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Cover Page

Project Title: Visits to Misericordia Urgent Care Related to Ocular Complaints

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Sumarry: Currently there is limited epidemiological evidence describing patients presenting to emergency room departments with ocular complaints. Further only one study has every looked at the issues of wait times. Finally no study has looked at triage criteria to allow direct consultation to an ophthalmologist. **Methods:** A retrospective chart review was carried out at the Misericordia Health Centre in Winnipeg, Manitoba, reviewing all patients presenting with ocular complaints in 2009. **Data:** In total 3543 charts were reviewed with a total of 4034 total patients visits. The average wait time for all patients was 2:42 hours from time of presentation to emergency room assessment by a physician. In total 1685 of all patient encounters were referred to the ophthalmologist on call, with an average wait time of 10:15 hours to see the ophthalmologist. **Discussion:** Patients presenting with symptoms of flashes and floaters alone could be referred to ophthalmologist on call directly by emergency room triage staff. This is based on the finding that 92.5% of people presenting with flashes and floaters were eventually referred to the ophthalmologist by the emergency room physician. A further attempt to reduce wait times would be to establish an "eye specialist" at the Misericordia of a non-surgical ophthalmologist, optometrist or resident. **Conclusion:** Patients presenting to Urgent Care at Misericordia compromise a diverse group of individuals and with direct triaging and an instigation of ocular specialists wait times could be reduced.

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Introduction

It is estimated that patients presenting with ocular complaints account for up to 3% of emergency room visits.[1] Currently there is limited epidemiological evidence describing these patients. The only Canadian study looking at the epidemiology of patients presenting to an emergency department with eye injuries is restricted only to children.[2] Multiple international studies have looked at the epidemiology of patients presenting to emergency departments with eye conditions[3-6] but only one looked at the issues of wait times.[4] While the idea of training ophthalmic nurses to treat minor conditions has been explored[7] no study has looked at triage criteria to allow a direct consultation to an ophthalmologist.

Methods

A retrospective chart review was carried out at the Misericordia Health Centre in Winnipeg, Manitoba. Charts were selected by performing a computerized search looking for all caess seen at Urgent Care that were coded with ICD codes pertaining to ophthalmology from January 1 to December 31, 2009. All cases were categorized by the presenting complaint and duration of symptoms, patient demographics and underlying diseases. Times of day, month, management by the emergency physician, previous care, the need for referral to an ophthalmologist and ophthalmological intervention including admission to hospital and surgical procedures performed were also recorded. Cases involving trauma were categorized using the Birmingham trauma classification system.[8]

Data

The total number of charts reviewed was 3543. The average age of patients presenting with ocular complaints to Urgent Care at Misericordia Health Centre in 2009 was 50 yrs (Std Dev ±20, median 53, youngest 10 days old, oldest 101). The distribution of patients is shown in Figure 1. Of the 3543 patients, 55.7% were female and 44.3% were male.

In total there were 3673 distinct visits, with 361 follow-up visits, for a total of 4034 patient encounters in 2009. There were 130 visits by returning patients, presenting with a new or different ocular complaint. Of 361 follow-up visits for existing complaints 216 were planned follow-ups, 145 were not. For those patients returning with unplanned follow-ups the average time to follow-up was 6 days (median: 4 days, minimum: patient returning the same day, maximum: 35 days). There were 5 outliers who were followed-up at between 52-120 days. Three of those patients were returning for management of symptoms associated with recurrent corneal erosions, likely due to new attacks. The other two were returning with persistent symptoms of flashing lights and floaters in their vision. Neither were found to have retinal detachments.

Of the 145 patients returning for unplanned follow-up care there is no specific set of symptoms that unify this subset of patients. At original presentation 43.4% complained of red eyes, 23.4% also reported pain and/or decreased vision, 22.0% reported discharge. The most common diagnosis by the emergency room physician at first presentation was bacterial conjunctivitis (20.6% of all 145 patients). Of all 145 patients, almost half the time (48.9%) the

emergency room physician referred the patient on to the ophthalmologist on call. In 4.8% of cases the patient was asked to continue the current treatment of drops given at the original appointment. In the remaining 46.2% of cases the emergency room physician altered the treatment recommended to the patient.

There was a sub group of 172 patients who were referred to Urgent Care for ocular assessment. Over half, 97 patients, were referred to Urgent Care by their primary care provider. Another 36 of the referrals came from walk-in-clinics, and a further 15 from other emergency room departments at both urban and rural hospitals. Finally there were 21 referrals from optometrists and 3 from ophthalmologists. The three ophthalmology referrals were situations in which the patient called their current managing ophthalmological office with non-specific symptoms of decreased vision and eye irritation. In all cases the patient reported that the staff at the ophthalmological office instructed the patient to present to Urgent Care on the advice of the ophthalmologist. In one case the patient left without being assessed. In the two other cases the patient was referred to the ophthalmologist on call and one was diagnosed with cataracts and the other with elevated intra ocular pressure for which treatment with pressure lowering drops was initiated.

Patients presented throughout the day, with the most presentation between 11:00 AM to 12:00 noon (see figure 2). Patients also present with a relative equal distribution throughout the year. The average number of visits per month was 306 patients (Standard Deviation ±29). The highest number of presentations of 351 visits was in July and lowest number of visits in Feb with 258 (see figure 3). On average 10 patients presented per day (Median: 10 patients, Maximum: 23, Minimum: 1). Through the week there was not much difference, with 8-9 patients presenting on Sundays, 10 patients on average presenting on Monday-Thursday, between 11-12 patients on Friday and between 9-10 patients on Saturday. The most patients seen in one day (23 patients) was July 2, 2009. On July 1, 2009 there were 10 patients seen on. Looking at all statutory holidays through the year, between 7-8 patients presented on the holiday itself (with only 1 presenting on December 25, 2009) and between 13-14 patients presenting on the day after the holiday.

