



## The Hospital Management of Patients and Staff on Low Dose Methotrexate

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Methotrexate is a drug that performs two distinct medical roles:

1. At low doses e.g. up to 25mg/week it is a powerful anti-inflammatory drug used as a cornerstone treatment for rheumatoid arthritis and other autoimmune diseases
2. At high doses (up to 5000 mg per week) it is a folic acid antagonist used to treat malignancies. Precautions are required in preparing the drug and caring for sick patients receiving these high doses.

**The pharmacology of low dose Methotrexate indicates that there are no risks to the hospital staff/carers attending patients on low doses or handling individual tablets (2.5mg and 10mg)**

1. The half life of Methotrexate is 6-8 hours after ingestion and it is undetectable in serum by 24 hours- – patients on low doses given weekly are NOT “HOT” and do not pose any risk to staff or other patients
2. Methotrexate is not lipophilic – **it is not absorbed through the skin in tablet or liquid forms:** the tablets and injections can be handled without absorption through contact by staff and carers
3. Even with handling high doses (1000-2000mg) contamination studies have shown no Methotrexate in air samples – gloves and masks are certainly not required when handling the lower doses The main issue with the in-hospital use of low dose Methotrexate is the need to administer the drug weekly.

There are many reported instances of inpatients being administered low dose Methotrexate daily because of charting errors or unfamiliarity with the medication. Daily administration is associated with a greatly increased risk of adverse events. Hospital protocols should emphasize this issue rather than the unnecessary exposure concerns, which are only relevant in the context of high dose cancer chemotherapy preparations.

We recommend that the precautions to prevent contact with Methotrexate designed for oncology protocols where very high doses are used are not needed for our rheumatoid arthritis patients – or their carers – where much lower oral weekly doses are used, as we have outlined.

### References

1. Wong L.S., Tymms K.E., Buckley N.A (2009) Potential for Methotrexate exposure through contamination during parenteral use as an immunosuppressant
2. Cronstein B.N (2005) Low dose Methotrexate : A Mainstay in the Treatment of Rheumatoid Arthritis
3. Paul J.M. Sessink MSc., Marc C.A. Van De Kerkhof, Rob B.M. Anzion ,Jan Noordhoek & Rob P. Bos (1994) Environmental Contamination and Assessment of Exposure to Antineoplastic Agents by Determination of Cyclophosphamide in Urine of Exposed Pharmacy Technicians: Is Skin Absorption an Important Exposure Route?, *Archives of Environmental Health: An International Journal*, 49:3, 165-169, DOI:10.1080/00039896.1994.9940377

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