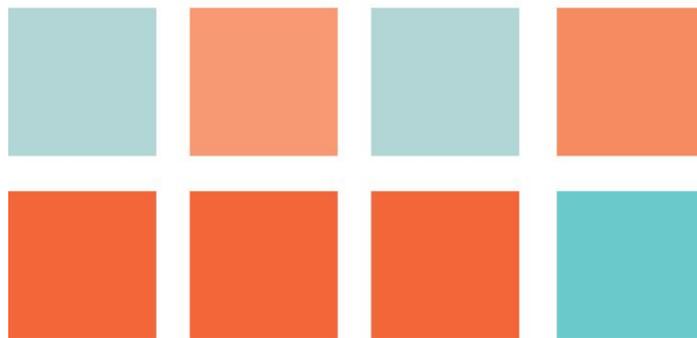


**RNAO Submission on the  
Provincial Nuclear Emergency  
Response Plan (PNERP)**

July 28, 2017



The Registered Nurses' Association of Ontario (RNAO) is the professional association representing registered nurses (RN), nurse practitioners (NP) and nursing students in all settings and roles across Ontario. It is the strong, credible voice leading the nursing profession to influence and promote healthy public policy. RNAO, in collaboration with its expert Ontario Nurses for the Environment Interest Group (ONEIG) are delighted to respond to the Provincial Nuclear Emergency Response Plan (PNERP).

### **The role of RNs and NPs in nuclear disasters**

We welcome this opportunity to comment on revisions to the Provincial Nuclear Emergency Response Plan (PNERP).<sup>1 2 3</sup> It goes without saying in a post-Fukushima world that a precautionary approach is essential when planning for nuclear emergencies. Health services are central to disaster mitigation and emergency response, and RNs and NPs are in the front lines when any disaster does strike. RNs and NPs play key roles in responses to nuclear incidents including: radiation exposure screening; triage; decontamination; treatment for radiation; treatment for exacerbations of existing medical conditions; assistance with evacuation; and attending to the health and psychological needs of evacuees. Problems during the Fukushima nuclear disaster demonstrated the need for authorities to ensure adequate supports are in place for nurses in the event of emergencies. That includes a continuous effort in providing RNs and NPs with training and materials.<sup>4</sup> Inadequate preparation at Fukushima also contributed to: deaths of vulnerable people due to rapid evacuation; deaths due to displacement of elderly people requiring nursing care; and adverse impacts on affected individuals' lifestyle and mental health.<sup>5</sup> This is reminiscent of how the 2003 SARS outbreak revealed Ontario's lack of preparation for public health emergencies.<sup>6</sup>

It is crucial to have comprehensive planning so that RNs and NPs can be ready for all the above roles, and they must be involved in the detailed planning processes. Planning must identify and commit all necessary resources, including: key hospitals and other health facilities; decontamination centres; equipment; materials; and personnel. To ensure resources can be rapidly mobilized in the event of a disaster, it is essential that personnel likely to be involved receive appropriate and adequate training. For example, public health, primary care, long term care, and acute care nurses must learn to identify vulnerable populations in the shadow of nuclear plants. Nurses trained to screen for acute radiation syndrome can identify people with the highest priority for treatment. Nurses will also need to know how to best decontaminate exposure victims, how to handle contaminated clothes and water, how to treat and cover wounds, and how to protect food and water from radiation.

### **Vulnerable communities**

Much of the adverse impact of Fukushima was due to the evacuation of vulnerable communities from hospitals and nursing homes – effects that likely would have been reduced with better planning.<sup>7</sup> The World Nuclear Association cited over 1,000 deaths directly attributable to the

