Impact of a Celebrity Death on Children's Injury-related Emergency Room Visits

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ABSTRACT

Objectives: To determine whether a sharp increase in Emergency Room (ER) visits at the Montreal Children's Hospital (MCH) during the week following the death of Natasha Richardson from a skiing-related head injury was a) statistically significant and b) related to media coverage of the event. We postulated that there would be less coverage in the French media and in centres west of Quebec.

Methods: We compared the number of visits to the MCH ER for 10 weeks beginning March 5 and recorded the number for head-related injuries. These data were also compared with averages for the MCH for the same weeks in the previous 16 years; with visit figures from Hôpital Ste-Justine (HSJ); and with those from 3 other pediatric hospitals in provinces west of Quebec for the same period.

Results: We found a 60% increase in injury visits to the MCH ER compared to the baseline week ($p < 0.001$) and a 66% difference when compared with the 16-year average. HSJ also recorded a sharp increase during the study week but the rise did not persist. Smaller increases were recorded in the more western children's hospitals. At the MCH nearly half of the visits were for head injuries, but there was no change in the number judged to be severe.

Conclusions: These data suggest that the media coverage of this celebrity death may have generated anxiety among parents, prompting those who might not otherwise have sought medical care to bring their children to the ER.

Key words: Mass media; famous persons; wounds and injuries/ep [Epidemiology]; emergency service; hospital/sn [Statistics & Numerical Data]

La traduction du résumé se trouve à la fin de l'article.

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The mass media may have both positive and negative effects on health and health care delivery. Health education campaigns delivered by the media influence the health of the population either by increasing knowledge, changing behaviour, or both.¹ In other contexts, the media in general and TV in particular have been shown to affect the psychological and physical well-being of children, especially with respect to obesity.^{2,3}

Media reporting of celebrities' health issues may also affect the public, but not always in predictable ways. On the one hand, when a famous person reveals they have a certain type of cancer, there is often an increase in demand for screening.⁴⁻⁹ The same effect follows when celebrities are enlisted to promote screening for a particular disease.^{8,9} On the other hand, reported suicides by public figures have been followed by copycat suicides, with one study reporting increases as high as 44%.¹⁰⁻¹³ In Quebec, the suicide of Gaetan Girouard – a well-known television journalist – was followed by a similarly striking rise.¹⁴

It is surprising, however, that there have been no published reports of a celebrity health event prompting visits to Emergency Rooms (ER) when the event is an injury. In light of this, we documented the apparent effect of the extensive news coverage of the death of actor Nathalie Richardson. Following her fatal head injury on a ski hill in Quebec, Google News found over 1,100 mentions in the international press over a two-month period (Google News: <http://news.google.com>). In Montreal alone, 47 articles appeared in the main newspapers, *The Gazette*, *La Presse* and *Le Devoir*.

Consequently, we postulated that the media interest in this event was responsible for the large increase in ER visits to the Montreal Children's Hospital (MCH) during the following week. To examine

this hypothesis, we plotted the number of visits before and after the event and tested whether the increase was statistically significant. A second hypothesis was that because the celebrity in this case appeared predominantly on English stage and screen, this would prompt more coverage by English than French media and thus result in a smaller increase in ER visits at the French children's hospital in Montreal than at the MCH. Our final hypothesis was that the media's interest would diminish with distance from Quebec, yielding less noteworthy increases in ER attendances at children's hospitals in other provinces.

METHODS

We used current data from the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). This is a computerized information system that collects and analyzes data on all injured children seen at all 10 paediatric hospitals in Canada. (The Program now also obtains similar data at 4 general hospitals.)¹⁵ When a child presents to the ER of a participating hospital, the accompanying caregiver is asked to complete a brief questionnaire describing the circumstances surrounding the event and coordinators or medical staff provide information about the type of injury, nature, body part, and disposition.

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Conflict of Interest: None to declare.

