2012

ASHP Clinical Skills Competition

NATIONAL COMPETITION CASE

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Directions to Clinical Skills Competition Participants

Identify the patient's acute and chronic medical and drug therapy problems. Recommend interventions to address the drug therapy problems using the forms supplied (Pharmacist's Patient Data Base, Drug Therapy Assessment Worksheet [DTAW], and Pharmacist's Care Plan).

IMPORTANT NOTE: Only the Pharmacist's Care Plan will be used for evaluation purposes. The Drug Therapy Assessment Worksheet is simply a tool to assist you in the decision-making process.

NATIONAL CASE

ASHP CLINICAL SKILLS COMPETITION 2012
PHARMACIST'S PATIENT DATA BASE FORM

Demographic and Administrative Information							
Last Name	**First Name**	**Date of Birth**	**Patient ID**	**Room & Bed:**	**Height**	**Weight**	**Race**
Perez	Miguel	07/18/77	000122768	AP 1102-B	5'9"	256 lbs	Hispanic

Religion:	Catholic
Physician:	Broadway Clinic
Pharmacy:	Wal-mart
Prescription Coverage	
Insurance:	Medicaid
Copay:	$0
Cost per month:	$0
Annual Income:	$18,000

Chief Complaint

"The voices are telling me to stab myself. I don't want to do it, but I am afraid that I will because I just want them to go away."

History of Present Illness

MP was brought in to the psychiatric ER by police on 11/30/12 (last evening) at 9:37pm after he was found acting bizarrely in a McDonald's. The manager had called police, complaining that MP was taking food off of customers' trays and throwing it out, as well as verbally threatening some of the customers.

Upon presentation to the ER, MP presented as paranoid and agitated. He attempted to assault one of the nursing staff. At that time he was given lorazepam 2mg IM and haloperidol 5mg IM to which he responded well. He was placed in seclusion and remained calm overnight although he continued to exhibit paranoia and disorganized speech. He was given one dose of quetiapine XR 300mg PO at 11:53pm. All other medications were held until he could be evaluated by the treatment team.

Past Medical History

Past Psychiatric History: MP was diagnosed with schizophrenia approximately 12 years ago . He has had 5 previous psychiatric hospitalizations in the past; three for similar psychotic episodes and twice for suicide attempts (hanging and medication overdose). He has been seeing a psychiatrist at the local mental health clinic once a month for the past 3 years, but has missed his last appointment 2 weeks ago. His clinic records state that his symptoms have been well controlled until approximately two months ago when he exhibited a slight increase in paranoia and disorganized thinking, at which time his dose of quetiapine was increased. MP also has a long-standing history of recurrent major depression for which he has most recently been taking citalopram.

Past Medical history: Hypercholesterolemia x 6 years
Obesity

Social History: smokes 1 PPD
Denies use of alcohol or illegal substances

Formerly employed by Shop Rite Supermarket, currently unemployed for past 5 years.
MP has been living in a group home for the past 7 years. He has a good relationship with his father and sees him once or twice a week.

Surgical History

Tonsillectomy and Adenoidectomy at age 12

Family History

Mother: Schizophrenia, heroin dependence – deceased (unknown cause)
Father: Alive at age 63 – DM type 2 x 15 years, COPD x 12 years
No siblings

Vaccination history

Up to date on all vaccinations. Influenza vaccine given in clinic on 10/1/12. Pnuemococcal vaccine given September 2010.

Current Drug Therapy/Indication			
Drug Name/Dose/Strength/Route	*Prescribed Schedule*	*Duration Start–Stop Dates*	*Compliance/Dosing Issue*
1. Simvastatin 10mg PO	QHS	2006 - present	Compliant
2. Quetiapine 600mg	QHS	October 2012- present	Non-compliant (previously compliant until 6 weeks ago)
3. Citalopram 20mg PO	Daily	1999 – present	Intermittently compliant
4.			
5.			
6.			
7.			

Allergies/Intolerances:

Penicillin - hives

Medication History

Medication History:
MP has been on quetiapine since 2010. MP stopped treatment with quetiapine on his own approximately 6 weeks ago, about 2 weeks after his dose was increased from 400mg QHS to 600mg QHS. He says that he stopped because it made him feel too tired during the day. He has also been treated in the past with aripiprazole which did not work well for him and risperidone which was stopped due to elevated prolactin (69.7 ng/mL on 7/12/08) and gynecomastia (per clinic records).

