

Jeffrey Jones
 Michigan State University College of Human Medicine, Department of
 Emergency Medicine, Grand Rapids, MI, United States
 Spectrum Health - Michigan State University Emergency Medicine
 Residency Program, Grand Rapids, MI, United States
 Corresponding author at: 15Michigan St NE Suite 701, Grand Rapids,MI
 49503, United States
 E-mail address: Jeffrey.Jones@spectrumhealth.org.

16 January 2019

<https://doi.org/10.1016/j.ajem.2019.01.058>

References

- [1] American Foundation for Suicide Prevention. Suicide statistics, <https://afsp.org/about-suicide/suicide-statistics/> [accessed 4 December 2018].
- [2] American Foundation for Suicide Prevention. Suicide statistics state fact sheets: Michigan, <https://afsp.org/about-suicide/state-fact-sheets/#Michigan> [accessed 4 December 2018].
- [3] Illinois Department of Public Health. Injury prevention: suicide and older adults, http://www.idph.state.il.us/about/chronic/Suicide-Older_Adults.pdf [accessed 18 December 2018].
- [4] Michigan Department of Community Health. Suicide in Michigan: a hidden health issue, https://www.michigan.gov/documents/mdch/suicide_fact_sheet_region_8_final_390537_7.pdf, [accessed 18 December 2018].
- [5] Carter MW, Reymann MR. ED use by older adults attempting suicide. *Am J Emerg Med* 2014;32:535–40.
- [6] Conwell Y, Van Orden K, Caine ED. Suicide in older adults. *Psychiatr Clin N Am* 2011; 34:451–68.

If we build it they will come patient use of health portals



There is evidence that patient engagement improves health outcomes and reduces health care costs [1]. In order to achieve this, healthcare institutions are focusing on patient portals as the primary access point for personal health information and patient-provider communication [2,3]. This means that patient's adoption of portals is increasingly critical for receiving of quality health care, including interactions with health providers outside of clinical visits and quick access to one's personal health information. The next question is however; if we build them will patients come sign up and use them?

The answer is complicated. Results from numerous studies, have shown that numerous factors determine whether or not a patient signs up for and then uses patient portals [4–12]. They include a range of items such as: previous computer experience, adequate health literacy, and numeracy [4,5,7–12].

Recent results show that even if these skills are present there may still be low levels usage of patient portals. A recent study, March 2017, done by the Government Accountability Office (GAO) shows consistently low levels (30% on average) of visiting and or using of health portals when and if patients sign up for them [3]. The reasons given were as follows: hard to navigate, hard to find and understand information, and the whole system and or part of it are down on a regular basis for maintenance

Table 1

Breakdown of providers by specialty and patient portal engagement.

Specialty	Doctors	Pt in portal	Doctors engaged in portal
Emergency Department	3	21	3%
Cardiology	5	1	5%
Family Medicine	5	3	5%
OB/GYN	10	14	10%
Internal Medicine	7	4	7%
	97/800	Total: 1680	

[3,4]. Having patient portals and getting patients to sign up and then use their portals has been a difficult proposition even for large integrated health systems like Keiser Permanente [5]. That found they had to follow these directives to be able to meet their federally mandated requirements. These directives included turn physicians into portal advocates, don't undervalue the importance of physicians for driving usage, and consider physician attitude a primary indicator of adoption [5]. It also found that when patients use portals they have a closer relationship with their provider and are more likely to continue seeing that provider [5].

Portals have the potential of making patients true partners in their healthcare. The patient portal could aid in the patient's continuity of care after their ED visit and impact their likelihood of using health care more efficiently and effectively.

The primary purpose of the study was to determine if provider engagement had a significant impact on patient usage of the portal.

This study examines if there is a significant relationship between providers', including the ED, usage of patient portals and patient usage. It examined all providers and patient portal interaction from January of 2017 to June of 2018 at a level one ED and the hospital where the ED is located. This location was compliant with the federal guidelines for transmitting and providing timely access to health information. A paired *t*-test was done using SPSS v25 to determine if there was any significant relationship between provider and patient portal engagement and usage.

During the time period of the study a total of 1680 patients signed up for the portal. Out of 800 healthcare providers a total of 97 providers had engaged with their patients using the portal. There is a significant (0.01) relationship between the number of providers using the portal and the number of patients using the portal. For every provider using the portal, the number of patients using the portal increased by 1.5%. This was significant even if the level of healthcare provider by specialty was small, such as was the case with the ED at 3%. The finding was also found in OBGYN at 10%, Internal Medicine at 7%, and Family Medicine and Cardiology at 5% — all of whom had larger usage by providers. See Table 1. The level of one time usage without being provider driven was less than 5%.