Figure 1. Weekly numbers of patients seen at MCH ER for an injury: 2009 vs. average and CI for 16 previous years (March 5-May 13)

CHIRPP has been extensively studied¹⁶ and shown to provide largely reliable data about most injuries, although it is acknowledged that the results are not necessarily applicable to the general population.¹⁷

For this study, we used data that were obtained from CHIRPP coordinators prior to being sent to Ottawa for coding, however detailed coding was not required in order to test our hypotheses. The CHIRPP data provided denominators (all injury-related visits) and administrative data were used to count the total of ER visits for each week. We first tabulated CHIRPP data from the Montreal Children's Hospital for the 2 weeks preceding the day when the coroner's report was made public, March 19, 2009, and for 7 successive weeks following. (Although Richardson died on March 18, the cause of death, an epidural hematoma, was only known the next day.) This provided a before-after comparison. In addition, we compared these 10 weekly totals with the averages at the MCH for the same weeks over the past 16 years. In effect, our inclusion criterion was simply that the child was seen in the ER for an injury.

To test the second hypothesis, we compared the before-after pattern at the MCH with that seen at Hôpital Ste-Justine, which is also located in Montreal but serves a predominantly French-speaking population. Finally, we compared the pattern at the MCH with that noted at 3 other children's hospitals – the Hospital for Sick Children in Toronto, the Alberta Children's Hospital in Calgary, and the BC Children's Hospital in Vancouver.

RESULTS

During the week of March 19 to March 25, following the coroner's report, the MCH saw 393 injured children. This represented a 60% increase over the baseline (week of March 5 to 11) and a 66% increase over the corresponding average (237 [CI: 206-268]) for the same week during the previous 16 years (Figure 1). Both the z-test for proportions and chi square for trend demonstrate that the increase is statistically significant ($p < 0.0001$).

We also calculated the proportion of visits prompted by any injury to the head. As seen in Table 1, the proportion of head injuries seen during the study week (43.8%) compared with the baseline week (38.0%) represents an increase of 15% ($p < 0.001$). However, on average, during the same week in March over the previous 16 years, head injury-related cases only comprised 28.4% [CI 25.8%-32.3%] of all injury visits to the MCH ER.

Table 1. Pattern of ER Visits to MCH by Week, All Injury and Head Injury (March 5-May 13, 2009)

Date	All ER Visits	Injury-related	%	Head Injury	%
	(n) A	(n) B		(n) C	
March 5-11 (ref)	1533	245	16.0	93	38.0
March 12-18	1520	268	17.6	83	31.0
March 19-25*	1701	393	23.1	172	43.8
March 26-April 1	1659	366	22.1	175	47.8
April 2-8	1639	374	22.8	144	38.5
April 9-15	1617	325	20.1	109	33.5
April 16-22	1549	387	25.0	140	36.2
April 23-29	1636	403	24.6	136	33.7
April 30-May 6	1714	426	24.9	131	30.8
May 7-13	1509	326	21.6	85	26.1

ref = baseline week (March 5-11)

* event week

Table 2. Pattern of ER Injury Visits to MCH and HSJ (March 5-May 13, 2009) – Percent Change Compared with Baseline Week, March 5-11

Date	MCH (Montreal)	HSJ (Montreal)
March 5-11 (ref)	245 ref	146 ref
March 12-18	268 (+9%)	154 (+5%)
March 19-25*	393 (+60%)	221 (+51%)
March 26-April 1	366 (+49%)	158 (+8%)
April 2-8	374 (+52%)	126 (-14%)
April 9-15	325 (+32%)	133 (-9%)
April 16-22	387 (+57%)	129 (-12%)
April 23-29	403 (+64%)	156 (+7%)
April 30-May 6	426 (+73%)	165 (+13%)
May 7-13	326 (+33%)	154 (+5%)

ref = baseline week (March 5-11)

* event week

For the second hypothesis, we compared the MCH figures with those from HSJ. Although the numbers at HSJ in the week following the coroner's report also rose 51% over those of the baseline week (March 5-11), in sharp contrast to the pattern noted at the MCH, all subsequent weeks quickly returned to usual levels (Table 2).

