



MSC CLINICAL PHARMACY PHARMACEUTICAL CARE PLAN

Please edit and format this template where necessary to add additional lines to the tables. Each table will generate automatic headings over additional pages.

A. PATIENT BACKGROUND AND MEDICATION LIST

Reason for selecting this patient

I had the opportunity to work in an intermediate care unit where I was able to conduct a medicines review with the patient. I felt that with this patient's medical history there was a good opportunity for me as a pharmacist to ensure that I could optimise this patient's asthma treatment and this would allow me to update my clinical knowledge on asthma and apply my knowledge into practice, which would also be beneficial to my course.

Patient Details

Initials: HM	Age: 58 years	Male <input type="checkbox"/> Female <input checked="" type="checkbox"/>
Weight: 73kg	Height: 1.68meters	BMI: 25.8 kg/m ²

Patient History

Presenting Complaint: on 28/09 patient had a fall which caused a non-displaced humeral fracture and a cut on the forehead. Patient had another fall on 02/10 and was brought into A&E where she was found to have no new injuries. On 03/10 patient was admitted to an intermediate care unit.

Past Medical/Surgical/Mental Health History:

Asthmatic
Depression
Osteoporosis

Social History: patient lives independently as she has recently separated from her partner. She is a non-smoker and drinks socially. Patient recently stopped seeing her therapist which she used to see once a week.

Impression/Diagnosis: during assessment the patient did not know which inhaler she should be using and how frequently they should be used. Patient has been prescribed two short acting inhalers and one long acting beta agonist inhaler and says she has to increase the use of her

Patient History

salbutamol recently yet she is also utilising ipratropium for relief. Patient's recent separation from her partner has been causing her excess stress which may exacerbate her asthma. Patient also stated that they are experiencing occasional breathlessness at night.

Plan: The aim is to review her treatment as the patient has not been prescribed a corticosteroid therefore, speak to both the GP on the ward as well as the patient. Secondly, it is important to educate the patient on when and why each inhaler is to be used as well as reviewing her asthma technique to ensure that she benefiting from using the inhaler.

Medication History

<u>Medication List</u>	<u>Indication and Evidence</u>
Ventolin 100mcg Evohaler – use one to two puffs when required up to four times a day	Selective short acting beta ₂ agonist a bronchodilator that is indicated as a reliever therapy for acute asthma symptoms ¹
Ipratropium bromide 20mcg inhaler – use two puffs three times a day when required	Antimuscarinic short acting bronchodilator and is indicated for the regular treatment of reversible bronchospasm associated with chronic asthma and COPD ¹
Salmeterol 25mcg inhaler – use two puffs twice a day	Long acting Beta ₂ receptor agonist used in the maintenance and prevention of asthma symptoms ¹
Alendronic Acid 70mg tablets – take one tablet a week	A bisphosphonate which aids in reducing the rate of bone turnover. Used in the treatment of post-menopausal osteoporosis as alendronate reduces the risk of vertebral and hip fractures ²
Colecalciferol (pro D3) 1000units capsules – take one daily	Used for the treatment and prevention of vitamin D deficiency. Also used as an adjunct to specific therapy for osteoporosis in patients with vitamin D deficiency or patients at risk of vitamin D insufficiency.
Sertraline 100mg tablets – take one daily	SSRI – suggested they are better tolerated and safer in overdose than other classes of antidepressants and should be considered first line when treating depression. ³
<u>Allergies/Sensitivities</u>	NKDA