Patients waited an average of almost 6 days before presenting to Urgent Care (standard deviation: ±11 days, median: 2 days, maximum: 84 days, minimum: within 1 hour of symptoms). Once arrived the average wait time to see an emergency room physician was 2:42 hours (standard deviation: ±1:41 hours, median: 2:28 hours, minimum: 0:03 hours, maximum: 12:54 hours). This can be further categorized to triage levels and bench marks established by the Canadian Association of Emergency Physicians (CAEP) as the Canadian Triage and Acuity Scale.[9] In Urgent Care each patient is assigned a triage level of 1 to 5 (1 being immediately urgent). No patients were deemed level one, 1.7% were level 2, 33.5% level 3, 56.1% level 4, and 8.7% level 5. Wait times for level 2 was 1:02 hours (standard deviation: ±0:41 hours), level 3 was 2:34 hours (standard deviation: ±1:37), level 4 was 2:50 hours (standard deviation: ±1:42) and level 5 was 2:42 hours (stand deviation: ±1:44).

At Urgent Care patients with a triage level of 2 had an average wait time of 1:02 hours (standard deviation: ±0:41 hours, median: 0:51 hours, maximum: 3:29 hours, minimum: 0:08 minutes), level 3 waited on average 2:34 hours (standard deviation: ±1:37, median: 2:22 hours,

maximum: 10:56 hours, minimum: 0:03 minutes), level 4 waited an average of 2:50 hours (standard deviation: ±1:42 hours, median: 2:39 hours, maximum: 12:54 hours, minimum: 0:03 minutes), and level 5 waited an average of 2:39 hours (standard deviation: ±1:44 hours, median: 2:22 hours, maximum: 9:33 hours, minimum: 0:03 minutes).

Using postal code data collected it can be determined that 3078 of the patients came from within Winnipeg, Manitoba. There were 363 patients from rural Manitoba and 45 patients from outside Manitoba. Another 57 did not have a postal code identified in their chart. For a distribution of patients from within Winnipeg see Map 1.

In total 100 different presenting symptoms categories were established. Symptoms varied from patient to patient however, for example, if a patient reported "tearing" or "crying eyes" the symptoms would be categorized as epiphoria. For each patient up to four different presenting symptoms were recorded. The most prevalent symptom was red or congested eyes being reported in 36.9% of all patients. Decreased or some form of blurry vision was reported by 27.6% of all patients presenting. Pain was reported by 24.8% of patients. Symptoms of ocular discharge, ocular foreign body sensations, flashes of lights, floaters, general eye irritation, swollen lids and epiphoria were each reported in 10-15% of patients.

The emergency room physicians recorded 244 different diagnoses. The most common diagnosis (13.9%, 474 patients) was an uncertain diagnosis which was recorded as "emergency room officer (emo) unsure". The emergency room physician did not record a specific diagnosis; often a diagnosis was given in the form of a symptom followed by NYD (not yet diagnosed). Of these 474 patients, 409 (82.3%) were referred to the ophthalmologist on call. Of these same 474 patients the most prevalent presenting symptom (49.1% of the time) was decreased or blurry vision. The next most prevalent symptom was pain (26.2%). Red eyes were reported in 17.8% of the 474 case, floaters 16.6%, flashes 11.5%, and headaches reported in 11.5% of cases as well.

The next most common diagnosis was bacterial conjunctivitis (10.9% of all presentations). In comparison viral conjunctivitis was in diagnosed 2.6% of all cases. The diagnosis of "? Posterior Vitreous Detachment (PVD)" was recorded in 7.7% of all cases. Similarly the diagnosis of "? Retinal detachment" was recorded in 4.8% of cases. These two diagnosis were separated from the diagnosis of "emo unsure" as in all cases of the diagnosis of either "? Pvd" or "? Retinal detachment" the emergency room physician was reacting to the patient presenting with symptoms of flashes or floaters in their vision.

During 2009 a total of 635 patients presented with symptoms of either flashes or floaters or both. During the management of these patients, the emergency room physician referred 563 patients to the ophthalmologist on call. In 27 cases the patient left before being consulted with the emergency room physician and in 45 cases the emergency room physician made a diagnosis and offered treatment/advice without a referral. Of these 45 cases 10 were advised to keep their appointments with their regular ophthalmologist. It was not noted when or how long the patient would have to wait for these appointments. In 12 cases the emergency room physician determined no intervention was necessary. There were no obvious differences in presenting symptoms to identify these individuals. Four patients were advised to make an appointment with an optometrist. Four other patients were diagnosed with migraines. All 4 presented with

symptoms of flashes along with a history of a headache (HA). In the remaining 15 cases all patients had other symptoms of pain, red eyes, or ocular irritation, and were diagnosed with either an ocular infection or abrasion.

The average wait in Urgent Care of patients presenting with symptoms of flashes or floaters was 2:42 hours (standard deviation: ±1:39 hours, median: 2:29 hours, maximum: 8:41 hours, minimum: 0:03 minutes). After referral was made the average time to consult was 11:15 hours (standard deviation: ±10:29 hours, median: 11:02 hours, maximum: 71:17 hours, minimum: direct referral to ophthalmology at Misericordia). The emergency room physicians' assessment seemed to make no difference in the urgency of the consult with the ophthalmologist on call. In figure 5 it can be seen that patients with symptoms of flashes and floaters presented throughout the day and less during the late evening and early morning hours. However as can be seen in figure 6, the ophthalmologist on call preferred to see the patient during the work day or occasionally in the early evening. Of the 563 referrals, there were only 25 consults with the ophthalmologist between 7:00 to 10:00 pm in all of 2009. Further, there was only one consult at 3:00 am and no others between 10:00 pm and 7:00 am all year.

Sub conjunctival haemorrhages were also a very common occurrence being diagnosed in 6.2% of all cases. Corneal abrasions were also common being diagnosed 5.3% of the time. Two other common diagnoses were blepharitis (4.9% of all cases), and uveitis (4.3% of all cases).