There is a significant relationship between provider and patient usage of health portals. This study found similar results to the study by Keiser in that it was the provider who pushed the patient's usage of the portal [5]. It was not enough for the patient to sign up and in fact that meant that only 5% of those patients would use the portal and the majority 95% only used it once [3,4]. There was a significant difference by specialty but that was correlated to the number of providers in that specialty using the portals. This study indicates that the more engaged the provider is with the patient the more likely the patient is to use the portal. The portal allowed for communication that was on going and went beyond the initial appointment.

Thus, increased ED healthcare provider usage of the portal significantly increased patient usage of the portal. This indicates that in order to increase patient usage of the portal, a focus on providers is needed. If we build it and engage providers, then the patients will come.

La Vonne A. Downey*

Karina Herrera

Roosevelt University Health Services/Public Adm, 430 Michigan Ave,
 Chicago, IL 60605, United States of America

*Corresponding author at: Roosevelt University, 430 Michigan Ave,
 Chicago, IL 60605, United States of America.

E-mail address: LDowney@roosevelt.edu, kherrara02@mail.roosevelt.edu.

Amanda Hong

Mt Sinai Hospital, 15th and California, Chicago, IL 60063, United States of
 America

E-mail address: Amanda.hong@sinai.org.

25 February 2019

<https://doi.org/10.1016/j.ajem.2019.03.008>

References

- [1] Forbat L, Cayless S, Knighting K, Cornwell J, Kearney N. Engaging patients in health care: an empirical study of the role of engagement on attitudes and action. *Patient Educ Couns* 2009 Jan;74(1):84–90. <https://doi.org/10.1016/j.pec.2008.07.055>.
- [2] Ferman JH. Healthcare reform: Medicare & Medicaid Innovation Center. CMS provision will test new payment and service delivery models. *Healthc Exec* 2010; 25(4): 58, 60.
- [3] GPO. Medicare and Medicaid programs; electronic health record incentive program. <https://www.gpo.gov/fdsys/pkg/FR-2010-07-28/pdf/2010-17207.pdf>; 2016-11-26. website.
- [4] US Governmental Accountability Office. Report on patient portal use. <https://www.gao.gov/assets/690/683388.pdf>; March 2017.
- [5] Trojel T, Rundall T, de Bont A, van de Klundert J. The organizational dynamics enabling patient portal impacts upon organizational performance and patient health: a qualitative study of Kaiser Permanente. *BMC Health Serv Res* 2015; 15:559.
- [6] Eysenbach G. Patient portals as a tool for health care engagement: a mixed-method study of older adults with varying levels of health literacy and prior patient portal use. *J Med Internet Res* 2017 Mar;19(3):e99.
- [7] Turner AM, Osterhage K, Hartzler A, Joe J, Lin L, Kanagat N, et al. Use of patient portals for personal health information management: the older adult perspective. *AMIA Annu Symp Proc* 2015;2015:1234–41.
- [8] Latulipe C, Gatto A, Nguyen HT, Miller DP, Quandt SA, Bertoni AG, et al. Design considerations for patient portal adoption by low-income, older adults. *Proc SIGCHI Conf Hum Factor Comput Syst*. 2015 Apr; 2015. p. 3859–68. <https://doi.org/10.1145/2702123.2702392>.
- [9] Zarcadoolas C, Vaughn WL, Czaja SJ, Levy J, Rockoff ML. Consumers' perceptions of patient-accessible electronic medical records. *J Med Internet Res* 2013;15(8):e168. <https://doi.org/10.2196/jmir.2507>.
- [10] Czaja SJ, Zarcadoolas C, Vaughn WL, Lee CC, Rockoff ML, Levy J. The usability of electronic personal health record systems for an underserved adult population. *Hum Factors* 2015 May;57(3):491–506. <https://doi.org/10.1177/0018720814549238>.
- [11] Taha J, Sharit J, Czaja SJ. The impact of numeracy ability and technology skills on older adults' performance of health management tasks using a patient portal. *J Appl Gerontol* 2014 Jun;33(4):416–36. <https://doi.org/10.1177/0733464812447283>.
- [12] Tieu L, Schillinger D, Sarkar U, Hoskote M, Hahn KJ, Ratanawongsa N, et al. Online patient websites for electronic health record access among vulnerable populations: portals to nowhere? *J Am Med Inform Assoc* 2016 Jul 8. <https://doi.org/10.1093/jamia/ocw098>.

