

Early return visits by primary care patients: a retail nurse-practitioner clinic versus a medical office walk-in clinic

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Aim: The purpose of this study was to compare return visits in 2 weeks experienced by patients using a retail nurse-practitioner clinic to similar patients using standard drop-in clinic located in a medical office. **Background:** Retail medicine clinics have become widely available. However, their impact on return visit rates compared to drop-in medical office visits for similar patients is unknown. **Methods:** Medical records of primary care patients (both adults and children) seen in a large group practice in Minnesota in 2008 were analyzed for this study. Patients treated for five common conditions were selected (pink eye, sore throat, viral illness, bronchitis, and cough, $n = 279$). Two groups of patients were studied: those using a retail walk-in clinic staffed by nurse practitioners ($n = 142$) and a comparison group using regular office care for same-day visits ($n = 137$). The dependent variable was a return office visit within 2 weeks. Multiple logistic regression analysis was used to adjust for case mix differences between groups. **Findings:** The percent of office visits within 2 weeks for these groups was 20.4 for retail drop-in patients and 27.7 for same-day medical office patients, respectively ($P = 0.15$). After adjustment for age, gender, visit reason, and number of office visits in the previous 6 months, no significant difference in risk of early return visits in comparison to an office-based drop-in clinic was found (odds ratio 0.83, confidence interval 0.43–1.63). Our retail nurse-practitioner clinic appeared to increase access without increasing early return visits.

Key words: evaluation; health centers; nurse practitioners; primary care; retail medicine; return visits

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Introduction

As medical care system managers search for ways to increase access and control costs without harming quality, innovative forms of practice are receiving increased scrutiny. Retail walk-in clinics staffed by nurse practitioners are a practice modality that is becoming increasingly popular because it is more convenient than scheduled

appointments for low-acuity office visits. While physicians can and do staff offices in retail locations, this paper concerns retail clinics staffed by non-physicians, since this a model of care that is both spreading rapidly and receiving increased scrutiny.

Retail clinics can be contrasted to drop-in clinics offered in medical offices. Both types of care use nurse practitioners, but physicians are also available on site in medical offices and the visit may be with a physician rather than a nurse practitioner. The essential difference in clinical services between these two care models is proximity

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to a physician. Staffing costs are higher in the medical office. The patient who chooses retail care sacrifices close physical proximity to a physician in exchange for greater convenience.

In a review article, Jones reported that 'walk-in' care centers were first developed in the United States in the early 1970s as free-standing emergency care centers in an effort to offer a lower-cost alternative to emergency department visits (Jones, 2000; Salisbury *et al.*, 2002; Stoddart *et al.*, 2003). Despite fears that some patients may opt out of having a personal physician when walk-in care is available, at least one study reported that patients in rural areas tend to use walk-in clinics as a supplement rather than a substitute for having a regular physician (Szafran and Bell, 2000). Walk-in services, in this situation, may enhance overall care rather than fragmenting it. Furthermore, the quality of medical care provided in both walk-in clinics appears to be good (Hutchison *et al.*, 2003). Certainly walk-in clinics are superior to emergency department visits when clinically appropriate since emergency department visits are more likely to result in return visits (Campbell *et al.*, 2005).

The advantages of walk-in care centers include patient convenience (Jackson *et al.*, 2005; Chalder *et al.*, 2007), good technical quality (Grant *et al.*, 2002), and lower-cost than emergency department and routine office visits. Finally, primary care walk-in centers, because of their superior accessibility, may be able to reduce disparities in access to medical care (Gallegos, 2007). This last point, that walk-in centers improve access, has been disputed (Chalder *et al.*, 2003; Maheswaran *et al.*, 2007).

On the other hand, non-traditional care visits may increase the cost of medical care, if they increase the risk of an early return visit to an emergency department or medical office. As of 2000, Jones was able to report no evidence to support this concern (Jones, 2000). Subsequent studies explored the impact of walk-in primary care centers on emergency department use or 'reconsultations' by primary care physicians, reaching similar conclusions (Hsu *et al.*, 2003; Chalder *et al.*, 2007; Salisbury *et al.*, 2007). Nevertheless, in some primary care offices, providers may believe that mid-level provider visits temporarily ameliorate a condition or situation, simply delaying a visit to the usual primary care provider. This perception sometimes applies to visits taking place in traditional clinic sites and clearly extends to visits taking

place outside the office in retail clinics again staffed by nurse practitioners or physicians assistants. Our goal was to see if indeed this perception was correct.