B. PROGRESS NOTES AND MEDICATION CHANGES


Progress Notes	
Date	Notes
03/10	<p>On 03/10 HN was admitted into the intermediate care unit where I was able to conduct a medicines review with this patient. Looking at the patient's medication they were prescribed two short acting inhalers and salmeterol (long acting inhaled beta₂ agonist) and had not been prescribed a regular inhaled corticosteroid. I asked the patient about the use of her inhalers and how often she uses each one. The patient was not sure as to when she should be using the ipratropium bromide and the salbutamol but stated that she uses the salbutamol around 6-8 times a day and the ipratropium she uses daily if she needed. The salmeterol usage was one puff twice a day. The patient had expressed that she was experiencing breathlessness during the night.</p> <p>Secondly, I felt it was essential to ensure that her inhaler technique was accurate. By checking her inhaler technique allowed me to rectify and demonstrate the manner in which her inhaler was being utilized. By using a dummy inhaler I was able to practice her inhaler technique with her and ensure she was confident on how to use her inhaler correctly.</p> <p>I wanted to take this opportunity to review her asthma treatment and to highlight to the GP on the ward the absence of the inhaled corticosteroid and if the use of two short acting inhalers was necessary. Before talking to the GP on the ward I wanted to contact her GP at her local surgery to see if in the past an inhaled corticosteroid had been prescribed as well as finding out how long she had been on the other inhalers for. The patient's record had shown that the inhaled corticosteroid was prescribed up until January 2016 however, was stopped on her repeat and there was no note on her record to suggest why this had been stopped. Whereas, the inhalers she is currently taking have been prescribed for over two years. Thus it seems as though the patient has been prescribed inhalers according to the step 3 BTS/SIGN guidelines however, the inhaled corticosteroid which is a crucial stage in step 2 has been omitted from the patients treatment plan without any justification.</p> <p>Subsequently, I had discussed and highlighted this patient's case to the ward GP in order for him to review and optimise this patient's asthma treatment plan. As a result, the intervention had led to the GP removing the ipratropium bromide and salmeterol from the patient's treatment plan and the patient had now been prescribed Sirdupla 125/25mcg MDI inhaler as</p>

Progress Notes	
Date	Notes
	<p>well as being kept on the salbutamol inhaler. The patients therapy would be reviewed in three months' time to determine if the patient needed to be stepped down to step 2 of the BTS/SIGN guidelines or be maintained on step 3. ^{4,5}</p> <p>Within three months' time the patient would be discharged back into her home and so it is essential that this intervention is recorded in the patient's discharge notes and her regular GP is aware of the changes made to the treatment asthma plan. As essential communication is key during a transfer of care for the patient thus I took the responsibility to ensure the patients notes were transferred and a review date with her regular GP has been set up. ⁶</p>
04/10	<p>As a follow up I ensured that the patient was educated on the changes made to her asthma plan and I took this opportunity to council her on how frequently she should use her salbutamol and that it is used as a reliever. The importance of using the Sirdupla was explained to the patient as it would prevent acute exacerbations of asthmatic symptoms and reduce airway inflammation thus reducing the need of the salbutamol. The risk of oral candidiasis was explained to HM and counselling patient to rinse their mouth with water after inhalation of a dose. ⁷</p> <p>Bone mineral density may be reduced following long term inhalation of higher doses of corticosteroids which can predispose patients to osteoporosis.⁸ Although, HM is not on the higher scale of inhaled corticosteroid treatment the patient has been diagnosed with osteoporosis and is taking alendronic acid 70mg weekly plus colecalciferol 1000iu daily. Consequently, I followed this up with the ward GP and as a result Adcal D3 was added to the patient's medication list and colecalciferol was removed. This treatment will then be followed up with blood tests to ensure levels of calcium and vitamin D are appropriate for the patient.</p>

Medication Changes						
<u>Medication List</u>	<u>Dose</u>	<u>Frequency</u>	<u>Route</u>	<u>Indication</u>	<u>Start/Continued Date</u>	<u>Stop Date</u>
Sirdupla 125/25mcg MDI inhaler	One puff	Twice daily	Inhalation	Prophylaxis of asthma	04/10/16	-
Adcal D3 chewable tablets (colecalciferol 1000iu stopped)	One tablet	Twice daily	Oral	Patients with osteoporosis should maintain an adequate intake of calcium and vitamin D	04/10/16	-
Aerochamber	-	-	-	To be used in conjunction with ventolin and Sirdupla to aid inhalation technique	04/10/16	-