Of all the patient presentations, 269 (7.6%) left without being seen. The time the patient would have been seen was recorded in the chart giving an average wait time for those who left of 2:43 hours (standard deviation: ±1:49 hours, median: 2:28 hours, maximum: 9:49 hours, minimum 0:03 minutes). After leaving only 36 of the 269 patients returned for care at a later date. The average time to presentation was 3 days (median: 1 days, maximum: 15 days, minimum: same day return to clinic). Of these 36 patients the most prevalent original presenting symptoms were red eyes (38.9%), pain (27/8%), decreased vision (25.0%), generalized irritation (22.2%), and floaters (19:4%). Again for these 36 patients the ultimate diagnosis was varied and was similar to the general trend of all patients presenting. The most common diagnosis was "emo unsure" (7 patients) which were all referred to the ophthalmologist on call. A few were diagnosed with conjunctivitis (4 patients), dry eye (3 patients), uveitis (2 patients), and corneal abrasions (2 patients). Of the remaining 12 diagnosis there was only one of serious concern. One patient was diagnosed with acute angle closure glaucoma. This patient left without being seen after having waited less than 2:17 hours presenting the following day to wait another 1:35 hours to finally be seen by the emergency room physician.

Three hundred seventy six (10.6%) patients had been assessed elsewhere for the same problem. This included other emergency departments, walk-in-clinics, primary care offices and optometrists. On occasion the previous practioner referred the patient to the Urgent Care department; however, often the patient was seeking a second opinion. Although data was not collected for all patients that were many patients reporting multiple visits to multiple different health care centres prior to presenting to Mistericordia.

Also on presentation 118 (3%) patients presented because of concerns in the post operative period. In 58 (49.1%) of cases the emergency room physician referred the patient on to the care of the ophthalmologist on call. In 29 (24.5%) of cases the patient was advised to maintain the current treatment course and continue with scheduled follow-up with the managing ophthalmologist. In total 9 (7.6%) of patients left before consultation, and 7 (5.9%) were prescribed an antibiotic drop or ointment as additional treatment. The remaining 15 patients were either given no treatment or advice, artificial tears, warm compresses, or oral analgesics.

The emergency room physician recorded monocular visual acuities in 60.2% patient assessment, a binocular visual acuity 9.0% of the time and no visual acuity was taken 30.2% of the time.

Following evaluation by the emergency room physician there were a total of 1685 referrals to the ophthalmologist on call (47.6% of all presenting complaints). After the referral was made the patient had to wait an average of 10:15 hours to see the ophthalmologist (standard deviation: ±8:59 hours, median: 7:45 hours, maximum: 47:35 hours, minimum: direct referral to the ophthalmology department in Misericordia). There were 14 referrals where the time to consult with the ophthalmologist was greater than 2 days (longest wait was 22 days). Of the 14 referrals 5 were classified as "emo unsure" by the emergency room physician, 4 were "? Pvd", 1 was "? Retinal detachment", another "vitreous haemorrhage", another "keratitis", and finally 1 was diagnosed as an "infected cyst".

Most ophthalmologists on call choose to see the patient during the regular work day (see figure 4). If the patient was referred in the evening the ophthalmologist usually chose to see the patient the next day. Further there was a preference to schedule the patients in the mid morning and afternoon (see figure 4).

Ocular trauma accounted for 443 (12.1%) of all presentations. Of those injuries 115 (25.9%) were reported to happen at work, with only 67 having documentation in the chart of correspondence with the Workers Compensation Board. Using the Birmingham trauma classification 304 (68.6%) of the injuries were lamellar lacerations, meaning the injury was partial thickness injury of the eye. Another 90 (20.3%) were contusions from blunt trauma without rupture of the wall of the eye. There were 46 (10.4%) superficial injuries from mild chemical burns not penetrating the full thickness of the epithelium. Finally there were 2 (0.6%) globe ruptures, defined as full thickness wounds to the eye caused by a blunt object. There were no penetrating injuries which are defined as a full thickness wound with or without a retained foreign body. Also there were no perforating injuries which are defined as a full thickness injury with both an entrance and an exit wounds. There was one case not. A patient was injured by a pressure washer in some fashion and was diagnosed by the emergency room physician with diplopia and referred for a neurological consult. Unfortunately no corresponded from the neurology consult was recorded in the chart.

The most prevalent form of injury (23.7%) was metal foreign bodies from grinding metal, drilling metal, or automotive work. Often the patient reported using no protective eye wear. The second most common form of injury (14.4%) came from chemical splashes. These work place hazards such as concrete mix, and caustic chemicals, as well as to house hold products such as

toilet bowel cleaner and even crazy glue. Working with tools such as sawing wood or cutting electrical wire accounted for 9.7% of all injuries. Assault, including assault with fists, electric tooth brushes, air rifles, and pepper spray, for example, accounted for 6.7% of all trauma related presentations. Day to day activities such as dust from a gardening, Ziploc bags, vacuum cleaners, paper cuts to the eye accounted for 6% of trauma related visits. Incidents related to sporting events and falls accounted for 5.7% of all trauma presentations. Of all trauma, 4.4% of people poked themselves in the eye to the point of needing a consult in Urgent Care. The remaining trauma includes a small portion of people experiencing welders flash, trauma to the eye from tree branches, and animal encounters.

