

isotopes for

HOPE



Canadian Leadership Needed Now More Than Ever

UPDATE ON RECOMMENDATIONS





The market data included in this report can be accredited to MEDraysintell Nuclear Medicine (part 1) – Marketed Radiopharmaceuticals – Edition 2021, www.medraysintell.com.

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The medical isotope industry is full of growth opportunities for Canada.

isotopes for HOPE

Advocacy update

In March of 2023, the Canadian Nuclear Isotope Council (CNIC) released *Isotopes for Hope: Canadian Leadership Needed Now More Than Ever*, with the goal of asserting and expanding Canada's position in isotopes research, supply and use. *Isotopes for Hope* outlines an ambitious vision of doubling Canada's production of isotopes by 2030, which will allow Canada to meet the needs of the growing international market for isotopes. As the market is anticipated to reach between \$14 and \$33 billion USD in the next decade, Canada is well poised to build on its progress, capabilities, and expertise to become a global leader.

In the months following the release of *Isotopes for Hope*, the CNIC and its members have seen growing recognition and support from all levels of government. Now more than ever, Canadians and decision-makers are aware of the essential role of isotopes to modern medicine, industry, research and many facets of everyday life.

We applaud the government for its willingness to work with the CNIC and for demonstrating action on behalf of the isotope industry.



Gamma Knife treating brain cancer

This progress report serves as an update to the CNIC’s advocacy efforts through the *Isotopes for Hope* campaign to maintain momentum and continue working toward the goal of doubling production by 2030. Each recommendation is organized into one of three categories:

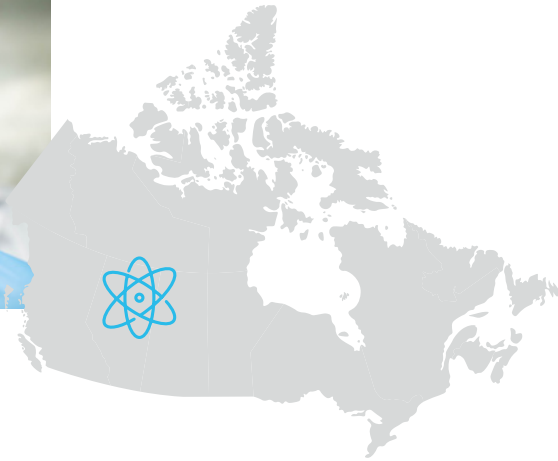
SIGNIFICANT PROGRESS MADE: Acknowledging Canada for its progress in recent months toward achieving the goal of the recommendation. Significant steps are being taken by government to work with industry to develop actionable solutions and next steps.

WORK ADVANCING: Some early steps and progress has been made by the government to address the recommendation or learn more about specific industry challenges.

FOCUS AREA FOR 2024: We look forward to working with federal and provincial departments to develop pathways to address each recommendation.

Summary of progress

Develop a national isotope strategy	SIGNIFICANT PROGRESS MADE
Provide matching funding programs for the Canadian medical isotope sector	SIGNIFICANT PROGRESS MADE
Establish a national isotope advisory caucus	WORK ADVANCING
Secure and expand Canadian talent and expertise	WORK ADVANCING
Encourage partnerships with the Canada Infrastructure Bank	WORK ADVANCING
Better data, better focus	FOCUS AREA FOR 2024
Increase Canada’s international competitiveness	FOCUS AREA FOR 2024



RECOMMENDATION 1:

Develop a national isotope strategy – **SIGNIFICANT PROGRESS MADE**

The isotope industry is unique as it falls under the jurisdiction of several different federal government departments, namely Health Canada; Natural Resources Canada (NRCan); the Department of Finance; and Innovation, Science, and Economic Development (ISED). In securing targeted investments and policy supports, this can pose challenging since no single department is responsible for the whole of the Canadian isotope industry.

To address this challenge, the CNIC recommended the Government of Canada develop a national isotope strategy that is cross-functionally aligned with various government departments, priorities and funding programs. Developed in collaboration with industry, the strategy would enable sector research and support all isotope-related activities.

Since the release of the *Isotopes for Hope* campaign, we have made progress on achieving a steering committee toward this national isotope strategy. On June 8, 2023, the CNIC and several members met in Ottawa for a day of advocacy on Parliament Hill to advocate on behalf of the industry.

Stemming from these meetings, the CNIC is working toward holding a roundtable discussion with representatives from NRCan, ISED, and Health Canada in late 2023 to begin establishing an inter-departmental steering committee for isotopes. A tangible first step of this steering committee will be to review this recommendation and the significant

opportunity for Canada to leverage its existing supply chain and infrastructure through a national isotope strategy.

We have also made great strides in receiving cross-party support for medical isotopes and we are proud to see several industry champions at multiple levels of government. At the federal level:

- MP Jenna Sudds rose in the House of Commons in June to deliver a Members' Statement to recognize the important role that Canada's isotope industry plays in modern medicine, and how companies in Kanata-Carleton are contributing to our domestic and international supply of isotopes.
- In March, MP Pam Damoff delivered a Members' Statement to highlight our *Isotopes for Hope* campaign as a roadmap to strengthen Canada's global role in isotope production.