C. MONITORING PLAN

Monitoring Plan			
<u>Parameter</u>	<u>Justification</u>	<u>Frequency</u>	<u>Result(s) and Action Plan</u>
Frequency of salbutamol use	Overuse of salbutamol can cause side effects such as tremor, headache, muscle cramps and nervous tension which can indicate ineffective asthma control.	At medication review, after therapy changes until symptoms controlled, then annually	<u>Result:</u> patient was not using inhaler as directed which contributed to overuse of inhaler <u>Plan:</u> review asthma therapy and counsel the patient on correct use of inhaler
Frequency of salmeterol inhaler	Long acting beta ₂ agonists should be used in asthma only in patients who regularly use an inhaled corticosteroid. ⁹	At medication review, after therapy changes until symptoms controlled, then annually	<u>Result:</u> patient had not been on inhaled corticosteroid before yet was on salmeterol <u>Plan:</u> review this patients treatment and ensure patient is on an inhaled corticosteroid before using a long acting beta ₂ agonist. Local guidelines suggest use of combination inhaler can help with compliance.
Inhaler technique	Sirdupla is a new inhaler for HM and inadequate use can result in a step up treatment for the patient which may not be necessary thus leading to inadvertent prescribing	At medication review, after therapy changes until symptoms controlled, then annually	<u>Result:</u> not using treatment as prescribed results in no symptom control <u>Plan:</u> to counsel patient on correct inhaler technique and follow up regularly
Peak flow meter	Help detect when symptoms are getting worse and prompts patient to self-adjust therapy within set limits or in some cases to seek medical help	At medication review, after therapy changes until	<u>Plan:</u> to demonstrate how to use the peak flow meter and to issue peak flow chart to patient in order to determine what results mean

Monitoring Plan			
<u>Parameter</u>	<u>Justification</u>	<u>Frequency</u>	<u>Result(s) and Action Plan</u>
		symptoms controlled, then annually	
Depression symptoms	Antidepressants can take up to four to six weeks for optimal benefit and non-compliance can result in treatment failure	At medication review	Result: patient explains due to personal reasons and recent fall her mood has been down. Patient recently has stopped seeing her therapist. Plan: encourage the patient to attend her therapy sessions and monitor depression using self-rating scale
Bone mineral density measurements	Using DEXA bone scan can help assess change in bone mineral density which can also help monitor effectiveness of treatment	Annually	Target DEXA score between -1 and -2.5
Blood Calcium levels and vitamin D measurements (FBC)	Ensure patients calcium and vitamin D levels are maintained	Three monthly 	Patient has been prescribed adcal D3 chewable tables so calcium serum levels should be maintained between 2.25-2.65.

D & E. IDENTIFICATION OF CLINICAL PROBLEMS AND ACTION PLAN

Analysis of Clinical Problems			
<u>Clinical Problem</u>	<u>Assessment</u>	<u>Priority</u>	<u>Action Taken and Outcome</u>
Salbutamol overuse plus use of ipratropium	Patient was prescribed two short acting inhalers and was not aware of when to which inhaler	High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Spoke to GP to review treatment and patient was taken off the ipratropium and prescribed salbutamol. Overuse of these inhalers can lead to increased side effects such as fine tremor and cramps. Patient was then counselled on when they should

Analysis of Clinical Problems			
Clinical Problem	Assessment	Priority	Action Taken and Outcome
No corticosteroid treatment	Patient was not prescribed their asthma therapy according to the BTS/SIGN/NICE guidelines. Patient was therefore using a long acting beta ₂ agonist without the use of an inhaled corticosteroid	High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	use their salbutamol. 
Compliance	The patient was incorrectly using her inhaler and unaware how frequently she should be using them	High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Educating the patient on how frequent the inhaler needs to be taken and recommending appropriate reminder techniques to remind patient when to use inhaler for example, using alarm on phone as a prompt 
Inhaler technique	Patient demonstrated incorrect inhaler technique	High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Incorrect inhaler technique increases risk of acute exacerbations in asthma and can be mistaken for lack in response to drug. Action: counsel patient on correct inhaler technique and benefits of using the aerochamber device with the metered dose inhaler
Experiencing breathlessness during the night	Patient said that recently she has been stressed which could exacerbate her asthma and she was experiencing night time symptoms which suggests review in her treatment	High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/>	Patients treatment has now been reviewed and changed to her asthma treatment plan has been made. Patient is due a follow up before she is discharged from intermediate care. However, it is essential that a review has been fixed with her regular GP /asthma nurse when she is back at home in three months' time.