Carbon monoxide poisoning at a Florida Hospital following Hurricane Irma



Carbon monoxide (CO) poisoning following natural disasters has proven to be a significant source of morbidity and mortality [1]. Hurricanes precipitate disruptions to the power grid and gas-powered generators are implicated as a common source of CO exposure [1]. CO toxicity itself can result in nonspecific symptoms, requiring heightened suspicion in the emergency department [2].

Although sporadically reported following previous U.S. hurricanes, CO poisoning is increasingly being identified in this setting [3–7]. However, most reporting has been from poison centers, national databases, the Centers for Disease Control and Prevention (CDC), and epidemiological surveillance data in the post storm period [8–12]. Our objective was to characterize hurricane associated CO poisonings occurring at a single regional trauma hospital with 70,000 annual ED visits in Palm Beach County, Florida, following the landfall and power interruption of Hurricane Irma on September 10, 2017. The project received IRB approval and utilized a retrospective study design from September 10, 2017 (the recorded first landfall date of Hurricane Irma) through September 30, 2017. Patients were included if they had ICD-10 diagnosis code beginning with T58, indicating toxic effect of CO.

Demographic variables collected included date and time of emergency department presentation, age, gender, and race. Exposure variables collected include date of exposure, location of exposure, source of exposure, and storage site of the source (i.e. generator). Documented symptoms included: headache, malaise, nausea, vomiting, syncope,

altered mental status, dizziness, and dyspnea. Initial co-oximeter values including ABG and CO levels were recorded. Treatment variables collected include oxygen administration, intubation, and hyperbaric treatment.

Charts of identified patients were stratified based on the CDC CO poisoning definition of “suspected”, “probable” or “confirmed” [13]. All confirmed cases had carboxyhemoglobin (COHb) level measured by blood sample of greater than 5% in nonsmokers, or 10% in smokers or unknown smoking status. Twenty-three patients were identified for study inclusion, all presenting within four days of hurricane landfall (Fig. 1). Twenty-two were confirmed as CO poisoning based on their CO levels and one was only suspected because no CO level was drawn despite significant environmental exposure. There were 14 males and nine females ranging from 8 to 76 years, with an average of 44.9 years, including nine African-Americans, seven Asians, six Caucasians, and one Hispanic. There were 12 distinct exposure events, with five having multiple victims, ranging from one to five per exposure.

The most common source of CO exposure (20 patients) was gas-powered electrical generators. One patient was involved in a house fire, and two other exposures were not specified. Of the 20 patients with exposures due to generators, six involved indoor usage, five outdoor but adjacent to the house, five outdoor but directly outside of the garage, and three inside the garage. Six patients were exposed while in their bedrooms, 16 in unspecified parts within their home, and one while outside on a patio.

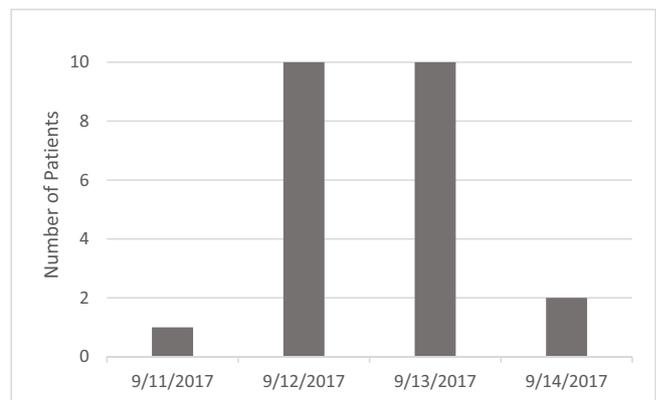


Fig. 1. Frequency of patient presentations to the emergency department with CO exposure by date.

Table 1

Number of patients presenting to the emergency department by symptom with corresponding CO levels.

	n (%)	COHb % (range)
All	23 (100%)	19.8% (7.1–35)
Symptom		
Headache	9 (39%)	21.6% (8.3–27.1)
Malaise	1 (4%)	30.2% (30.2–30.2)
Nausea	8 (35%)	19.9% (8.3–27.1)
Vomiting	5 (22%)	22.5% (15.5–26)
Syncope	1 (4%)	14.4% (14.4–14.4)
Dyspnea	3 (13%)	11.5% (8.3–14.4)
Dizziness	7 (30%)	19% (8.3–25.3)
AMS	10 (43%)	19.8% (12.8–35)
Number of symptoms		
0	2 (9%)	10.8% (7.1–14.4)
1	9 (39%)	21.9% (12.8–35)
2	6 (26%)	21.6% (11.9–27.1)
3	1 (4%)	14.4% (14.4–14.4)
4	5 (22%)	18.9% (8.3–25)