In total 70 patients were admitted because of their presenting complaint. There were many reasons for admission. These included patients with a diagnosis of acute angle closure glaucoma (4 patients), vitreous haemorrhage (4 patients), endophthalmitis (3 patients), corneal ulcers (2 patients), but the most prevalent reason (35 patients) was for retinal tears or detachments needing surgical and/or lasertherapy. The average time from presentation to Urgent Care to time of admission for all admissions was 15:45 hours (standard deviation: ±15:30 hours, median: 11:50 hours, maximum: 72 hours, minimum: 1 hours). The wait times in the emergency room was 2:05 hours (standard deviation: ±1:36 hours, median: 1:35 hours, maximum: 5:53 hours, minimum: 0:08 minutes), and to consultation with the ophthalmologist was on average 7:21 hours (standard deviation: ±7:53 hours, median: 4:06 hours, maximum: 29:27 hours, minimum: 0:05 minutes). There were 10 admission between 4-59 days. In 5 of the ten cases the patient underwent a vitrectomy. In 2 cases the ophthalmologist referred to the retinal ophthalmologist on call at which point the documentation is not available until the patient is admitted. In one of these two cases the first ophthalmologist diagnosed the patient with a retinal detachment before referring to the retinal specialist. This patient waited 51 days from presentation until admission for surgical treatment involving scleral buckle. The other patient managed by the retinal ophthalmologist was diagnosed and treated for ischemic optic neuropathy. The remaining 3 of 10 patients were diagnosed with diabetic retinopathy, clinically significant macular oedema, and carcinoma associated retinopathy. When looking specifically at those patients with retinal tears or detachments the average time to admission was 17 hours (standard Deviation: ±12 hours, median: 15 hours, maximum: 48 hours, minimum: 2 hours).

In total there were 154 surgical interventions performed by ophthalmologists stemming from patients presenting to Urgent Care. This ranged from retinal repairs, vitrectomies, cataract surgery, to even more simple interventions such as chalazion excision and drainage. The average time from presentation at Urgent Care to the definitive surgical intervention was 33.5 days (standard deviation: ±52.7 days, median: 6 days, maximum: 305 days, minimum: 3 hours). As expected when looking at retinal tears or detachments there was much more urgency in the time to surgical intervention. In total there were 56 retinal procedures done. The average time from presentation at Urgent Care to intervention was 3 days (standard deviation: ±7.9 days, median: 1 day, maximum: 51 days, minimum: 4 hours). This data indicates there was significant variation in time to treatment, however from the data collected there was no way to distinguish why in some cases it took longer for intervention to occur.

Analysis and Discussion

Wait times are a major concern for both the public and care providers working in emergency rooms. In 2009 the average wait time at the Misericordia Urgent Care department was 2:42 hours for patients presenting with an eye problem. In Urgent Care patients are assigned a triage score from 1 through 5 with 1 being the most urgent and 5 being the least. Bench marks for wait times have been established by Canadian Association of Emergency Physicians. They recommend that patients assigned a triage level of 2 should be seen in less than 15 minutes. Further, triage levels of 3 should be seen in 30 minutes, levels of 4 seen within 60 minutes, and levels of 5 seen within 120 minutes.[9] In Urgent Care patients with a triage level of 2 had an average wait time of 1:02 hours (standard deviation: ±0:41 hours, median: 0:51 hours, maximum: 3:29 hours, minimum: 0:08 minutes), level 3 waited on average 2:34 hours (standard deviation: ±1:37, median: 2:22 hours, maximum: 10:56 hours, minimum: 0:03 minutes), level 4 waited an average of 2:50 hours (standard deviation: ±1:42 hours, median: 2:39 hours, maximum: 12:54 hours, minimum: 0:03 minutes), and level 5 waited an average of 2:39 hours (standard deviation: ±1:44 hours, median: 2:22 hours, maximum: 9:33 hours, minimum: 0:03 minutes). Although the wait times are not meeting the target levels, the average wait of 2:42 hours in Misericorida Urgent Care is better than the average wait of 5.8 hours reported by survey of CAEP members.[9] There is however always room for improvement.

In an effort to reduce wait times there are a few presenting symptoms that could be streamlined for direct referral to an ophthalmologist. There are certain symptoms the emergency room physician will refer to the ophthalmologist on call almost 100% of the time. Therefore if a patient presents with symptoms satisfying established criteria, they could be referred directly to the ophthalmologist on call by the triage nurse. A direct referral would eliminate the "wait time" the patient would have had to wait at Urgent Care. Further, the remaining patients at Urgent Care should be seen quicker with one less patient in queue and finally the health care system should save on resources as the emergency room physician would have billed for a consultation, only to refer that same patient to the ophthalmologist on call anyway. A possible disadvantage of such as system is the potential for abuse of the direct referral. A patient may be aware of which symptoms will get them a direct referral to the ophthalmologist on call and fake those symptoms just to get a direct referral. That being said the following discussion will highlight a few possible symptoms that could be used by triage staff for direct referral to the ophthalmologist on call.

One such set of symptoms would be patients presenting with "flashes" or "floaters". These symptoms elicit a concern for a potential vision threatening retinal tear or detachment. In this review patients presenting with flashes or floaters needed a surgical or laser intervention 8.8% of the time. Patients presenting with flashes will describe "lights" or "flashes" in their vision where there is no obvious external cause. "Floaters" are may be described with more variation. Some patients will describe "black specs" while others see "spider webs" or "strands of hair". Floaters, however, are all described as some mobile visual obscuration. The recommendation, and common accepted management of patients presenting with flashes and/or floaters is prompt referral to an ophthalmologist for a dilated exam of the retina with indirect techniques. The direct ophthalmoscope has a limited view and cannot exclude a diagnosis of retinal detachment.[10] During 2009 a total of 635 patients presented with symptoms of either

flashes or floaters or both. As described in the data 563 patients (92.5%) were referred to the ophthalmologist on call. The average wait in Urgent Care of patients presenting with symptoms of flashes or floaters was 2:42 hours (standard deviation: ±1:39 hours, median: 2:29 hours, maximum: 8:41 hours, minimum: 0:03 minutes). Of those patients who were not referred many presented with other symptoms such as headaches, ocular irritation, red eyes, or ocular pain. Therefore, the recommendation is for patients presenting with symptoms of flashes or floaters, without other symptoms, to be referred directly to the ophthalmologist for a comprehensive dilated retinal exam. This would remove a significant number of patients out of the queue of patients waiting and should help reduce wait times in general.