Finally, we examined data from 3 other Canadian children's hospitals west of Montreal based on the assumption that media interest would be inversely proportional to the distance from the scene of the event, and that this would be reflected in diminishing ER injury visits as we moved westward. Table 3 shows that in comparison with the MCH where the increase was 60% over the baseline week (from 245 to 393), the Hospital for Sick Children in Toronto reported a 24% increase (134 to 171), the Alberta Children's Hospital reported a 23% increase, and the BC Children's Hospital reported a 22% increase (138 to 169).

Although we did not formally specify it as a hypothesis, we assumed that the increase at the MCH would involve a high proportion of visits for head injuries but that these would not reflect any changes in severity. Trauma severity is not routinely coded in the MCH ER, but a suitable proxy is the number of visits for head injuries admitted to hospital or requiring a neurotrauma follow-up. Defined in this manner, the weekly percentage of severe head-related traumas remained essentially unchanged over the 10-week study period, ranging from 2.0-7.5% of all head injuries (data not shown).

DISCUSSION

Following the death of celebrated actor Natasha Richardson from a head injury sustained while skiing without a helmet, we observed a large increase in ER visits to the Montreal Children's Hospital. The increase continued for several weeks after the event before

Table 3. Pattern of ER Injury Visits by Week at Other Canadian Pediatric Hospitals (March 5-May 13, 2009)

Date	MCH (Montreal)	HSC (Toronto)	ACH (Calgary)	BCCH (Vancouver)
March 5-11 (ref)	245 ref	137 ref	222 ref	138 ref
March 12-18	268 (+9%)	134 (-2%)	299 (+34%)	125 (-9%)
March 19-25*	393 (+60%)	171 (+24%)	274 (+23%)	169 (+22%)
March 26-April 1	366 (+49%)	182 (+32%)	281 (+26%)	182 (+31%)
April 2-8	374 (+52%)	201 (+46%)	304 (+36%)	215 (+55%)
April 9-15	325 (+32%)	167 (+21%)	293 (+31%)	182 (+31%)
April 16-22	387 (+57%)	213 (+55%)	304 (+36%)	225 (+63%)
April 23-29	403 (+64%)	177 (+29%)	310 (+39%)	202 (+46%)
April 30-May 6	426 (+73%)	214 (+56%)	339 (+52%)	193 (+39%)
May 7-13	326 (+33%)	209 (+52%)	276 (+24%)	209 (+51%)

MCH: Montreal Children's; ACH: Alberta Children's; BCCH: British Columbia Children's; HSC: Hospital for Sick Children

ref = baseline week (March 5-11)

* event week

returning to numbers typical of the season. After showing that the increase was statistically significant, we took steps to reinforce our view that the changes were heavily influenced by the media coverage. Although the data suggest that injuries to the head dominated, it is noteworthy that only half of the increase from the baseline week was for head injuries, suggesting that the coverage prompted parents' concerns that extended to all types of injuries.

We assumed that because Richardson was best known to English audiences, her death would be reported less intensively in the French media than in the English. Accordingly, we expected that our sister hospital, HSJ, would be less affected; although the results also showed a sharp increase in attendances at HSJ, this was short lived. We also assumed that coverage would be less as we moved further away geographically from Quebec where the incident occurred. The changes noted in the other 3 hospitals studied were almost identical, thus failing to support this hypothesis.

There are no other published reports of the effect of this event on ER visits. However, at a recent scientific meeting, researchers reported on data from 19 hospitals in New York and New Jersey that showed a 73% increase in visits for head trauma during the 10 days following the event, with the numbers returning to normal by March 31.¹⁸

Richardson's death also triggered other predictable and at least one unpredictable consequence. Among the former was a renewal of discussion in Quebec about the need for improved air ambulance services.¹⁹ And, perhaps related to this, it was used as evidence by some pundits in the United States showing that Canadian health care was far inferior to that of the US.²⁰

It remains to be seen whether these 'media-driven' consultations were medically beneficial. Although the increase in visits added to the load of already overburdened ERs, others have used the event to promote awareness of when to seek treatment for head trauma.²¹⁻²³ Given that precise evaluation of the severity of traumatic brain injuries remains contentious,²⁴ a more detailed examination of possible benefits resulting from earlier diagnosis is beyond the scope of this study. Thus, any sharp increase in ER visits is a two-edged sword. On the one hand, more visits may help identify patients with potentially serious problems who might otherwise be overlooked (in much the same manner as the Richardson injury was). On the other hand, a large increase in visits for minor reasons can overwhelm an ER system that is already greatly stressed. This is what appears to have occurred in this instance, driven by parents alarmed by comments in the media. We assume that under normal circumstances, these parents would wisely have ignored a seemingly minor injury.

