

**The aim of this work was to develop a delivery system for intravenous radioisotope therapies to substantially moderate radiation exposures to staff and operators” Rushforth et al (2017).**

Abstract:

The administration of radionuclide therapies presents significant radiation protection challenges. The aim of this work was to develop a delivery system for intravenous radioisotope therapies to substantially moderate radiation exposures to staff and operators. A novel device (InfuShield) was designed and tested before being used clinically.

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The device consists of a shielded enclosure which contains the therapeutic activity and, through the hydraulic action of back-to-back syringes, allows the activity to be administered using a syringe pump external to the enclosure. This enables full access to the pump controls while simultaneously reducing dose to the operator. The system is suitable for use with all commercially available syringe pumps and does not require specific consumables, maximising both the flexibility and economy of the system. Dose rate measurements showed that at key stages in an I mIBG treatment procedure, InfuShield can reduce dose to operators by several orders of magnitude. Tests using typical syringes and infusion speeds show no significant alteration in administered flow rates (maximum of 1.2%). The InfuShield system provides a simple, safe and low cost method of radioisotope administration.

Reference:

Rushforth, D.P., Pratt, B.E., Chittenden, S.J., Murray, I.S., Causer, L., Grey, M.J., Gear, J.I., Du, Y. and Flux, G.D. (2017) InfuShield: a shielded enclosure for administering therapeutic radioisotope treatments using standard syringe pumps. Nuclear Medicine Communications. February 9th. .

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