

▶ **Global Availability of Molybdenum 99, Is There a Crisis?**

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The sites producing and the global supply of Mo99 as of July 2013 is limited to production at a small number of nuclear reactor facilities. A high percentage of these reactors are either nearing the end of their useful life or will soon be in need of major renovation. Regularly scheduled maintenance occurs at these sites on an annual basis which places increased stress and demand on the logistics supply chain. Reactor shut downs, either planned for maintenance or unplanned due to malfunction, and natural disasters illuminate the fragility of the global supply chain of Mo99. Global initiatives to promote the use of low enriched uranium (LEU) in lieu of highly enriched uranium (HEU) which may be used to create nuclear weapons will likely result in increased costs and pressures on supply. There are efforts to ensure the burden of increased costs associated with the conversion of HEU to LEU are not shouldered by the providers of nuclear medicine procedures and patients.

Reactors which utilize LEU to manufacture Mo99 are becoming more productive. Furthermore alternative methods to produce medical isotopes such as accelerator production have shown some promise. One of the world's major production sites for Mo99, the NRU reactor at Chalk River Canada, is scheduled to be decommissioned in 2016. It is of the utmost importance that regional production of Mo99 which is cost effective and reliable be established within a reasonable time frame.

References

1. Lyra M, Charalambatou P, Roussou E, Fytros S, Baka I: Alternative production methods to face global molybdenum-99 supply shortage. *J Nucl Med.* 2011 Jan-Apr;14(1):49-55
2. Overcoming the 99mTc Shortage: Are Options Being Overlooked? *J Nucl Med* 2011 52:15N-28N
3. J R Ballinger, PhD: Short- and long-term responses to molybdenum-99 shortages in nuclear medicine *Br J Radiol.* 2010 November; 83(995): 899–901. doi: 10.1259/bjr/17139152; PMID: PMC3473731

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