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evacuation around Fukushima.<sup>8</sup> This is a risk for any kind of evacuation, as was the case with Hurricanes Katrina and Rita.<sup>9</sup> And vulnerable or not, living as a refugee for an extended period of time raises the risk of death.<sup>10</sup> Accordingly, there must be planning for immediate and on-going health services to mitigate those risks. Planning in Ontario needs to be even more intensive since many of the province's nuclear power plants are located adjacent to large population concentrations – larger than those near the Fukushima plant. The Pickering plant is just 5 km east of Toronto and the Darlington plant is 30 km east.<sup>11</sup> There were only 160,000 people evacuated as a result of the Fukushima disaster, even though there was a 20 km evacuation order and voluntary evacuation in the area 20-30 km from the plant.<sup>12</sup> As of 2006, a 20 km evacuation around the Pickering plant would affect 1.3 million people, while 477,000 people would be affected around Darlington.<sup>13</sup>

The Great Lakes, which supply drinking water for 40 million people, are also at risk: there are 10 Ontario reactors on Lake Ontario, eight Ontario reactors on Lake Huron, four US reactors on Lake Ontario and three US reactors on Lake Erie.<sup>14</sup> As a result, planning for alternative sources of drinking water is essential.

### **Nuclear power and Ontario's energy mix**

Ontario has made huge strides in cleaning up its electricity generating system. Notable achievements include: the closure of the coal plants, which resulted in the number of pollution alert days dropping from 53 in 2003 to zero in 2014 and 2015,<sup>15</sup> and the gradual expansion of renewable energy such as wind and solar. Nevertheless, Ontario took a step back by cancelling \$3.8 billion in renewable energy projects in September 2016, in part to save on short term cost.<sup>16</sup> As a result, Ontario continues to rely heavily on nuclear power for its electricity – 61 percent of the total in 2016.<sup>17</sup> But critics say that by relying on power from the planned rebuild of Darlington's nuclear plant will be much more expensive than the price of wind power.<sup>18</sup>

We argue against building new nuclear power plants<sup>19</sup> or refurbishing old ones on grounds of human health, environmental health and cost.<sup>20</sup> And of course the health concern is not limited to catastrophic failures: low-level releases of the radionuclide tritium are a common occurrence with the CANDU reactors used in Ontario.<sup>21</sup>

But so long as Ontario continues to rely on nuclear power, RNAO and its expert interest group ONEIG call for a precautionary approach, particularly as it relates to emergency response planning. This has been a long-standing position, particularly in the wake of the Fukushima disaster.<sup>22</sup> The discussion paper for this PNERP consultation implicitly acknowledges precaution by highlighting Fukushima as providing key context for the emergency response plan.<sup>23</sup>

## **Recommendations**

RNAO was a signatory of *A Call for Public Safety: Addressing Nuclear Risks on the Great Lakes*,<sup>24</sup> and along with ONEIG we echo the key precautionary demands of the letter in this submission:

1. Protective measures must be based on a Fukushima-scale accident (International Nuclear Event Scale 7 (INES 7)), including alerts, potassium iodide pre-distribution and preparation for evacuation zones of 20 km or greater.
2. Prepare for full health support of all displaced populations, including health practitioner staffing at evacuation centres and health teams to visit reception centres without health teams.
3. Ensure on-going emergency training of key health care providers in primary and acute care, long-term care and public health, including RNs and NPs.
4. Ensure all necessary policies, procedures and documentation are in place to support health professionals in the event of a significant nuclear incident.
5. Identify vulnerable groups within 30 km of nuclear facilities and require plans to assist those groups, whether they are evacuated or not.
6. Ensure alternate sources of drinking water are identified and available, given the possibility of contamination of Great Lakes water.
7. With respect to transparency and public participation, require the public availability of detailed information on nuclear emergency planning, and require five-year reviews and detailed public consultation on emergency response planning.
8. Require emergency response measures to meet or exceed international best practices.
9. “Regularly review and publicly report on international developments and best practices in offsite nuclear emergency planning as well as on plans to adjust and improve Ontario’s plan to meet or exceed the best practices in other OECD jurisdictions.”<sup>25</sup>

We believe that the case against building new nuclear power plants and refurbishing old ones is very strong. But unless Ontario plans to shut down its nuclear reactors soon, it is incumbent on the province to provide a significant margin of safety for survivors of a major nuclear disaster. Registered nurses and nurse practitioners will be there on the front lines in the event of a catastrophe, but they want to know they will have the tools to immediately help vulnerable populations.