Patients presenting with subconjunctival haemorrhages is another area where wait times could be reduced. In total 205 patients were diagnosed with a subconjunctival haemorrhage. To see the emergency room physician these patients waited on average 2:57 hours (standard deviation: ±1:51 hours, median: 2:51 hours, maximum: 12:54 hours, minimum: 0:16 minutes). In 185 cases no treatment or investigations were ordered and the patient was reassured. In 7 cases the emergency room physician gave a sample of artificial tears. In 5 cases the patient had concurrent symptoms of ocular infection and the emergency room physician prescribed an antibiotic ointment or drop. One patient was advised to stop taking their warfarin for 2 days. Finally 7 patients were referred to the ophthalmologist on call. One referral was because the patient had symptoms of decreased vision which the ophthalmologist on call found to be due to a cataract. Another patient was referred because the patient had a foreign body sensation which was due to a loose suture from a previous cataract surgery. The remainder of the referrals involved rauma incidents, where the ophthalmologist found no other pathology and so no treatment was required. A subconjunctival hemorrhage is something that a triage nurse could assess. Although it was not recorded in the chart review, it was noted that the triage nurse would often put the diagnosis of subconjunctival hemorrhage in the triage record. Therefore, a formal triage form could be devised in which a patient presenting with a subconjunctival hemorrhage is screened by having their blood pressure assessed, medications documented, trauma events determined, visual acuity taken and frequency of occurrence noted.[11] The objective would be for the triage nurse to screen those patients and if they do not have any "red flags", the patient could be reassured and given the option of going home without seeing the emergency room physician. Development and testing of such a triage form would need further testing for validation, but could again save patients considerable waiting time.

Another area of interest of this review was patients presenting with ocular trauma. Trauma involving metal fragments, be it from grinding, drilling or just working with metal was the most prevalent form of injury. Next most frequent was 65 patients reporting chemical splashes. Working with tools and wood saws resulted in another 54 presentations to Urgent Care. Unfortunately there was no consistency in reporting if the patient was wearing any ocular protection or face shielding. Similarly, in all the 25 sport related injuries there is no documentation of wearing protective goggles or shields. However, some of the injuries are as a result of contusion while playing soccer or other related non-contact sport. At this time it would seem unlikely that soccer leagues would start mandating players wear sport goggles on the field. Other than the aforementioned injuries, there did not seem to be any other areas where there was a consistent mechanism of trauma. The remaining trauma incidents seem to be truly accidental and just general caution can be advised.

Of note was the low number of significant injuries presenting to Urgent Care. There were only 2 ruptured globes as a result of blunt trauma and no penetrating or perforating injuries. It is unclear as to why such cases did not present to Urgent Care since it is the recognized eye care centre in the city. It is presumed that for the most serious injuries patients went immediately to the nearest emergency department and then would have been transferred to the Misericordia Eye Ward under the care of the ophthalmologist on call, bypassing Urgent Care. Also of interested when reviewing trauma cases was that over half of the injuries taking place in the workplace did not have documentation in the file of correspondence with the Workers Compensation Board.

The wait time to admission of 15:45 hours seems at first glance lengthy. The most significant reason for longer duration is the wait to ophthalmological consult. On average patients admitted waited 2:05 hours to see the emergency room physician. They then waited another 7:15 hours to see the ophthalmologist on call. The wait time to admission was calculated from time of presentation to admission. As one can see half of the wait time to admission is taken by waiting to see the ophthalmologist. As previously discussed the ophthalmologist often choose to see the patient during the working day and hence the long wait time, especially for those patients presenting in the evening having to wait until the next day to be seen.

In general it seems that the emergency room physicians do not have the training to properly manage half of the ocular disease presenting to the Urgent Care department. This is based on the fact that 47.6% of all patient presentations resulted in a referral to the ophthalmologist on call. Considering the significant referrals, and the long wait times perhaps there should be alternative solutions sought, other than just trying to expedite certain presenting signs and symptoms. Perhaps there could be further ocular disease management training for the emergency room physicians. For example if the emergency room physicians felt comfortable dilating and using indirect methods to assess for retinal tears and detachments there would not be the need for as many referrals to the on call ophthalmologist. This however would probably prolong waiting times in Urgent Care as the emergency room physicians would be spending more time with patients.

Another suggestion would be to establish and on call optometrist, on call resident or ophthalmologist at the Misericordia. Presumably if all patients with ocular complaints were triaged to see the dedicated on call optometrist/resident/ophthalmologist there would be a shorter wait as the patients would not be waiting in the general Urgent Care department. All options are potentially feasible as optometrists in Manitoba will soon be granted the right to prescribe topical where as previously it would have made no sense to have an optometrist assessing patients without the ability to appropriately manage that patient's care. Also the University of Manitoba accepted its first ophthalmology resident in 2011, thereby having the option having an ophthalmology resident on call a realistic option. Further there was an average of 10 patients presenting per day, which is a realistic number to manage. The only concern would be that patients did not present only during the day time hours. Somehow coverage for the entire day would need to be scheduled. Having a full time practioner dedicated to ocular patient presentations should provide a higher standard of care, shorter wait times and fewer referrals to the ophthalmologist on call.

Conclusions

Patients seeking health care at the Misericordia Urgent Care department with a diverse assortment of ocular signs and symptoms. There is a substantial wait (average of 2:42 hours) from time of presentation to assessment. When analyzing the presenting symptoms along with the typical management patients presenting with symptoms of flashes or floaters and no symptoms of ocular infection or migraine could be directly referral to an ophthalmologist on call. A direct referral would save patients presenting with flashes or floaters an average of 2:42 hours. There were 563 referred in 2009 for assessment of flashes or floaters. This is a significant number of patients that could be directly referred and would result, to some extent, in shorter wait times for the other patients.

Further, wait times could be reduced and the standard of care could be elevated if there was an attempt to establish a permanent "eye specialist" at the Misericordia centre. This could be a non-surgical ophthalmologist, optometrist, or the new ophthalmology residency program.

In analyzing the ocular trauma data there does not seem to be any specific mechanism of injury that could warrant a public campaign. Even though there were a significant number of injuries to the eyes, there was no one form of injury that stood out.

