DOES A STRUCTURED PROTOCOL INCREASE IMPLEMENTATION OF BIOLOGIC THERAPY DOSE REDUCTION AMONG CLINICIANS AND PATIENTS?  
A PILOT STUDY

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1. Introduction
- Biologic therapies (e.g., tumour necrosis factor inhibitors (TNFi)) used in the management of inflammatory arthritis are associated with potential risks (including local reactions, infections and possibly cancer).
- There are no clear guidelines or protocols reported in literature to facilitate implementation in clinical practice.
- For 2 years at NBT, stable patients (out of the 460 patients on subcutaneous TNFi) have been offered the opportunity to reduce their dose on an ad hoc basis with variable regimes.

2. Aims and Objectives
- Aim: To determine if a structured protocol for standardising dose reduction of subcutaneous TNFi therapy will increase implementation amongst clinicians and patients.
- Objectives:
  a) Develop a structured protocol for dose reduction of biologic therapies
  b) Evaluate impact of the protocol on uptake in clinical practice
  c) Evaluate the contribution of a specialist pharmacist in design and implementation
  d) Identify further work to further support dose reduction in biologic therapies

3. Methodology
- An inflammatory arthritis TNFi 5-step dose reduction program was developed by the Rheumatology Specialist Pharmacist (30% interval extension for 3 steps, followed by a 60% extension, before stopping treatment).
- The pharmacist produced a patient information leaflet and compliance record (informing of treatment escalation following a disease flare up) and checklists for prescribers.
- The program was reviewed by a Consultant Rheumatologist and patient representative group and presented to the clinical team.
- Patients with stable disease at 2 years on TNFi therapy and deemed appropriate by their clinician were offered to participate.
- Data were collected for patients started on dose reduction scheme.

4. Results
- Of the 74 additional patients commenced on an extended interval regime between Apr 2016 – Feb 2017, 76% followed the BTRIM program for dose reduction whereas 24% had their interval extended via an alternative schedule.

5. Discussion
- As previously discussed in literature [1-3], patients have been known to successfully reduce dose of biologic therapy by extending dose intervals, however little guidance exists on implementing dose reduction in clinical practice.
- The pilot study showed adopting a structured dose reduction program, developed by the Rheumatology Specialist Pharmacist, increased implementation in clinical practice.
- It is unclear whether this was attributable to increased patient and / or clinician confidence in initiating dose reduction or raised clinician awareness of dose reduction.
- The pilot data collection only includes patients who agreed to participate in dose reduction, therefore reasons for patients opting out of dose reduction were not assessed (and may have influenced data).
- The pilot demonstrated the benefit of having a Rheumatology Specialist Pharmacist to facilitate implementation of the program, with support of a Consultant Rheumatologist.
- The pilot has also been associated with significant financial savings, evaluated as £145,755 for our commissioners over the 11 month implementation period.
- The pilot is an example of work to be adopted as part of efficiency work in sustainability and transformation plans.

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6. Conclusions and Future Work
- Our aim was to bridge the gap between dose reduction studies reported in literature and practical implementation of dose reduction in the clinical setting, without increasing resource utilisation or inconveniencing patients with more frequent follow up appointments. We also aimed to allow competent patients to self-manage their dosing interval under the guidance of their Rheumatologist clinician. The pilot study achieved this.
- Further work has been identified following the pilot, including:
  - Research patient perspectives of biologic therapy dose reduction (research project currently recruiting patients).
  - Investigate relevance of drug level and anti-therapeutic antibodies.
  - Investigate ultrasound in identifying patients’ suitability to enter dose reduction programs
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  - Reduced follow up of 20 patients, 11 of whom had dose reduction.
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  - Roll out to other non TNFi therapies and intravenous biologic therapies.

7. References
[3] Zavala J, Uher M, Gómez K et al., 2016. A randomised approach to reduce dose of anti-TNF drugs may be equally effective, but substantially less costly than standard dosing in patients with ankylosing spondylitis over 1 year: a propensity score-matched cohort study. Ann Rheum Dis. 75:96-102

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