possible (1). Finally, the second face mask was given a mean of 50.5 minutes and a median of 52.5 minutes after the patient’s assessment. The IERHA’s standard order form states that the second face mask should be given immediately after the administration of corticosteroids. The Canadian Pediatric Society states that salbutamol (and ipratropium bromide if applicable) should be given every 20 minutes.

Appropriate disposition is another important component of care. A section on disposition is included in the IERHA’s standardized forms for assessment and physician orders. Although the oxygen saturation at discharge was unknown in 4 patients, all other patients met the criteria of having oxygen saturations >92% on room air prior to discharge. Another criterion stated on the standard order form is that respiratory, neurological, and cardiovascular status should be stable for 60 minutes without bronchodilator therapy prior to discharge. Five (20.8%) of the charts clearly indicated that this was the case. In four patients (16.7%) it was difficult to determine the patient’s stability. The remaining 15 patients (62.5%) did not clearly meet this criterion, with many of them being discharged less than 60 minutes after the administration of the last bronchodilator. This may be an aspect of disposition management that could be improved. A discharge plan is another important aspect of the management of pediatric asthma exacerbations. Although this is mentioned on the standard order sheet, no charts had any indication of a discharge plan being provided to or discussed with patients. It is important to note that the plan could have been provided to some patients without being recorded in the chart. The Winnipeg Children’s Hospital has a pre-prepared discharge plan that is completed by the healthcare team. It is included in a standardized package of forms used for the management of asthma exacerbations at Winnipeg Children’s Hospital. The provision of education or educational resources is another important aspect of patient disposition. One of the 24 charts indicated that educational resources were provided to the patient. The same patient was referred for asthma education. It is again important
to note that other patients could have been provided these resources without it being documented in the chart. Educational resources are mentioned in the IERHA’s standard assessment record and are included in the Winnipeg Children’s Hospital standardized package allowing for easy distribution to the patient.

The IERHA’s standard order form also includes a section on consulting Winnipeg Children’s Hospital if there is no improvement or worsening condition in the patient. Although very difficult to determine from a retrospective chart review, there was no clear indication of this occurring in any of the 24 patient charts reviewed. Accordingly, Winnipeg Children’s Hospital was not consulted in any of these cases.

As with any retrospective study, there are limitations to this chart review such as the potential for incomplete data. It can be a challenge to assess clinical practices retrospectively as subjective observations/information and extenuating circumstances impacting patient care may not always be clear. Although an effort was made to use objective measures in assessing asthma management, the potential for varying subjective interpretations of care remains. An additional limitation of this research was the sample size. Although all charts meeting inclusion criteria in the past year were reviewed, 24 patients is a relatively small number of cases. Additionally, a number of the patients did not have an exacerbation severity or patient weight clearly indicated in the chart. This is not only a potential area of concern with respect to patient care, but also makes comparisons between the treatment given and the recommendations challenging as the appropriate treatment is heavily influenced by these factors. As such, limited conclusions can be drawn in regards to the appropriateness of the treatment given.

Conclusion

Reviewing the regional management of pediatric asthma exacerbations in the emergency department is important in order to assess clinical practices and identify areas where adjustments may be made in order to improve the quality and efficiency of care. This chart audit looked at a number of aspects of management and identified a few potential areas of improvement. Collecting data on asthma exacerbation management is an important first step towards optimizing care.

References