MP has been intermittently compliant with his citalopram treatment recently because he feels like it does not work for him as well anymore. In the past he has been on fluoxetine and nortriptyline with limited response.

Physical Exam **Date: 12/1/12**

Review of Systems: The patient denies any somatic complaints such as headache, fever, cough, chills, chest pain, palpitations, diarrhea, constipation or myalgia. He does admit to fatigue and insomnia as well as anhedonia. His appetite has been decreased for the past few weeks as well.

Physical Exam: General: The patient is not in any physical distress.
Vital Signs: BP 111/78 HR 87 RR: 20 Temp: 98.7°F
HEENT: Normocephalic and atraumatic. Pupils are equally round and reactive to light.
Neck: Supple. Full range of motion. No thyromegaly or lymphadenopathy. No JVD
Lungs: Clear to auscultation bilaterally. No ronchi or wheezing.
Heart: Normal S1 and S2. Regular rate and rhythm
Abdomen: Soft, obese and non-tender. Positive bowel sounds. No distention.
Extremities: No edema clubbing or cyanosis.
Neurologic: Alert and oriented. No gross focal deficits.

Mental Status Exam: Patient is a 35-year old Hispanic male who appears his stated age. He is disheveled and malodorous with pressured and grossly disorganized speech and thought blocking. Attitude toward the interviewer is somewhat cooperative, but guarded. Mood is depressed, affect is labile. Thought content is positive for paranoia. He is experiencing command auditory hallucinations to hurt himself, as well as suicidal ideation. Negative for homicidal ideation. He is alert and oriented to person and time only. Insight and judgment are poor.

Multiaxial Assessment:
Axis I: acute exacerbation of schizophrenia, paranoid type, major depressive disorder recurrent
Axis II: none
Axis III: hyperlipidemia, obesity
Axis IV: chronic mental illness
Axis V: 20

Labs and Other Tests					
Test	*Units*	*Results*			
		Date: 12/1/12 5AM	Date: 7/12/12 (from clinic)	Date:	Date:
Na	mEq/L	141	143		
K	mEq/L	3.2	3.7		
Cl	mEq/L	110	107		
CO_2	mEq/L	26	28		
BUN	mg/dL	12	14		
SCr	mg/dL	1.12	1.0		
Glucose	mg/dL	122	119		
Calcium	mg/dL	9.4	9.2		
Magnesium	mg/dL	2.1			
Phosphorous	mg/dL	3.2			
Albumin	g/dL	4.6	4.9		
AST	IU/L	23	25		
ALT	IU/L	34	13		
Total bili	mg/dL	0.7	0.6		
WBC	million/mm^3	10.8	9.5		
Hgb	g/dL	15.4	14.3		
Hct	%	33.8	41.9		
MCV	fL	89.6	90.7		
MCH	pg	30.3	31.0		
RBC	mil/uL	5.07	4.62		
Plt	K/mm^3	273	299		
Total cholesterol	mg/dL	225	209		
LDL	mg/dL	165	137		
HDL	mg/dL	46	48		
Triglycerides	mg/dL	137	119		
HbA1c	%	6.1			
TSH	mcIU/ml	1.55	0.82		
T_4 free	ng/dL	1.14	1.3		
Blood alcohol level	mg/dL	< 10			
Urine toxicology screen	Amphetamines	negative			
	Barbiturates	negative			
	Benzodiazepines	positive			
	Cocaine	negative			
	Opiates	negative			
	PCP	negative			
	Cannabinoids	negative			
EKG:	Regular rate and rhythm		Regular rate and rhythm		
	QTc interval	479	435		

Patient Narrative

This morning (12/1/12) when you see the patient on rounds at 8:30AM, MP continues to express paranoia that the FBI is poisoning his food and the food of others around him, as well as disorganized speech. He now states that he hears voices telling him to stab himself with a knife. He states that he does not want to harm himself but he is getting tired of the voices telling him what to do and he "doesn't know what else to do." When questioned further, he also admits to feeling hopeless and sad, having difficulty sleeping for the past month and experiencing a decrease in his appetite and energy level.