F. FOLLOW-UP AND FUTURE PLAN

Follow Up Plan (including discharge requirements, future planning and ongoing assessments)	
<u>Follow Up Requirement</u>	<u>Action Taken/Future Plan</u>
Correct follow up to asthma nurse/GP when transferred from intermediate care	The patient was initially discharged from hospital into intermediate care. As a CCG pharmacist I had the opportunity to review HM during a ward round at the intermediate care unit. As this intermediate care unit is not local to patients home address, it is essential that accurate follow up notes are made and arrangements are in place so that patients new treatment plan can be followed up with regular GP/asthma nurse. Furthermore, I contacted patients regular pharmacy and made them aware of these changes so that she can be offered an MUR/NMS when HM is back in community setting. A journal from the RPS had stated how strong communication is key when a patient is transferred from one care setting to another in order to prevent prescribing errors.
Cleaning of inhaler/spacer device counselling	Counsel patient on wiping inhaler cover and mouthpiece with dry cloth after use and weekly.
Aerochamber device	Patient should inhale from their spacer device as soon as possible after actuation because the drug aerosol is very short lived. Using
Peak flow meter	Counsel patient on use of peak flow meter and explain how device can help to detect when symptoms are getting worse and prompts patient to self-adjust therapy within set limits or in some cases to seek medical help. Issue patient with peak flow meter chart to note the readings and how they are to be interpreted

G. CONTINUING PROFESSIONAL DEVELOPMENT

Learning Plan		
Learning Need Identified	Action Taken	Completion Date
As a CCG pharmacist it is important to learn about the new asthma guidelines for my locality and to know which inhalers are recommended	I reviewed my local guidelines which were available through the CCG website which I was able to go through the step up/down therapy as well as the preferred cost-effective therapies recommended.	04/10/16
Need to learn the correct inhaler technique for different inhalers available in order to effectively counsel patients during consultations	My CCG was holding a respiratory workshop for asthma nurses in one of our localities which I was able to attend to increase my knowledge on inhaler technique. Reading through the asthma UK website about correct inhaler technique had enhanced my knowledge on this subject. Furthermore, I was able to complete a CPD entry to reflect my learning.	06/10/16
To learn about mode of action and side effects of inhaled corticosteroids and long acting beta ₂ agonist inhalers	In order to effectively review and counsel patients it is essential to understand how each inhaler assists in the control of asthmatic symptoms. Furthermore, understanding about side effects is key when conducting reviews and advising alternatives to GPs. ¹⁰	04/10/16

H. EVIDENCE AND REFERENCES

Reference List
<ol style="list-style-type: none"> 1. Joint Formulary Committee (September 2016-2017). <i>British National Formulary</i> . 72 nd. England : Pharmaceutical Press. 213-233. 2. Joint Formulary Committee (September 2016-2017). <i>British National Formulary</i> . 72 nd. England : Pharmaceutical Press. 619-625.

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8. East and North Hertfordshire CCG. (2015). *Guidelines on management of osteoporosis*. Available: http://www.enhertsccg.nhs.uk/sites/default/files/content_files/Osteoporosis%20guidelines_%28Herts%29_201502_Long.pdf. Last accessed 20/10/16.
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10. Sebastian L Johnston, . (2009). Mechanisms of adverse effects of β -agonists in asthma. *British Medical Journal* . 64 (4), 739-741.