In Ontario, the isotope industry has several champions and has been celebrated several times in the Legislative Assembly:

- A Members' Statement from MPP Rick Byers on March 7, 2023, about the role of Bruce Power's Isotope Production System (IPS) in producing cancer-fighting lutetium-177, and again during a speech during debate on May 15, 2023;

- During Question Period on March 21, 2023, from MPP Natalia Kusendova-Bashta to the Parliamentary Assistant to the Minister of Energy, MPP Jess Dixon, about Ontario's global role in the fight against cancer;
- Chair of the CNIC was recognized in the House by Minister of Economic Development, Job Creation and Trade, Hon. Vic Fedeli, on March 29, 2023;
- During Question Period of May 2023, in a response from Minister of Colleges and Universities, Hon. Jill Dunlop about the \$6.8 million investment to McMaster University to increase the operating hours and number of isotopes produced in the reactor.

We are pleased to see growing political recognition for the important role isotopes play in revolutionizing modern medicine and cancer treatments. As we work to further develop a national isotope strategy, cross-party support will be essential. At the provincial level, we must work interprovincially to address barriers and collaborate across political parties to best leverage Canada's leadership on a global scale.

Following the establishment of a federal inter-departmental steering committee on isotopes, the CNIC and its members are prepared to support the development of a tangible, actionable national isotope strategy.

RECOMMENDATION 2:

Provide matching funding programs for the Canadian medical isotope sector

— SIGNIFICANT PROGRESS MADE

Researching and developing new innovative radiopharmaceuticals takes time and investment. With additional funding support from the federal government earlier in the process, companies in Canada will have additional resources critical to attracting private investment and overcoming commercialization challenges. In *Isotopes for Hope*, we recommended Canada's isotope supply should be designated as a key focus area within the Strategic Innovation Fund (SIF) and specific isotope funding programs should be explored, similar to those to advance Net Zero technologies.

On June 27, 2023, the Government of Canada, under Innovation, Science, and Economic Development (ISED), announced an investment to the SIF Stream 5 to support development in Canada's Medical Isotope Ecosystem (CMIE). The funding will support development and growth across five "shovel-ready" isotope projects led by seven companies across Canada: The Centre of Probe Development and Commercialization (CPDC), TRIUMF Innovations, McMaster University, Bruce Power, BWXT Medical, Canadian Nuclear Laboratories and the Saugeen Ojibway Nation (SON). The funding will establish a pan-Canadian medical isotope innovation network and allow each contributor to advance projects and technology to contribute to growth of the CMIE.

A sixth project, the Canadian Medical Isotope Ecosystem Development Fund (CMIEDF), aims to broaden the reach of the original SIF investment by providing funding and collaboration opportunities for Canada's broader medical isotope ecosystem. The CMIEDF aims to incorporate all links in the supply chain, while fostering scientific innovation and economic growth.

In the spirit of industry collaboration, the CMIEDF will leverage the Canadian Nuclear Isotope Council to support the delivery of the project six. With this specific and targeted funding, Canada will be able to encourage greater industry collaboration across the country, while helping companies overcome the commercialization challenges associated with developing products here in Canada.

The matching funding provided through the SIF investment is an example of what can be achieved when government partners with industry. Additional cost-sharing arrangements should be pursued to continue fuelling growth, investment and innovation in Canada.



Investing in the isotope industry means job creation and better health outcomes for cancer patients.

RECOMMENDATION 3: Establish a national isotope advisory caucus – **WORK ADVANCING**

In *Isotopes for Hope*, we recommended that a national isotope strategy will benefit from an independent council comprised of national experts to assist government in managing a national isotope strategy. This council should consist of representatives from both the public and private sectors and include diverse experts from across the country.

Following the success of the CNIC's 2023 Hill Day, we are taking steps toward establishing an inter-departmental steering committee for isotopes with NRCan, Health Canada, Finance Canada and ISED. CNIC members from across the country are well poised to participate in these committee discussions to discuss the industry's needs in technology development and infrastructure, as well as research developments.



Investing in the next
generation of medical
isotope experts
is crucial.

RECOMMENDATION 4: Secure and expand Canadian talent and expertise – **WORK ADVANCING**

Canada must build on existing expertise within the industry to drive future innovation in isotope production capabilities and fund initiatives to enable research. To do so, we must invest in the next generation of experts by supporting education initiatives and engaging with academia and industry to develop training programs.

To further explore this recommendation, the CNIC held its annual Leaders' Summit on July 23, 2023, in conjunction with the International Conference on Isotopes. This year's Summit, attended by industry, academia, government, business leaders, and more, focused on the labour dynamics of the medical isotope industry to explore how to staff a growth future for the industry.

Also at the 2023 Leaders' Summit, we released a new report, *Securing Canadian Medical Isotope Talent and Expertise*, based on a survey to CNIC members which addresses current and projected talent needs in the isotope industry. The report identifies the challenges in accessing and retaining sufficiently trained talent, which may be a limiting factor to growth in the Canadian industry. Recognizing the significant opportunities for Canada to expand its position in the global isotope industry, the report makes six specific recommendations that build upon the original recommendation in the *Isotopes for Hope* report.