At this point, MP's agitation has improved and he is out of seclusion. You and the rest of the treatment team are seeing him for the first time this morning. The psychiatrist would like you to make recommendations for all of MP's psychiatric and medical conditions based on the assessment provided above.

Drug Therapy Assessment Worksheet (DTAW)

The Drug Therapy Assessment Worksheet (DTAW) will serve as a guide to identify any drug-related problems that your patient may have. You may make notes on the DTAW. **However, the Drug Therapy Assessment Worksheet will not be scored.** As you proceed through all the questions on the DTAW, you will accumulate a list of drug therapy problems. All of these problems should be assessed on your Pharmacist's Care Plan. Drug-related problems may be listed as separate items on your Pharmacist's Care Plan or addressed in your recommendations for therapy of the acute or chronic disease states that the medicines are being used to treat. Teams will be evaluated on identifying and making appropriate recommendations for drug-related problems in the following areas:

1. Correlation between drug therapy and medical problems
2. Appropriate drug selection
3. Drug regimen
4. Therapeutic duplication
5. Drug allergy or intolerance
6. Adverse drug events
7. Interactions: drug–drug, drug–disease, drug–nutrient, and drug–laboratory test
8. Social or recreational drug use
9. Failure to receive therapy
10. Financial impact
11. Patient knowledge of drug therapy

Not evaluated for Competition

ASHP CLINICAL SKILLS COMPETITION

DRUG THERAPY ASSESSMENT WORKSHEET (DTAW)

Type of Problem	Assessment	Presence of Drug-Related Problem	Comments/Notes
Correlation between Drug Therapy and Medical Problems	Are there drugs without a medical indication? Are any medications unidentified (are any unlabeled or are any—prior to admission/ clinic visit—unknown)? Are there untreated medical conditions? Do they require drug therapy?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Appropriate Drug Selection	What is the comparative efficacy of the chosen medication(s)? What is the relative safety of the chosen medication(s)? Has the therapy been tailored to this individual patient?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Drug Regimen	Are the prescribed dose and dosing frequency appropriate—within the usual therapeutic range and/or modified for patient factors? Is pm use appropriate for those medications either prescribed or taken that way? Is the route/dosage form/mode of administration appropriate, considering efficacy, safety, convenience, patient limitations, and cost? Are doses scheduled to maximize therapeutic effect and compliance and to minimize adverse effects, drug interactions, and regimen complexity? Is the length or course of therapy appropriate?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Therapeutic Duplication	Are there any therapeutic duplications?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Drug Allergy or Intolerance	Is the patient allergic to or intolerant of any medicines (or chemically related medications) currently being taken? Is the patient using any method to alert health care providers of the allergy/ intolerance (or serious medical problem)?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	

(continued)

Not evaluated for Competition

ASHP CLINICAL SKILLS COMPETITION

DRUG THERAPY ASSESSMENT WORKSHEET (DTAW)

Type of Problem	Assessment	Presence of Drug-Related Problem	Comments/Notes
Adverse Drug Events	Are there symptoms or medical problems that may be drug induced? What is the likelihood that the problem is drug related?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Interactions: Drug-Drug, Drug-Disease, Drug-Nutrient, and Drug-Laboratory Test	Are there drug-drug interactions? Are they clinically significant? Are any medications contraindicated (relatively or absolutely) given patient characteristics and current/past disease states? Are there drug-nutrient interactions? Are they clinically significant? Are there drug-laboratory test interactions? Are they clinically significant?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Social or Recreational Drug Use	Is the patient's current use of social drugs problematic? Could the sudden decrease or discontinuation of social drugs be related to patient symptoms (e.g., withdrawal)?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Failure to Receive Therapy	Has the patient failed to receive a medication due to system error or noncompliance: Are there factors hindering the achievement of therapeutic efficacy?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Financial Impact	Is the chosen medication(s) cost effective? Does the cost of drug therapy represent a financial hardship for the patient?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	
Patient Knowledge of Drug Therapy	Does the patient understand the purpose of his or her medication(s), how to take it, and the potential side effects of therapy? Would the patient benefit from education tools (e.g., written patient education sheets, wallet cards, and reminder packaging)?	1. A problem exists. 2. More information is needed for a determination. 3. No problem exists or an intervention is not needed.	