I. PROFESSIONAL FRAMEWORK MAPPING

RPS Foundation Framework			
Cluster 1 Patient and Pharmaceutical Care	Cluster 2 Professional Practice	Cluster 3 Personal Practice	Cluster 4 Management and Organisation
1.1 Patient Consultation <input type="checkbox"/> 1.2 Need for Medicine <input type="checkbox"/> 1.3 Provision of Medicine <input type="checkbox"/> 1.4 Selection of Medicine <input checked="" type="checkbox"/> 1.5 Medicine Specific Issues <input checked="" type="checkbox"/>	2.1 Professionalism <input type="checkbox"/> 2.2 Organisation <input type="checkbox"/> 2.3 Effective Communication Skills <input checked="" type="checkbox"/> 2.4 Team Work <input checked="" type="checkbox"/>	3.1 Gathering Information <input type="checkbox"/> 3.2 Knowledge <input type="checkbox"/> 3.3 Analysing Information <input checked="" type="checkbox"/> 3.4 Providing Information <input checked="" type="checkbox"/> 3.5 Follow Up <input checked="" type="checkbox"/>	4.1 Clinical Governance <input type="checkbox"/> 4.2 Service Provision <input type="checkbox"/> 4.3 Organisations <input checked="" type="checkbox"/> 4.4 Budget and Reimbursement <input type="checkbox"/>

RPS Foundation Framework			
Cluster 1 Patient and Pharmaceutical Care	Cluster 2 Professional Practice	Cluster 3 Personal Practice	Cluster 4 Management and Organisation
1.6 Medicines Information and Patient Education <input checked="" type="checkbox"/> 1.7 Monitoring Medicine Therapy <input checked="" type="checkbox"/> 1.8 Evaluation of Outcomes <input checked="" type="checkbox"/> 1.9 Transfer of Care <input checked="" type="checkbox"/>	2.5 Education and Training <input checked="" type="checkbox"/>	3.6 Research and Evaluation <input type="checkbox"/>	4.5 Procurement <input type="checkbox"/> 4.6 Staff Management <input type="checkbox"/>

RPS Advanced Pharmacy Framework					
Cluster 1 Expert Professional Practice	Cluster 2 Collaborative Working Relationships	Cluster 3 Leadership	Cluster 4 Management	Cluster 5 Education, Training and Development	Cluster 6 Research and Evaluation
1.1 Expert Skills and Knowledge AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 1.2 Delivery of Professional Expertise AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 1.3 Reasoning and Judgement AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 1.4 Professional Autonomy AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/>	2.1 Communication AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 2.2 Teamwork and Consultation AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/>	3.1 Strategic Context AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 3.2 Governance AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 3.3 Vision AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 3.4 Innovation AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 3.5 Service Development AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 3.6 Motivational AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/>	4.1 Implementing National Priorities AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.2 Resource Utilisation AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.3 Standards of Practice AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.4 Management of Risk AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.5 Managing Performance AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.6 Project Management AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.7 Managing Change AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.8 Strategic Planning AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 4.9 Working Across	5.1 Role Model AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 5.2 Mentorship AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 5.3 Conducting Education and Training AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 5.4 Professional Development AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 5.5 Links Practice and Education AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 5.6 Educational Policy AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/>	6.1 Critical Evaluation AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 6.2 Identifies Gaps in the Evidence Base AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 6.3 Develops and Evaluates Research Protocols AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 6.4 Creates Evidence AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 6.5 Research Evidence into Working Practice AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 6.6 Supervises Others Undertaking Research AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/> 6.7 Establishes Research Partnerships AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/>

RPS Advanced Pharmacy Framework					
Cluster 1 Expert Professional Practice	Cluster 2 Collaborative Working Relationships	Cluster 3 Leadership	Cluster 4 Management	Cluster 5 Education, Training and Development	Cluster 6 Research and Evaluation
			Boundaries AS1 <input type="checkbox"/> AS2 <input type="checkbox"/> M <input type="checkbox"/>		

APPENDIX

Please enclose a copy of the case-based discussion form (if applicable), here.