Pharmaceutical Care Issue - example

This example is not perfect, but illustrates how you could approach care issue development within the pharmaceutical care plans. It is important to note that not all medicines in the care plan will require this level of detail. The focus of the care plan should be on issues identified as a priority. Think about what practical interventions will be required and are they specific to the patient e.g. no need to include BNF information if it does not apply to this individual patient

What are the medication-related problems or risks?	What are the therapeutic goals?	What are the anticipated outcomes and monitoring requirements? Is any further action necessary?
Gentamicin: *Why prescribed?* *Appropriate choice?* *Any side effects?* *Monitoring?* *IV to PO switch?* *Counselling?* *Communication with primary care?*	1. To effectively treat the Urinary Tract Infection (UTI); 2. To alleviate UTI symptoms; 3. To ensure minimal toxicity i.e. trough level < 1mg/L, no ototoxicity or nephrotoxicity.	***Evidence-base:*** The choice of gentamicin aligns with the empirical antibiotic guidelines for complicated urinary tract infections, and will provide antimicrobial cover against organisms which commonly cause UTI's including *Escherichia coli* and *Pseudomonas aeruginosa.* PM's allergy status was checked and he has NKDA. The empiric choice was reviewed on receipt of C&S results and an IV to PO switch made when clinically appropriate *(please refer to monitoring section within this care issue).* ***Interventions:*** The gentamicin dose was checked with respect to the patient's weight and renal function. PM weighed 67 Kg and his CrCl was estimated to be 39 ml/min. PM was prescribed 200mg IV OD, the nearest equivalent to 3mg/Kg due to his age/frailty and AKI. The patient was not obese, therefore no additional dose adjustments were required.

		A trough level taken 19 hours post administration was checked and was 1.14mg/L - given that the target gentamicin level is <1mg/L, it was appropriate to hold gentamicin and resample after another 19-24 hours post dose to establish if the level fell to < 1mg/L. The gentamicin level fell to 0.62 mg/L 24 hours later, and another dose was administered. I checked that the gentamicin prescription was appropriately prescribed as per Trust guidelines ***Contraindications:*** The summary of product characteristics (SPC) was checked for contraindications to gentamicin, which were excluded. ***Interactions:*** There are no clinically significant interactions between gentamicin and other medicines that PM is taking, however given the impaired renal function, PM could be predisposed to an increased risk of ototoxicity and nephrotoxicity, risks of which can be minimised by ensuring appropriate dosing with respect to renal function and TDM, both of which were undertaken. ***Side effects:*** Gentamicin can cause ototoxicity and nephrotoxicity – not experienced by PM. It can also cause skin reactions and hypomagnesaemia – PM did not experience any skin reactions, and his Magnesium was 0.82 mmol/L, which is within the

		reference range. PM's symptoms of dysuria also resolved during admission. ***Monitoring:*** ***TDM:*** A gentamicin trough level was taken 19 hours post administration was 1.14mg/L, and given that the target gentamicin level is <1mg/L, it was appropriate to hold gentamicin and resample after another 19-24 hours post dose to establish if the level fell to < 1mg/L. The gentamicin level fell to 0.62 mg/L 24 hours later, and another dose was administered. ***Serum Creatinine:*** This was monitored on a daily basis – PM's creatinine result ranged from 87-92 micromol/L during admission which was within the upper level of the reference range, and fell during to 82 micromol/L during admission with resolution of the AKI. ***Response to treatment:*** PM's WCC, CRP and temperature were monitored during admission – the WCC fell from 18.1 to 14.1 x 10^9/L, CRP fell from 66 to 32 mg/L and temperature fell from 38.6 to 37 ^{0}C during admission, all of which indicated response to treatment. ***Culture & sensitivity results:*** C&S results indicated the presence of *E. coli* and that the UTI was sensitive to gentamicin and co-amoxiclav. PM was switched from gentamicin to co-amoxiclav after 3 days. ***Counselling:*** PM was confused, and therefore it was not possible to counsel him on the reason for

		gentamicin initiation, however his daughter was counselled on the oral step down therapy (co-amoxiclav) on discharge (see co-amoxiclav care issue). ***Communication with primary care:*** Details of antimicrobial treatment and C&S results were communicated with the GP on the discharge letter. The patient was supplied with the remainder of his antibiotic course (5 days) on discharge and discharge letter annotated accordingly. ***References:*** 1. *XXXX Trust "Antibiotic Guidelines for Urinary Tract / Urology Infections", November 2019.* 2. *XXXX Trust "Prescription for Once daily aminoglycosides (IV) for adults", July 2020.* 3. *SPC Gentamicin 40mg/ml, May 2018. Available from: www.medicines.org.uk (Accessed: 27/10/2020).*