Maintaining the momentum and ensuring Canada remains competitive will require industry co-ordination to overcome existing talent gaps and create a diverse, inclusive and engaging workplace for the next generation of professionals.

The CNIC looks forward to working alongside industry, relevant ministries and academia to build upon existing programs and establish multi-disciplinary learning tracks and training opportunities to ensure Canada has sufficient talent in place.



There are currently 294 medical facilities licensed to handle radioactive materials in Canada.



RECOMMENDATION 5: Encourage partnerships with the Canada Infrastructure Bank –

WORK ADVANCING

With a strong foundation of existing infrastructure, including CANDU reactors, cyclotrons and accelerators, and leading research institutions, Canada can leverage this leadership with the proper supports in place. *Isotopes for Hope* recommended Canada declare its supply of isotopes as a key element of strategic infrastructure through the Canada Infrastructure Bank and similar provincial mechanisms. This will allow the isotope industry to access the same funding tools and support for other major infrastructure projects and enable public-private partnerships.

While there is still work to be done in declaring our isotope supply a key element of national infrastructure, we have seen great progress in Ontario. In the fall of 2023, the Government of Ontario planned to re-release the Life Sciences Strategy to include new medical technologies such as medical isotopes to increase our supply of isotopes and strengthen and rebuild our health-care system. We are pleased to see the Government of Ontario taking this important step to support the growing isotope industry.

To ensure that the isotope industry can continue to grow into the future, isotopes must officially be included in future health-care, infrastructure, life sciences and commercial strategies. This official inclusion will provide the industry with predictability and stability, allowing for long-term growth.

RECOMMENDATION 6: Better data, better focus –

FOCUS AREA FOR 2024

In Canada, there is a general lack of comprehensive data on isotope usage, facilities, and patient needs. This makes it difficult to quantify isotope impacts in Canada and have a sense of where isotopes are being used, or for what. The *Isotopes for Hope* campaign recommended the creation of a centralized national inventory of isotope data, which will allow Canada to address information gaps and focus industry efforts.

While the *Isotopes for Hope* report contained information such as market figures for several emerging and in-demand isotopes, including each isotope's global value, production and use, and projections for growth in the Canadian and global markets, there is still a need for a more comprehensive inventory of data on isotopes in Canada.

An inventory of data will allow Canadian isotope producers and researchers to understand which isotopes are in high demand for upcoming clinical trials and radiopharmaceuticals, allowing the isotope community to anticipate and address gaps in supply. The CNIC is prepared to work alongside the federal government and its regulators, Health Canada, NRCAN, ISED and the isotope community to begin collecting this data.

RECOMMENDATION 7: Increase Canada's international competitiveness – FOCUS AREA FOR 2024

To encourage international investment and sector growth, we recommended the Government of Canada expand existing funding programs offered through organizations such as Business Development Canada and Export Development Canada to encompass medical isotopes.

Canada is presented with a significant opportunity to enhance its competitiveness in a challenging economic environment, while attracting international investment into its medical isotope sector. We look forward to working with federal organizations to develop pathways to expand existing funding programs to include medical isotopes to ensure the industry has the tools it needs to thrive.



Looking forward, Canada must draw upon successes achieved in the past to continue progressing on these recommendations. Building on the momentum of the *Isotopes for Hope* campaign, the CNIC has also identified an additional area which Canada can exemplify its leadership and commitment to the international isotope community.

Additional opportunities for Canadian leadership

RECOMMENDATION 8:

The CNIC calls on the Government of Canada to join Rays of Hope as a national partner to help close the gap in access to cancer care

Rays of Hope is a global cancer initiative led by the International Atomic Energy Association (IAEA) to improve access to cancer care and radiotherapy infrastructure around the world, particularly in low- and middle-income countries. While isotopes are rapidly becoming the standard of care for cancer patients in Canada and elsewhere in the world, several countries lack the facilities, infrastructure, and personnel needed to provide access to life-saving nuclear medicine. More than half of the population in Africa does not have access to radiotherapy and other regions also face significant gaps. The IAEA estimates that by 2030, 70 per cent of global cancer deaths will occur in low- and middle-income countries.

Since the initiative began in late 2022, multiple countries have received essential radiotherapy and medical imaging machines, in addition to training for medical professionals

to operate the equipment and provide diagnostics and treatments. More than 50 countries have already signed up to participate in Rays of Hope and to date, more than \$38 million USD has been pledged.

As a historic leader in nuclear medicine and the production of isotopes, Canada has an opportunity to take a more prominent role in this international campaign. The CNIC calls on the Government of Canada to join Rays of Hope as a national partner to help close the gap in access to cancer care.

By leveraging its expertise in nuclear medicine, Canada can have a long-lasting global impact in the international health-care community to widen access to revolutionary cancer care and deliver hope around the world.



www.canadianisotopes.ca

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CS230510A R000 SEPT2023