Limitations

One important limitation of this study is the failure to measure directly what motivated the parent to bring the child to the ER. Even if had been feasible to measure anxiety in all parents, an ideal design would have required making the same measurements on parents whose children had similar injuries but who chose not to bring them to the hospital. Along the same lines, we were unable to measure the extent to which parents had been exposed to the media coverage or whether exposure was highly correlated either with anxiety or other reasons prompting the decision to visit the ER. Finally, it would have been preferable to cover longer time periods both before and after the event, but limited resources made this impractical. In spite of these shortcomings, this opportunistic study took full advantage of readily available data of good quality to make comparisons driven by common sense.

CONCLUSION

We conclude that the most likely reason for the increase in ER visits is that the press coverage of Richardson's death caused anxiety among parents with injured children, who in the past might not have brought the child to hospital. As many earlier studies have suggested,^{25,26} the triggers prompting a decision to visit an ER are complex and often apparently trivial. What is not trivial is the ability of such an unexpected rise in visits to overwhelm an already fragile ER system. Although it is not likely that any seriously injured children experienced delay in care, the numbers visiting inevitably meant that the waiting times for others were far longer and the staff were far more stressed. Hence the main effect may have been the improper use of resources, e.g., the diversion of qualified personnel from the management of other types of emergencies.

REFERENCES

1. Grilli R, Freemantle N, Minozzi S, Domenighetti G, Finer D. Mass media interventions: Effects on health services utilisation. *Cochrane Database Syst Rev* 2000;(2):CD000389.
2. Singer MI, Slovak K, Frierson T, York P. Viewing preferences, symptoms of psychological trauma, and violent behaviors among children who watch television. *J Am Acad Child Adolesc Psych* 1998;37(10):1041-48.
3. Gortmaker S, Must A, Sobol A, Peterson K, Colditz G, Dietz W. Television viewing as a cause of increasing obesity among children in the United States, 1986-1990. *Arch Pediatr Adol Med* 1996;150(4):356.
4. Corbett JB, Mori M. Medicine, media, and celebrities: News coverage of breast cancer, 1960-1995. *Journalism Mass Commun Q* 1999;76(2):229-49.
5. Chapman S, McLeod K, Wakefield M, Holding S. Impact of news of celebrity illness on breast cancer screening: Kylie Minogue's breast cancer diagnosis. *Med J Australia* 2005;183(5):247.
6. Brown ML, Potosky AL. The presidential effect: The public health response to media coverage about Ronald Reagan's colon cancer episode. *Public Opin Q* 1990;4(3):317-29.