Pharmacist's Care Plan

Using the patient's data and the DTAW, you will be able to develop an effective care plan for your patient. Clearly define the health care problems. Health care problems include treatment of all acute and chronic medical problems, resolution of all actual or potential drug-related problems, and identification of any other health care services from which your patient may benefit.

Remember to think about potential medical problems for which your patient may be at risk and disease prevention and disease screening activities that may be appropriate to recommend. Also, don't forget to consider specific patient factors that may influence your goals and recommendations for therapy (e.g., physical, psychological, spiritual, social, economic, cultural, and environmental).

To complete your care plan, specify all of your patient's health care problems that need to be addressed. Then prioritize the problems into one of three categories: (1) Most urgent problem, (2) Other problems that must be addressed immediately (or during this clinical encounter), OR (3) Problems that can be addressed later (e.g. a week or more later/at discharge or next follow up visit). Please note that only **one** problem should be identified as the "most urgent problem."

Then **for each problem** describe the (1) therapeutic goals, (2) recommendations for therapy, and (3) monitoring parameters and endpoints. Your monitoring parameters should include the frequency of follow-up and endpoints should be measurable by clinical, laboratory, quality of life, and/or other defined parameters (e.g., target HDL is greater than 50 mg/dL within 6 months).

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

A. List all health care problems that need to be addressed in this patient using the table below.
B. Prioritize the problems by indicating the appropriate number in the "Priority" column below:
   1 = Most urgent problem (Note: There can only be one most urgent problem)
   2 = Other problems that must be addressed immediately or during this clinical encounter; **OR**
   3 = Problems that can be addressed later (e.g. a week or more later/at discharge or next follow up visit**)**

**Please note, there should be only a "1", " 2", or "3" listed in the priority column, and the number "1" should only be used once.*

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

2012

ASHP Clinical Skills Competition

NATIONAL CASE ANSWER KEY

Evaluated for competition

ASHP Clinical Skills Competition - Pharmacist's Care Plan – 2012 National Answer Key

Problem Identification and Prioritization with Pharmacist's Care Plan

Team # _____

A. List all health care problems that need to be addressed in this patient using the table below.
B. Prioritize the problems by indicating the appropriate number in the "Priority" column below:
   1 = Most urgent problem (Note: There can only be one most urgent problem)
   2 = Other problems that must be addressed immediately or during this clinical encounter; **OR**
   3 = Problems that can be addressed later (e.g. a week or more later**)**

**Please note, there should be only a "1", " 2", or "3" listed in the priority column, and the number "1" should only be used once.*

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints

Acute Exacerbation of Schizophrenia (acute psychosis and agitation fall under this umbrella – all considered one problem)	1	Acute Treatment Phase: Relieve agitation, prevent physical harm to self and others	Discontinue quetiapine and initiate an alternative antipsychotic immediately (see stabilization treatment phase below)
			
			Oral benzo +/- antipsychotic Q4-6hr PRN agitation
			
			Acceptable options:
			• Benzodiazepine
			  ○ Lorazepam 1-2mg PO
			  ○ Clonazepam 0.5-1mg PO
			
			These are the preferred PRN benzodiazepines due to intermediate onset and intermediate-long duration of action – potentially less addiction potential than quicker/shorter acting benzodiazepines but quick enough onset to provide relief of agitation
			
			• Antipsychotic
			  ○ Haloperidol 2-5mg PO
			  ○ Fluphenazine 2-5mg PO
			  ○ Olanzapine 2.5-10mg PO (max recommended dose of 20mg/24hrs)
				Decrease in agitation, hostility, combativeness, aggression, improvement in sleep pattern
				
				Side Effects: lorazepam and clonazepam - Blood pressure and heart rate q8-12 hours and after each dose (orthostatic hypotenstion), sedation, fall risk
				
				All antipsychotics – EPS, sedation, fall risk, orthostatic hypotension (BP and HR q8-12 hours and after each dose)
				
				Olanzapine – if IM olanzapine is chosen, IM/IV benzodiazepines must be separated from administration of IM olanzapine by at least 1 hour due to risk of respiratory depression