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- <sup>3</sup> Office of the Fire Marshal and Emergency Management, Ministry of the Community Safety and Correctional Services. (2017). *Discussion Paper: Provincial Nuclear Emergency Response Plan (PNERP): Planning Basis Review & Recommendations*. May. [http://www.energy.gov.on.ca/en/files/2017/05/PNERP\\_Discussion.pdf](http://www.energy.gov.on.ca/en/files/2017/05/PNERP_Discussion.pdf).
- <sup>4</sup> Yoshida, K., Orita, M., Goto, A., Kumagai, A., Yasui, K. et al. (2016). Radiation-related anxiety among public health nurses in the Fukushima Prefecture after the accident at the Fukushima Daiichi Nuclear Power Station: a cross-sectional study. *BMJ Open* 2016;6: e013564. doi:10.1136/bmjopen-2016-013564.
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- <sup>7</sup> L. Stenke et al., Lessons Learnt from the Fukushima Accident – A Swedish Medical Preparedness Perspective, *Radiation Protection Dosimetry*, (2016) Vol. 171, No 1. Pgs. 134 – 138.
- <sup>8</sup> World Nuclear Association. (2017). *Fukushima Accident*. <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx>.
- <sup>9</sup> Freya Zork, Nursing Home Disaster Planning and Response: A Policy Perspective, *Journal of Gerontological Nursing*, Vol.40, No.12, 2014
- <sup>10</sup> Tanaka R., Prolonged Living as a Refugee from the Area Around a Stricken Nuclear Power Plant Increases the Risk of Death, *Prehospital and Disaster Medicine*, August 2015, Vol 30, Issue 4, pgs. 425-430
- <sup>11</sup> Otis, D. (2016). Safety Not guaranteed near nuclear plants in Pickering and Clarington, critics say. *DurhamRegion.com*. January 26. <https://www.durhamregion.com/news-story/6218718-safety-not-guaranteed-near-nuclear-plants-in-pickering-and-clarington-critics-say/>.
- <sup>12</sup> World Nuclear Association. Op. cit.
- <sup>13</sup> Centre for Spatial Economics. (2011). *Economic Impacts of a Nuclear Accident at the Pickering or Darlington Nuclear Stations*. Prepared for Greenpeace Canada. September. <http://www.greenpeace.org/canada/Global/canada/report/2011/09/Accident%20impact.pdf>.
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<sup>20</sup> Registered Nurses' Association of Ontario. (2012). *Position Statement: Healthy Energy Solutions for Ontario*. March 3. [http://rnao.ca/sites/rnao-ca/files/RNAO\\_Position\\_Statement\\_on\\_Healthy\\_Energy\\_Solutions\\_-\\_FINAL\\_and\\_dated\\_March\\_3\\_2011.pdf](http://rnao.ca/sites/rnao-ca/files/RNAO_Position_Statement_on_Healthy_Energy_Solutions_-_FINAL_and_dated_March_3_2011.pdf).

<sup>21</sup> Fairlie, I. (June 2007). *Tritium Hazard Report: Pollution and Radiation Risk from Canadian Nuclear Facilities*. Greenpeace. P. 10. <http://www.greenpeace.org/canada/Global/canada/report/2007/6/tritium-report-canadian-facilities.pdf>.

<sup>22</sup> Grinspun, D. (2011). *Nuclear Technology*. Mar. 16. [http://rnao.ca/sites/rnao-ca/files/Nuclear\\_Technology.pdf](http://rnao.ca/sites/rnao-ca/files/Nuclear_Technology.pdf).

<sup>23</sup> Office of the Fire Marshal and Emergency Management, Ministry of the Community Safety and Correctional Services. Op. cit. p. 3.

<sup>24</sup> Canadian Environmental Law Association et al. (2017). Op. cit.

<sup>25</sup> Ibid, p. 7.