Figures and Maps

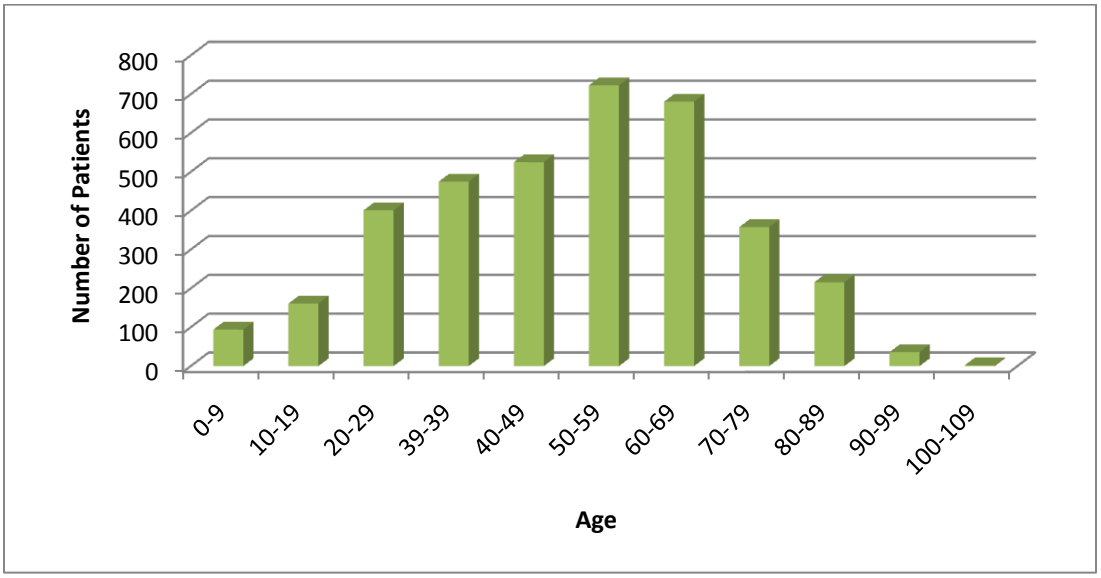


Figure 1. The distribution of patients presenting to Urgent Care with ocular complaints in 2009.

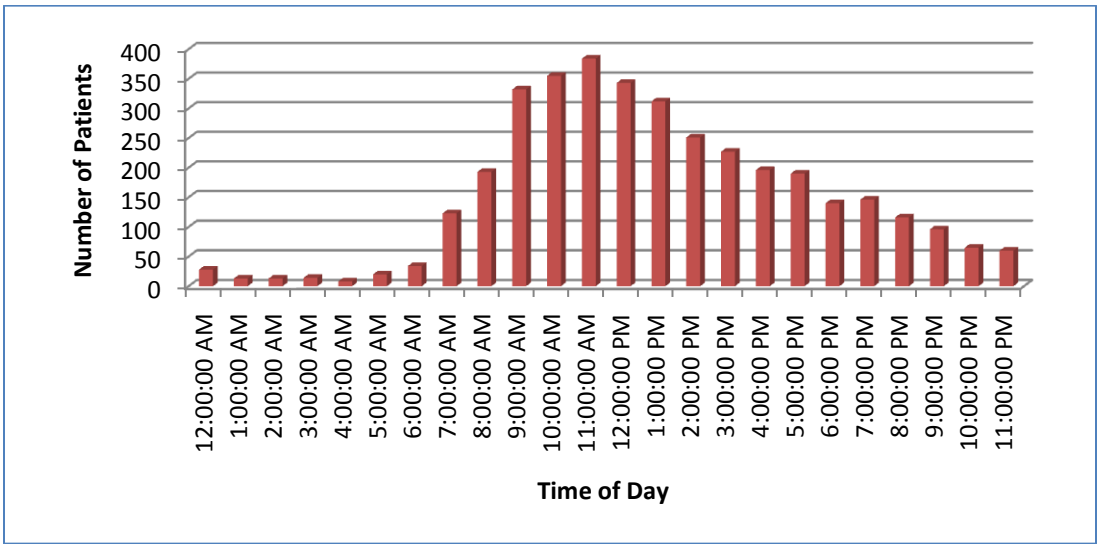


Figure 2. Patient presentations to Urgent Care based on time of presentation during the day.

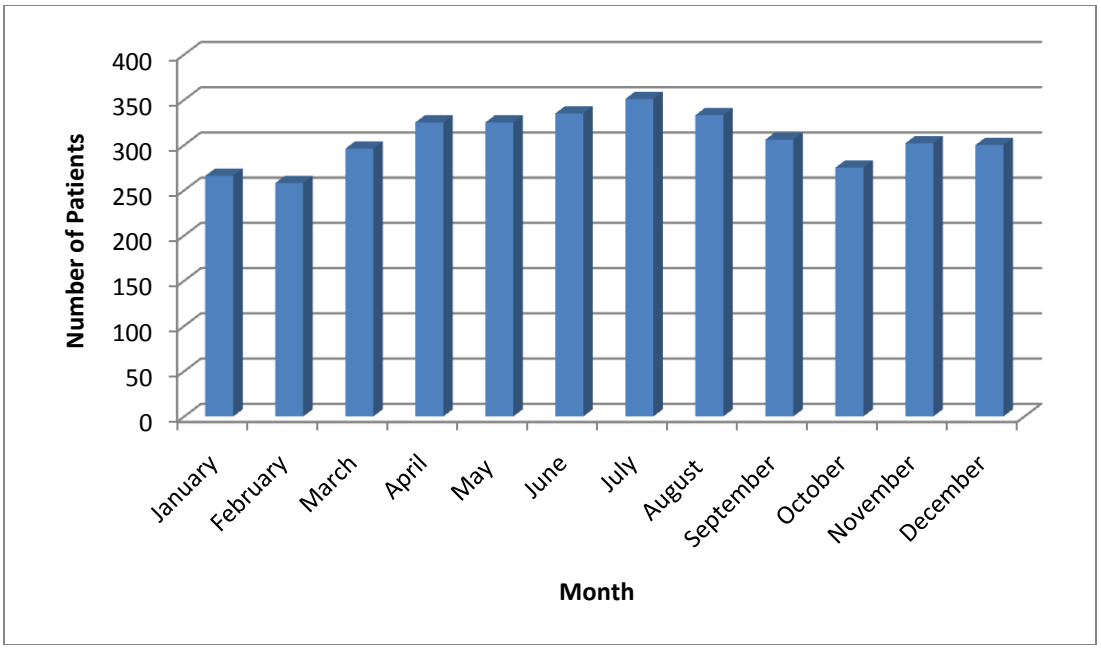


Figure 3. Patient presentations to Urgent Care based on number of visits per month.