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			○ Quetiapine 25-50mg PO These are preferred PRN antipsychotics due to efficacy for acute agitation/anxiety Unacceptable: chlorpromazine due to high risk of QT prolongation NOTE: oral treatment should always be offered (least restrictive form of medication) before resorting to IM medication, unless agitation is so severe that patient/staff safety is in jeopardy Injectable benzodiazepine and/or antipsychotic IM q4-6 hr PRN severe agitation/dangerousness Acceptable options: • Benzodiazepine ○ Lorazepam 1-2mg IM (preferred due to intermediate onset and duration – good mix of efficacy and lower risk of addiction potential compared to faster/shorter acting agents) • Antipsychotic ○ Haloperidol 2-5mg IM ○ Fluphenazine 2-5mg IM ○ Olanzapine 2.5-10mg IM ○ Ziprasidone 10-20mg IM Unacceptable injectable options: • Aripiprazole IM because patient has failed treatment with aripiprazole in the past	

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			• Chlorpromazine because of high risk of QT prolongation	
		Stabilization Treatment Phase: • Relieve positive symptoms such as paranoia and auditory hallucinations (over next several days) • Improve disorganized thinking (over next several weeks)	Acceptable treatments for Stabilization Phase: 1) Lurasidone starting at 40mg or 80mg PO daily with at least a 350 calorie meal. Titrate every few days-week by 40mg increments to a max of 160mg per day. Should ideally be dosed with dinner due to slight risk of somnolence but with any meal is acceptable. 2) Asenapine 5mg SL BID titrated to a max of 10mg SL BID if needed (separate from food and drink by at least 10 minutes, DO NOT SWALLOW or drug will not be absorbed) 3) Iloperidone starting at 1mg PO BID, titrate by 2mg increments every 24 hours to a target dose of 6-12mg PO BID (NOTE: maximum iloperidone dose should be decreased by 50% if bupropion, duloxetine or paroxetine are chosen as antidepressant treatment below) 4) Ziprasidone 20mg PO BID with at least 500 calorie meal, titrated by 20mg BID every 2-3 days to a maximum of 100mg BID 5) Perphenazine 8-16mg PO divided 2-4 times daily, titrated to a max of 64mg per day 6) Trifluoperazine 1-5mg PO BID titrated to a target dose of 7.5-10mg BID and a maximum of 40mg/day 7) Thiothixene 2-5mg PO BID titrated	Improvement in positive symptoms over next several days-weeks (rating scales such as the PANSS, BPRS, PSRS or BNSA may be suggested) Side effects: Metabolic parameters (fasting glucose, blood pressure and lipids at baseline, at 3 months then annually, weight and waist circumference every month for first 3 months, then every 3 months thereafter [waist circumference baseline and then annually is acceptable]) with lurasidone, asenapine or iloperidone Extrapyramidal symptoms (may use rating scale such as AIMS, SAS, BARS, DISCUS), signs and symptoms of hyperprolactinemia (breast swelling, tenderness, gynecomastia, sexual dysfunction) with any antipsychotic, orthostatic hypotension with all antipsychotics but especially iloperidone (measure blood pressure and heart rate q8-12hr) QT prolongation monitoring necessary with all choices except lurasidone and especially with ziprasidone 1. Treat hypokalemia first 2. Perform follow-up EKG after starting antipsychotic and again any time after dose is increased

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			to a target dose of 20-30mg/day and a maximum of 60mg/day Note: • Choices 2-7 have potentially more QTc prolonging risk than lurasidone (especially ziprasidone and iloperidone) and hypokalemia should be treated before initiating any of these options • Perphenazine, trifluoperazine and thiothixene also have potentially more effect on prolactin than the atypical antipsychotics Long-acting injectable antispychotics (LAIs): • Could be considered in this patient given the history of non-compliance with quetiapine, but all of the currently available injectables have unfavorable side effect profiles for this patient, also the patient was presumably non-compliant because of side effects so an alternative oral agent with a different side effect profile (less sedation) can be tried before jumping to LAIs • Risperidone, paliperidone, haloperidol and fluphenazine all more likely to cause hyperprolactinemia than other options • Olanzapine has metabolic side effects and risk of post-injection delirium/sedation • Aripiprazole is not yet available and	• If at any time QTC > 500 msec or increased by > 60 msec, antipsychotic should be held and all drug therapy should be re-evaluated 3. Also monitor for signs and symptoms of arrhythmia such as palpitations, chest pain, shortness of breath, dizziness, syncope