The purpose of this study is to test the theory that standard care (provided in a same-day medical clinic) is less likely to result in an early return visit than visits to a newly opened retail medicine clinic located in retail space for the simple acute conditions that these care models are designed to address. If the theory is correct, then these retail clinic visits may trigger an increase in total medical care utilization. However, if no difference between groups is found then retail care may serve as a viable substitute for a low-acuity office visit.

Methods

Two retrospective cohorts of medical records were analyzed. Cases were limited to patients seen for pink eye, sore throat, viral illness, bronchitis or cough. The two cohorts were patients seen in a retail medicine walk-in clinic in January or February of 2008 and patients seen in a traditional same-day, medical office January or February of 2008.

The retail medicine clinic

Retail medicine is advertised as a walk-in clinic where patients can receive treatment for common conditions. Patients whose medical symptoms are outside the specific list of appointment types, or have more complicated medical conditions, are asked to make an appointment with their primary care provider. Appointments are not required with patients being seen on a first-come, first-served basis. Medical services are covered by most benefit plans. Caregivers are board-certified nurse practitioners and physician assistants, supported by family practice physicians. The visiting hours being from 8am to 8pm on Monday–Friday and from 9am to 5pm on Saturday–Sunday.

Usual care: same-day visits in the medical office

The reference group was 137 consecutive unique patient visits provided in the same-day clinic at a downtown medical office location,

members of which presented for one of the five selected conditions. The same-day clinic enables patients to be seen on short notice, but they are not likely to be seen by their usual providers. Both physicians and nurse practitioners staff the same-day acute clinic. The same-day acute clinic is open from 9am to 7pm. Monday through Thursday and from 9am to 5pm on Fridays. Saturday coverage is from 8am to 12 noon.

Measures

A dichotomous dependent variable was used to measure early return visits: office visits for any reason within 2 weeks after the index visit (yes or no). This variable was previously used in a study of pediatric patients treated in a retail clinic (Rohrer *et al.*, 2008).

Independent variables included age, gender, visit reason, number of office visits in the previous 6 months, and site of care: retail medicine, online, or the same-day acute care clinic. The number of medical office visits in the 6 months previous to the index visit was used to adjust for the patient's propensity to use medical care.

Analysis

Univariate comparisons were made between group and each independent variable. Chi-square tests were used for categorical variables. The Kruskal-Wallis test was used for comparing care sites in regard to office visits during the previous 6 months because the variances were not equal. Since this was a non-randomized observational design, group differences in patient characteristics were adjusted using multiple logistic regression analysis. Specifically, multiple logistic regression analysis was used to test for an independent relationship between clinic type and visits within 2 weeks, adjusting for the effects of the other independent variables. All information used in the analysis was abstracted from medical records. The study was approved by the local Institutional Review Board.

Results

Of the 279 cases studied, 142 were seen in the retail medicine clinic and 137 visited the same-day acute clinic.

Office visits within 2 weeks were common, with 29/20.4% of retail medicine patients receiving an early visit (for any reason) and 38/27.7% of same-day acute visitors returning ($P = 0.15$).

Patients in our sample were of all ages, but most of them were under the age of 35. Age mix differed significantly between our two groups. The same-day acute clinic has a greater percentage of young children as patients than did the retail clinic (see Table 1). Gender mix and number of office visits in the previous 6 months did not differ significantly among groups. The mix of the common conditions we used as selection criteria was significantly different, but we suspect some of these differences were driven by the use of strict diagnostic algorithms in the retail medicine clinic. For example, viral illness was diagnosed in 44.5% of same-day acute patients but only in 27.5% of retail patients. In contrast, the retail site reported more sore throats (47.9% versus 19.7% in the retail and same-day services, respectively).

Multiple logistic regression analysis (Table 2) was employed to investigate the possibility that case mix differences were masking a significant difference in return visits within 2 weeks. Adjusted odds ratio (OR) was not significantly different from same-day acute patients for retail clinic patients. Age group, gender, and visit reason were not significantly related to the odds of having a return visit. However, the number of office visits in the previous 6 months was related to return visits (OR = 1.10, confidence interval 1.03–1.18, $P = 0.01$).

Discussion

Retail care models for primary care are being implemented in many areas, sometimes driven by market forces to improve access or to increase provider efficiency. An increasing body of literature has emerged to support this model of care. In their study of Canadian walk-in clinics, Campbell *et al.* (Campbell *et al.*, 2005), measured re-utilization with two variables: follow-up visits within 3 days and follow-up visits from 3 days to 2 weeks. Return of pediatric patients (Alessandrini *et al.*, 2004; Goldman *et al.*, 2006) and adult patients (French *et al.*, 2002; Cardin *et al.*, 2003; Guttman *et al.*, 2004) to emergency departments has been studied.

