BMA

BREXIT BRIEFING

Euratom and Brexit

Key points

- Euratom facilitates a secure and consistent supply of radioisotopes which have a range of applications in medicine. They are vital for diagnosing particular diseases through nuclear medicine imaging techniques, treatment of cancer through radiotherapy, as well as palliative relief of pain, and biochemical analysis in clinical pathology.

- Working outside of Euratom would:
  - reduce the reliability by which the UK can obtain these vital supplies, leave the UK increasingly exposed to supply chain risks, and restrict the ability of the EU (European Union) and UK to share expertise; and
  - weaken collaborative links between the UK and EU on nuclear-medicine research.

- To ensure the supply of nuclear materials and promote nuclear medicine research, the UK Government should negotiate a formal agreement with Euratom, similar to ones in place with other non-EU countries such as Switzerland.

- For the UK, negotiating a formal agreement with Euratom would:
  - ensure consistent and timely access to radioisotopes for medical purposes; and
  - facilitate close collaboration on radiation research and support.

- For the EU, negotiating a formal agreement with the UK would:
  - underpin continued collaboration with UK nuclear research institutions, such as the Culham Centre for Fusion Energy in Oxfordshire; and
  - facilitate continued access to UK data which supports EU involvement in research projects, for example ITER (the International Thermonuclear Experimental Reactor).

- Should there be a failure to agree a withdrawal agreement by March 2019, the UK would have to operate outside of Euratom and source radioisotopes from outside of this framework. This would remove the guarantee of consistent and timely access to radioisotopes, potentially resulting in delays in diagnosis and cancelled operations for patients. In the longer term, it would also restrict the ability of the UK and EU to benefit from sharing expertise in radiation research, radiation protection and the disposal of radioactive waste.

Background

Euratom has responsibility for establishing a single market for the trade in nuclear materials and technology across the EU. It provides a key role in facilitating a secure and consistent supply of radioisotopes that are used across a range of sectors, including medical, industrial and scientific fields. In medicine, they are vital for:

- diagnosis of disease through nuclear medicine imaging techniques such as PET (Positron Emission Tomography) scans,[a] Myocardial Perfusion Tests[b] and bone scans to stage common cancers, allowing clinicians to make a quick and accurate diagnosis of a patient's illness;
- treatment of cancer through radiotherapy (such as the use of iodine-131 for thyroid cancer), as well as palliative relief of pain (such as strontium-89 for cancer-induced bone pain); and
- biochemical analysis of blood, serum, urine, hormones and antigens in pathology, known as radioimmunoassay.

Euratom also provides funding – through the Horizon 2020 programme – for extensive research development programmes. As of February 2016, 25 UK organisations had participated in Euratom projects under Horizon 2020 and received funding of €32 million.[1] Euratom also provides a key network that supports research and training in areas such as nuclear safety, clinical radiation protection and the safe disposal of radioactive waste, as well as the free movement of nuclear sector specialists.

a A PET scan is a test which examines organs within the body.
b A myocardial perfusion scan is a non-invasive imaging test that shows how well the heart muscle is being supplied with blood.

The UK's relationship with Euratom and potential consequences of the UK's exit from the EU on the supply of medical radioisotopes and nuclear research in the UK

When triggering Article 50 to start the process of leaving the EU, Article 106(a)[c] of the Euratom Treaty was also invoked. The Government has argued that this was because the Treaties are legally joined and stated that Euratom places no restrictions on the export of medical isotopes.[2,3] There is, however, some legal debate as to whether this was necessary or whether a slower, more realistic timetable could have been followed.[1,4] The British Nuclear Medicines Society, Royal College of Radiologists and Royal College of Physicians have also reiterated concerns, despite Government assurance, about the impact of leaving Euratom on the future supply of radioisotopes.[5,6,7]

If the UK does pursue the decision to leave Euratom, it will need to establish a SSAC (State System of Accountancy and Control for Nuclear Material)[d] to fulfil our obligations to the IAEA (International Atomic Energy Agency).[e] Once this has been done, there may be scope for an associate agreement between Euratom and the UK, such as exists with other non-EU countries.