7. Howe A, Owen-Smith V, Richardson J. The impact of a television soap opera on the NHS Cervical Screening Programme in the Northwest of England. *J Public Health* 2002;24(4):299.
8. Cram P, Fendrick AM, Inadomi J, Cowen ME, Carpenter D, Vijan S. The impact of a celebrity promotional campaign on the use of colon cancer screening: The Katie Couric effect. *Arch Intern Med* 2003;163(13):1601-5.
9. Larson R, Woloshin S, Schwartz L, Welch H. Celebrity endorsements of cancer screening. *JNCI Cancer Spectrum* 2005;97(9):693.
10. Gould MS. Suicide and the media. *Ann NY Acad Sci* 2001;932:200-21.
11. Frey C, Michel K, Valach L. Suicide reporting in Swiss print media: Responsible or irresponsible? *Eur J Public Health* 1997;7(1):15.
12. Fekete S, Macsai E. Hungarian suicide models, past and present. In: Ferrari G (Ed.), *Suicidal Behavior and Risk Factors*. Bologna, Italy: Monduzzi Editore, 1990.
13. Takahashi Y. Suicide in Japan. What are the problems? In: Kosly RJ, Eshkevari SH, Goldney RD, Hassan R (Eds.), *Suicide Prevention*. New York, NY: Plenum Press, 1998.
14. Tousignant M, Mishara B, Caillaud A, Fortin V, St-Laurent D. The impact of media coverage of the suicide of a well-known Quebec reporter: The case of Gaetan Girouard. *Soc Sci Med* 2005;60(9):1919-26.
15. CHIRPP. Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) Ottawa, ON: Public Health Agency of Canada, 2009. Available from: <http://www.phac-aspc.gc.ca/injury-bles/chirpp/index-eng.php> (Accessed October 10, 2009).
16. Mackenzie S, Pless I. CHIRPP: Canada's principal injury surveillance program. *Inj Prev* 1999;5(3):208-13.
17. Macarthur C, Pless I. Sensitivity and representativeness of a childhood injury surveillance system. *Inj Prev* 1999;5(3):214-16.
18. Campo C, Walsh B, Cochrane D, Allegra J. Large increase in Emergency Department visits for head trauma after Natasha Richardson's death. *Ann Emerg Med* 2009;54(3 Supp 1):S48.
19. Seguin R. Helicopter ambulance not a priority for Quebec. *The Globe and Mail*. March 26, 2009.
20. Franklin C. Canada care may have killed Natasha. *The New York Post*. March 26, 2009.
21. Fallik D. Richardson tragedy promotes awareness of head trauma-when to seek treatment, what to look for. *Neurology Today* 2009;9(9):1.
22. Wood-Black F. It's raining, it's pouring, the old man is snoring. *J Chem Health Safety* 2009;16(5):50.
23. Lovell M, Pardini J. Neuropsychological assessment and sports-related traumatic brain injury. In: Marcotte T, *Neuropsychology of Everyday Functioning*. New York, NY: The Guilford Press, 2009.
24. Bergquist TE, Nehl C. Mild traumatic brain injury: Continued investigation and controversy. *J Clin Ex Neuropsych* 2008;30(7):850-52.
25. Grumbach K, Keane D, Bindman A. Primary care and public emergency department overcrowding. *Am J Public Health* 1993;83(3):372-78.
26. Burnett MG, Grover S. Use of the emergency department for nonurgent care during regular business hours. *CMAJ* 1996;154(9):1345.

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RÉSUMÉ

Objectifs : Déterminer si une forte augmentation des visites à la salle d'urgence de l'Hôpital de Montréal pour Enfants (HME) au cours de la semaine suivant le décès de Natasha Richardson, morte d'une blessure à la tête suite à une chute en ski, était a) statistiquement significative et b) liée à la couverture médiatique de l'événement. Nous avons postulé que la couverture serait moindre dans les médias francophones ainsi que dans les centres à l'ouest du Québec.

Méthode : Nous avons comparé le nombre de visites à l'urgence de l'HME pendant 10 semaines à compter du 5 mars et enregistré le nombre de blessures à la tête. Ces données ont également été comparées avec les moyennes du HME pour les mêmes semaines au cours des 16 années précédentes, avec le nombre de visites à l'Hôpital Sainte-Justine (HSJ), et avec celles de 3 autres hôpitaux pédiatriques de provinces à l'ouest du Québec pour la même période.

Résultats : Nous avons constaté une augmentation de 60 % des visites pour blessure à l'urgence de l'HME par rapport à la semaine de référence ($p < 0,001$) et une différence de 66 % par rapport à la moyenne des 16 années précédentes. L'HSJ a également enregistré une forte hausse durant la même semaine, mais l'augmentation ne dura que quelques jours. Des augmentations moins importantes ont été observées dans les 3 autres hôpitaux pédiatriques. À l'HME, près de la moitié des visites ont été pour des blessures à la tête sans qu'il n'y ait aucun changement dans le nombre de celles jugées sévères.

Conclusions : Ces données suggèrent que la couverture médiatique de la mort de cette célébrité a suscité de l'inquiétude chez les parents, les incitant à venir à l'urgence avec leurs enfants et qui, autrement, n'auraient pas cherché à consulter pour des soins médicaux.