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Table 1 Descriptive statistics by site of care ($n = 279$)

	Same-day, acute (n/%)	Retail clinic (n/%)	P-value
Gender			0.54
Female	86/62.8	84/59.2	
Male	51/37.2	58/40.8	
Age			0.00
0–4.9	50/36.5	16/11.3	
5–9.9	24/17.5	20/14.1	
10–17.9	12/8.8	20/14.1	
18–34.9	17/12.4	44/31.0	
35–49.9	15/10.9	25/17.6	
50–100	19/13.9	17/12.0	
Visit reason			0.00
Pink eye	6/4.4	13/9.2	
Sore throat	27/19.7	68/47.9	
Viral illness	61/44.5	39/27.5	
Bronchitis	19/13.9	15/10.6	
Cough	24/17.5	7/4.9	
Number of office visits previous 6 months			
Mean	137/3.27	142/3.07	
Median	2	2	0.09#
Outpatient visit within 2 weeks			0.15
Yes	38/27.7	29/20.4	
No	99/72.3	113/79.6	

* Chi-square.

Kruskal-Wallis.

Table 2 Multiple logistic regression analysis of any return visits within 2 weeks ($n = 279$)*

Term	Odds ratio	Confidence interval	P-value
Site of care			
Same-day acute	1.00		
Retail clinic	0.83	0.43–1.63	0.59
Number of office visits previous 6 months	1.10	1.03–1.18	0.01

*Adjusting for age group, gender, and visit reason.

However, the impact of retail clinics on early return visits by the same patients has received little attention from primary care researchers. Furthermore, comparisons to drop-in clinics in medical office settings are rare.

Our comparison group, patients visiting a drop-in clinic in a medical office setting, offers a standard and well-accepted model of care. Both physicians and nurse practitioners provide primary care visits and nurses provide patient education and health information. However, physicians may resist providing same-day visits and some report finding them stressful (Stoddart *et al.*, 2003). Nurse practitioner visits offer an alternative that could allow physicians to concentrate on planned visits. Several studies of nurse practitioners working in primary care indicate that care usually is comparable and patient satis-

faction may be higher for nurse practitioner visits (Grant *et al.*, 2002; Horrocks *et al.*, 2002).

Retail clinics are a defined clinical practice. They offer a limited menu of services, which allows for self-selection by the patient. The medical care is typically provided by a mid-level provider and is usually on a first-come, first-served basis. This care model offers an inexpensive alternative access point for simple medical conditions, with generally increased flexibility and hours of scheduling. Initial studies have suggested that retail clinics that are integrated within a health system do not increase the risk for office follow-up visits (Rohrer *et al.*, 2008). Retail clinics should be feasible internationally. However, countries, which lack nurse practitioners or physicians' assistants, will be unable to implement the particular care model we studied.

A major limitation of our study is that it does not employ random assignment, thus opening up the possibility that unmeasured differences in patients between groups may have biased the findings. This study is unconventional in that it employs a non-randomized observational design with two independent cohorts. Although these groups cannot be regarded as identical, using common conditions as selection criteria makes them quite similar. Furthermore, our study is an advance over some previous studies, some of which did not analyze patient-level data, did not have visit data from medical records, did not adjust for patient characteristics and previous pattern of service use, or did not limit cases to similar clinical conditions. Even so, additional research is needed to replicate our findings.

Conclusion

Retail convenience clinics are useful adjuncts to the menus of primary care services. They do not serve as the sole source of care, since a primary care medical home is important for continuity of care. However, the results of this retrospective analysis of medical records suggest that our retail primary care clinic increased access without increasing early return visits in any important way. A follow-up study is needed to confirm this expectation.

This study involved one large medical practice. Therefore, its external validity is limited. Other innovative forms of primary care practice might experience different results. Replication of our findings in other medical practices is necessary before reaching the conclusion that the results usually can be expected.

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References

Alessandrini, E.A., Lavelle, J.M., Grenfell, S.M., Jacobstein, C.R. and Shaw, K.N. 2004: Return visits to a pediatric emergency department. *Pediatric Emergency Care* 20, 166–71.