Whatever approach is taken, a continued close working relationship should be sought that facilitates secure and consistent access to radioisotopes. This is vital for a number of reasons.

- The UK relies on international supplies of nuclear radioisotopes – for example, its supply of Technetium 99 (which is the most common radioisotope used in nuclear diagnostic imaging in many UK hospitals) is imported largely from the Netherlands, France and Belgium.[8,9] NHS England data show that approximately half a million scans are performed annually using imported radioisotopes.[10] While these isotopes can be bought from a small number of countries outside Euratom – China, South Africa, Australia, Egypt and Russia[11] – leaving this network will reduce the reliability by which the UK can obtain these vital supplies, and likely increase the cost, by purchasing from outside the European market.
- As isotopes have a short half-life and cannot be stock piled, continuous and timely access is vital for patient safety. As the UK will not have access to a supply close to the point of use, leaving Euratom will increase the risk of supply issues. Breaks in this supply can lead to delayed diagnosis and treatment, as occurred in 2009 and 2013 when maintenance of reactors resulted in facilities going offline temporarily.[12]
- International cooperation between countries is critical to supporting research and radiation safety in the nuclear industry. Leaving Euratom will restrict the ability for the UK and EU to benefit from sharing expertise in radiation research, radiation protection and the disposal of radioactive waste.

c Article 106(a) sets out the relationship between Euratom and the European Union Treaty. Legal opinion of the interpretation of the Article is crucial to the UK's future relationship with Euratom.

d An organisational arrangement a state must take to account for and control nuclear material and to provide the basis for the application of IAEA safeguards.

e All members of the IAEA have to agree regional non-proliferation treaties, export controls, security assurances, physical protection, security measures designed to address non-State actors (for example, terrorist groups), mechanisms to track and deter illicit trafficking in nuclear and other radioactive materials, and many other unilateral and multilateral initiatives.

Ensuring the supply of nuclear materials and promoting nuclear medicine in the UK

The BMA believes that it will be vital for the UK to continue to work closely with Euratom after it exits the EU. In order to do this, the UK should first establish a SSAC and then negotiate a formal agreement with Euratom, as is the case for a number of non-EU countries, such as Switzerland, which have associate agreements with Euratom governing reciprocal rights and obligations, common action and special procedures.[1]

For the UK, negotiating a formal agreement with Euratom would:
- ensure consistent and timely access to radioisotopes for medical purposes;
- facilitate close collaboration on radiation research and support;
- support UK participation in long term research projects such as the ITER[f] and F4E (JET Fusion 4 Energy)[g,7]; and
- reduce the burden on the UK of replicating the arrangements in place through Euratom.

For the EU, negotiating a formal agreement with the UK would:
- support continued collaboration with UK nuclear research institutions, such as the Culham Centre for Fusion Energy in Oxfordshire;[h] and
- facilitate continued access to UK data which supports EU involvement in research projects, for example the ITER.

Key developments

- In the 2017 Queen's Speech the Government announced it would introduce a Nuclear Safeguards Bill to establish a UK nuclear safeguards regime. The Bill will give the Office for Nuclear Regulation powers to take on the role and responsibilities required to meet our international safeguards, and nuclear non-proliferation, obligations.[13] This new regulatory structure would need to be established and operational by March 2019.

Summary

As a member of Euratom, the UK currently has access to a secure and consistent supply of radioisotopes which are vital in medicine for diagnosis, clinical pathology and treatment. The UK's decision to leave the EU will risk the UK's ability to secure timely access to these radioisotopes, as well as funding for nuclear research. It is vital that the UK continues to work with Euratom to maintain the benefits of collaboration in these areas.

f ITER is an international nuclear fusion research and engineering project, funded by the EU, India, Japan, China, Russia, South Korea and the United States. The EU hosts the ITER.
g F4E is the EU joint undertaking for ITER and the Development of Fusion Energy. It is responsible for providing Europe's contribution to ITER and supports fusion research and development initiatives through other international agreements.
h The Culham Centre for Fusion Energy is the UK's national laboratory for fusion research and hosts various different European and international projects.

References

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12 www.nature.com/news/radioisotopes-the-medical-testing-crisis-1.14325 (last accessed on 13.07.2017).

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