Mots clés : personnes célèbres; mass-médias; blessures/[Épidémiologie]; service urgences/statistiques et données numériques

Smallpox, from page 114...

6. Robert J. Wilson biographical file, Sanofi Pasteur Limited (Connaught Campus) Archives (hereafter SP-CA).
7. Hochman and Palmer, Interview with Henderson.
8. Barreto and Rutty, "Speckled Monster," 111.
9. Peter Stockdale, "Pearsonian Internationalism in Practice: The International Development Research Centre," unpublished Ph.D. thesis, McGill University, 1995.
10. Eric Jarvis, "A Contagious Journey within a Culture of Complacency. The Smallpox Scare of 1962 in New York and Toronto," *CBMH/BCHM*, 2007;24(2):343-66.
11. Gilberto Hochman, "Priority, Invisibility and Eradication: The History of Smallpox and the Brazilian Public Health Agenda," *Med Hist*. 2009;53(2):229-52.
12. Jaime L. Benchimol, ed., *Manguinhos do sonho à vida. A ciência na Belle Époque* (Rio de Janeiro: Casa de Oswaldo Cruz – Fiocruz, 1990); Nancy Stepan, *Beginnings of Brazilian Science: Oswaldo Cruz, Medical Research and Policy, 1890-1920* (New York: Science History Publications, 1976).
13. Jaime L. Benchimol, ed., *Febre amarela: a doença e a vacina, uma história inacabada* (Rio de Janeiro: Editora Fiocruz, 2001); Robert J. Wilson, *Travelogue*, p. 3, SP-CA.
14. On Amies and freeze-dried vaccine, see Barreto and Rutty, "Speckled Monster", 18.
15. José Fonseca da Cunha to C. R. Amies, January 24, 1960, SP-CA.
16. On Fenje, see Christopher Rutty, "Canadian Vaccine Research, Production and International Regulation: Connaught Laboratories and Smallpox Vaccines, 1962-1980," in *Crafting Immunity: Working Histories of Clinical Immunol-*

ogy, eds. Kenton Kroker, Jennifer Kealan and Pauline Mazumdar (Aldershot and Burlington: Ashgate, 2008), 280-89.

17. Wilson's hand-written calculations for DA Henderson, WHO correspondence with D. A. Henderson, SP-CA, 88-001-11.
18. Steven Palmer, Danieli Arbex and Gilberto Hochman, "Smallpox Eradication and a Good Place to Eat: A Canadian Scientist's 1967 Brazil Travelogue," *Cultures of Health: A Historical Anthology*, <http://hih.uwindsor.ca/wordpress/index.php/2009/03/02/smallpox-eradication-national-monuments-and-places-to-eat/>
19. For Henderson's views, Barreto and Rutty, "Speckled Monster", 114-115; Hochman and Palmer, Interview with Henderson; Fenje and Wilson's feelings that the mission was accomplished can be found in their personal correspondence, Smallpox, 88-001-36, SP-CA.
20. Wilson's hand-written calculations.
21. Wilson to Henderson, September 8, 1970, Smallpox, WHO correspondence, SP-CA.
22. José Fonseca da Cunha. Depoimento. Rio de Janeiro, FIOCRUZ/Casa Oswaldo Cruz Oral History Project, 1988.
23. The friendship is evident in the details of the correspondence between Fonseca da Cunha and Wilson in the early 1970s: Smallpox PAHO, Zone 5, Brazil, Rio de Janeiro, correspondence, 88-001-27, SP-CA.
24. PAHO/WHO, "Final report of The Special Commission for the Assessment of the Smallpox Eradication Program in South America", CD22/19, Annex III. Presented at XXII Meeting of the Directing Council Washington, D.C., Oct. 8-18, 1973. Available <http://hist.library.paho.org/English/GOV/CD/49261.pdf>
25. Klaudia A. Dmitrienko and Anne-Emanuelle Birn, "Juggling Demands: Canadian Health Aid to Latin America since World War II," *Can J Public Health* 2006;97(6):12-17.