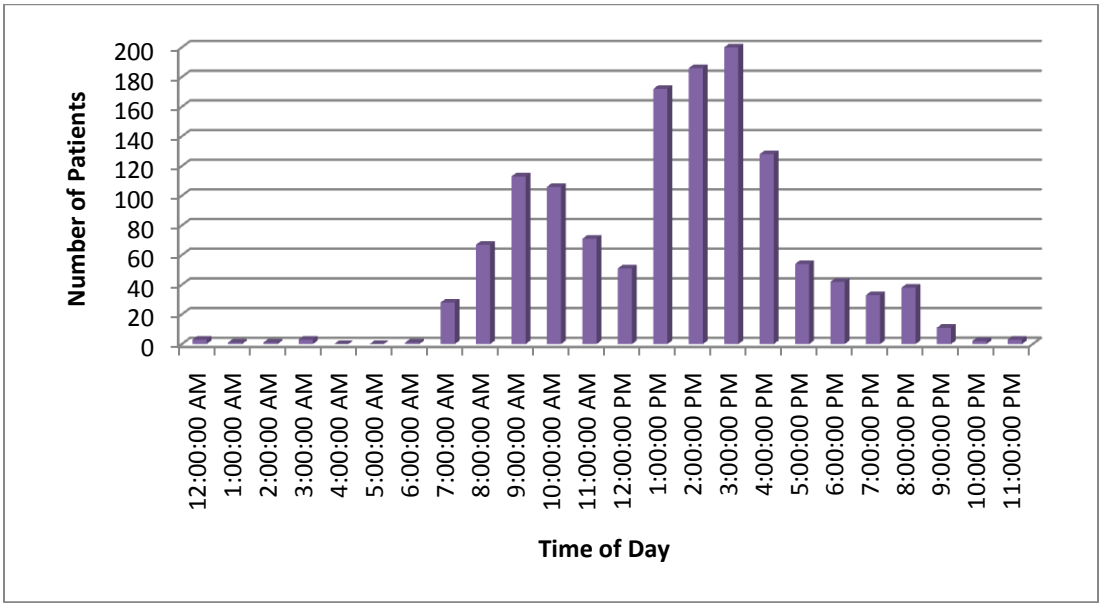


Figure 4. Time of day of the patient was seen by the ophthalmologist.

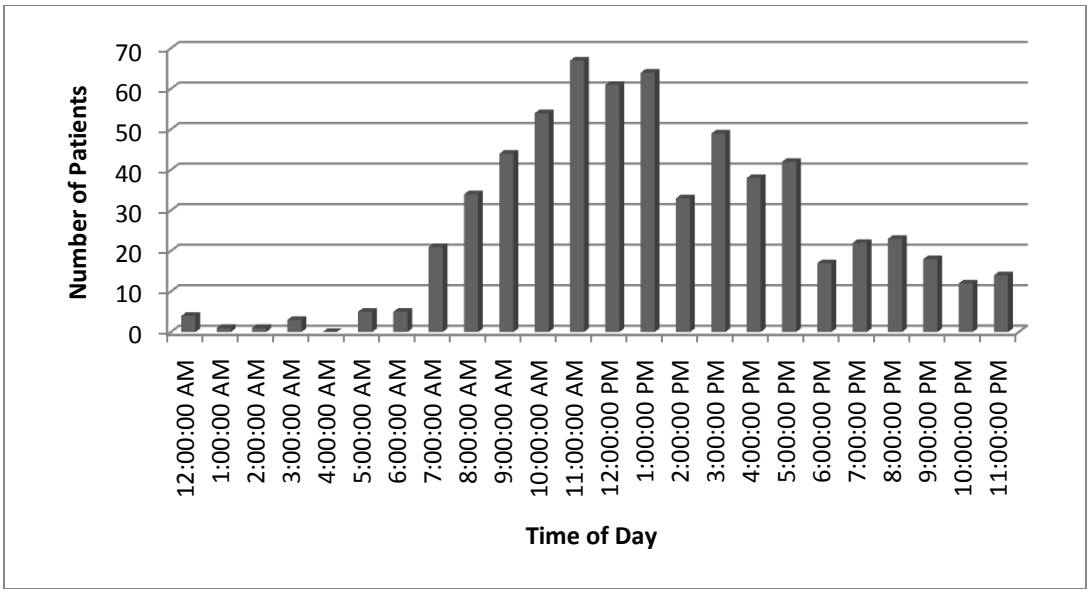


Figure 5. Time of day patients presented with symptoms of flashes and floaters.