- Campbell, M.K., Silver, R.W., Hoch, J.S., Ostbye, T., Stewart, M., Barnsley, J., Hutchison, B., Mathews, M. and Tyrrell, C. 2005: Re-utilization outcomes and costs of minor acute illness treated at family physician offices, walk-in clinics, and emergency departments. *Canadian Family Physician* 51, 82–83.
- Cardin, S., Afilalo, M., Lang, E., Collet, J.P., Colacone, A., Tselios, C., Dankoff, J. and Guttman, A. 2003: 'Intervention to decrease emergency department crowding: does it have an effect on return visits and hospital readmissions?'. *Annals of Emergency Medicine* 41, 173–85.
- Chalder, M., Montgomery, A., Hollinghurst, S., Cooke, M., Munro, J., Lattimer, V., Sharp, D. and Salisbury, C. 2007: Comparing care at walk-in centres and at accident and emergency departments: an exploration of patient choice, preference and satisfaction. *Emergency Medicine Journal* 24, 260–64.
- Chalder, M., Sharp, D., Moore, L. and Salisbury, C. 2003: Impact of NHS walk-in centres on the workload of other local healthcare providers: time series analysis. *British Medical Journal* 326, 532.
- French, D., Zwemer, F.L. and Schneider, S. 2002: The effects of the absence of emergency medicine residents in an academic emergency department. *Academic Emergency Medicine* 9, 1205–210.
- Gallegos, A. 2007: Retail medicine: the cure for healthcare disparities? *Journal of Healthcare Management* 52, 227–34.
- Goldman, R.D., Ong, M. and Macpherson, A. 2006: Unscheduled return visits to the pediatric emergency department-one-year experience. *Pediatric Emergency Care* 22, 545–49.
- Grant, C., Nicholas, R., Moore, L. and Salisbury, C. 2002: An observational study comparing quality of care in walk-in centres with general practice and NHS Direct using standardised patients. *British Medical Journal* 324, 1556.
- Guttman, A., Afilalo, M., Guttman, R., Colacone, A., Robitaille, C., Lang, E. and Rosenthal, S. 2004: An emergency department-based nurse discharge coordinator for elder patients: does it make a difference? *Academic Emergency Medicine* 11, 1318–27.
- Horrocks, S., Anderson, E. and Salisbury, C. 2002: Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal* 324, 819–23.
- Hsu, R.T., Lambert, P.C., Dixon-Woods, M. and Kurinczuk, J.J. 2003: Effect of NHS walk-in centre on local primary healthcare services: before and after observational study. *British Medical Journal* 326, 530.
- Hutchison, B., Ostbye, T., Barnsley, J., Stewart, M., Mathews, M., Campbell, M.K., Vayda, E., Harris, S.B., Torrance-Rynard, V. and Tyrrell, C., Ontario Walk-In Clinic Study 2003: Patient satisfaction and quality of care in walk-in clinics, family practices and emergency departments: the Ontario Walk-In Clinic Study. *Canadian Medical Association Journal* 168, 977–83.

- Jackson, C.J., Dixon-Woods, M., Hsu, R. and Kurinczuk, J.J.** 2005: A qualitative study of choosing and using an NHS Walk-in Centre. *Family Practice* 22, 269–74.
- Jones, M.** 2000: Walk-in primary medical care centres: lessons from Canada. *British Medical Journal* 321, 928–31.
- Maheswaran, R., Pearson, T., Munro, J., Jiwa, M., Campbell, M.J. and Nicholl, J.** 2007: Impact of NHS walk-in centres on primary care access times: ecological study. *British Medical Journal* 334, 838.
- Rohrer, J.E., Yapuncich, K.M., Adamson, S.C. and Angstman, K.B.** 2008: Do retail clinics increase early return visits for pediatric patients? *Journal of the American Board of Family Medicine* 21, 475–76.
- Salisbury, C., Chalder, M., Scott, T.M., Pope, C. and Moore, L.** 2002: What is the role of walk-in centres in the NHS? *British Medical Journal* 324, 399–402.
- Salisbury, C., Hollinghurst, S., Montgomery, A., Cooke, M., Munro, J., Sharp, D. and Chalder, M.** 2007: The impact of co-located NHS walk-in centres on emergency departments. *Emergency Medicine Journal*. 24, 265–69.
- Stoddart, H., Evans, M., Peters, T.J. and Salisbury, C.** 2003: The provision of ‘same-day’ care in general practice: an observational study. *Family Practice* 20, 1, 41–47.
- Szafran, O. and Bell, N.R.** 2000: Use of walk-in clinics by rural and urban patients. *Canadian Family Physician* 46, 114–19.