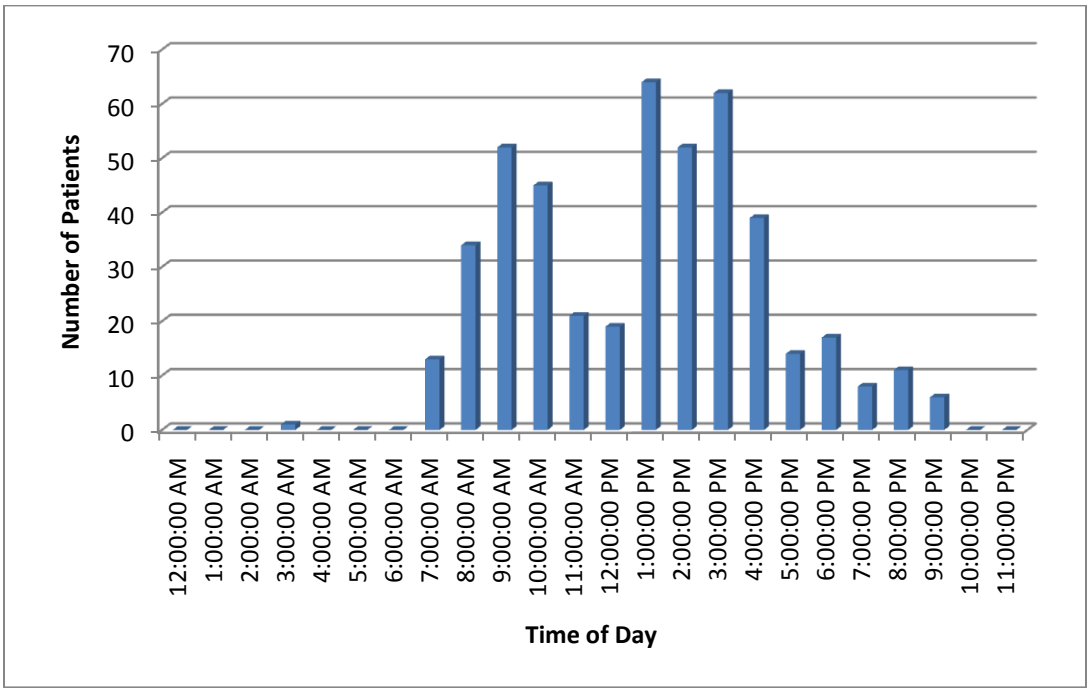
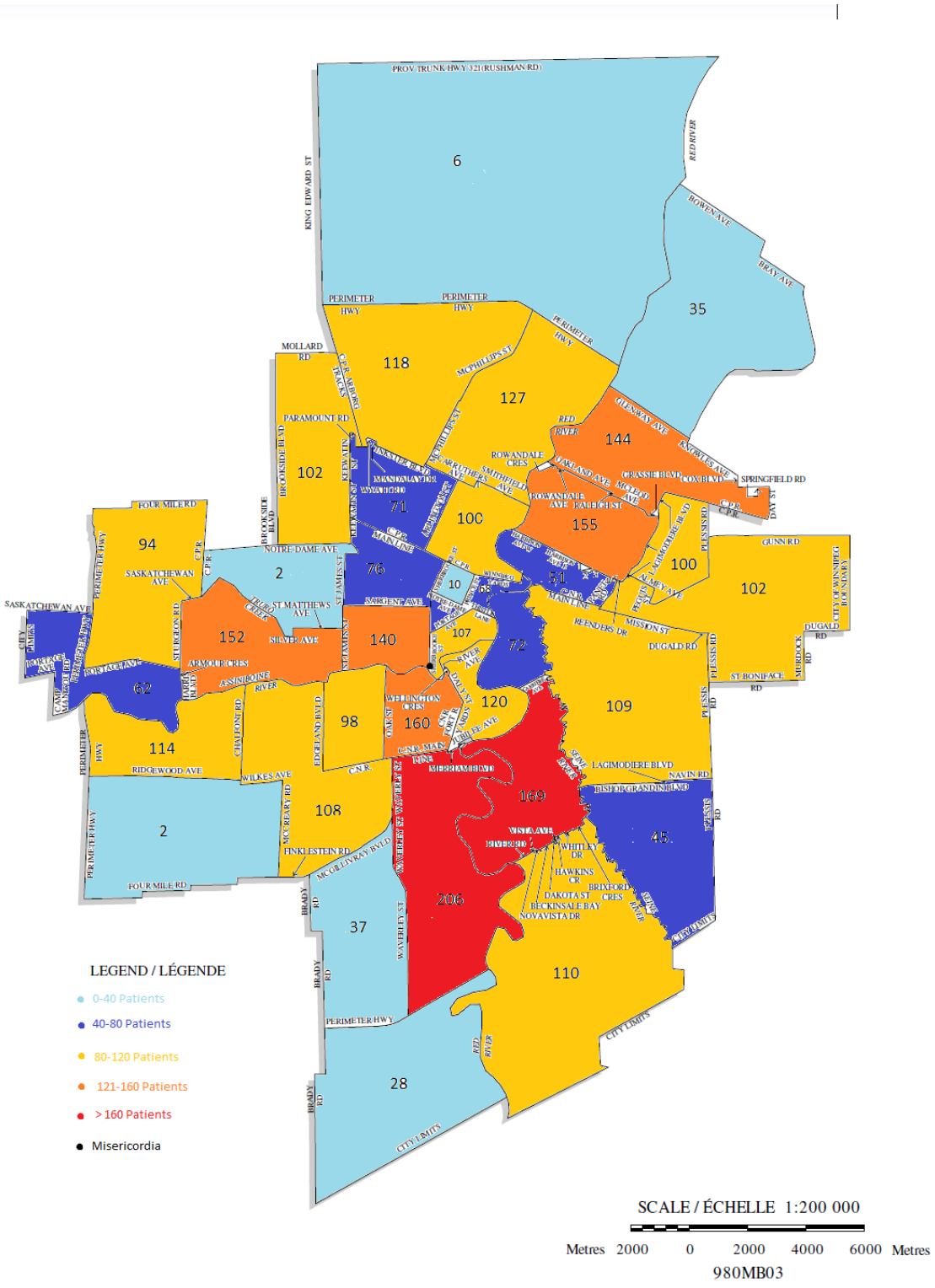


Figure 6. Time of day patients with symptoms of flashes and floaters were see by an ophthalmologist.

Victor Penner



Map 1. Distribution of patients presenting to Misericordia Urgent care broken down by postal code area's as defined by Canada Post.

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