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			the patient failed a trial with oral aripiprazole for unknown reasons Unacceptable treatments for Stabilization Phase: • Clozapine, olanzapine, haloperidol, fluphenazine, paliperidone, quetiapine, aripiprazole, risperidone, chlorpromazine, thioridazine. Note: • Clozapine not indicated at this time due to actual "treatment failure" with one agent only, other two D/C'd because of side effects , also has higher risk of metabolic side effects than other options • Olanzapine would not be recommended due to this patient's hypercholesterolemia and obesity (high risk of metabolic side effects) • High potency first generation antipsychotic's (haloperidol, fluphenazine) and paliperidone would not be preferred because of sensitivity to prolactin effects. • Aripiprazole – failed in past • Quetiapine – avoid due to excess sedation (history of non-compliance) • Risperidone – avoid due to hyperprolactinemia history • Chlorpromazine and thioridazine not preferred because of higher risk of QT prolongation than other options and high risk of sedation.	
		• Provide psychosocial support once he is able		Improve insight into illness, medication adherence, recognition of

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
		to join the inpatient community	Group, individual and family/interpersonal therapies • Group therapy sessions conducted multiple times per day, patient should be encouraged to attend as many as possible • Individual sessions conducted once or twice per week by social work and adjunct therapy staff • Family/interpersonal therapy may be conducted with father (and possibly with group home staff) usually once during the hospital visit to address interpersonal/housing/medication compliance issues before discharge	early warning signs of relapse (relapse prevention), improve socialization skills, learn ways to cope with stress and medication side effects
Depression	2	Decrease suicidal thoughts (can alternatively be included in schizophrenia treatment) Improve feelings of helplessness, depressed mood, appetite, energy and sleep Ultimate goals - remission of depressive symptoms and prevention of relapse or recurrence	Group and individual therapy, safety precautions, 1:1 observation Acceptable treatments: Increase citalopram to 40mg PO daily **and** initiate psychotherapy (CBT, interpersonal or behavioral therapy) Less preferred (but acceptable) options: Add psychotherapy (see above) and one switch to one of the following: 1) Bupropion – a good option if switching to a different agent because can also aid in smoking cessation and can help improve energy level. Any dosage form acceptable, titrated every 4-6 weeks to effect • IR dosing: 75-100mg BID titrated to 100mg TID by day 4,	Can use a rating scale such as Columbia Suicide Severity Rating Scale Response - At least 50% improvement in signs and symptoms of depression in 4-6 weeks, may use a rating scale (HAM-D, MADRS, QIDS, BDI, PHQ-9) Remission – absence of signs and symptoms of depression Side effects: Worsening suicidality (min. risk at his age), GI effects (nausea with all antidepressants If citalopram is continued, EKG should be repeated once hypokalemia is treated and then after dose is

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			may further titrate to total daily dose of 450mg/day in at least 3 divided doses (Note: not preferred due to compliance concerns) • SR dosing: 150mg daily titrated to 150mg BID by day 4, may be further titrated to a maximum of 200mg BID (Note: not preferred due to compliance concerns) • XL dosing: 150mg daily titrated to 300mg daily by day 4, may further titrate to a maximum of 450mg daily • HBr salt (Aplenzin®) dosing: 174mg daily titrated to 348mg daily by day 4, may further titrate to 522mg daily 2) Sertraline 25-50mg daily titrated in 50mg increments every 4-6 weeks to a maximum of 200mg daily 3) Duloxetine 30-60mg daily titrated in 20-30mg increments to a target dose of 60mg over 1 week (if lower dose used initially), then may titrate every 4-6 weeks in 30mg increments to a maximum of 120mg per day 4) Escitalopram 10mg daily titrated to a maximum of 20mg daily after 4-6 weeks 5) Venlafaxine IR or XR 37.5-70mg daily (IR doses above 50mg should be given in 2-3 divided doses) (Note: IR not preferred due to compliance concerns)titrated by ≤ 75mg every 4-7 days to a target dose of 150mg at which point titrations	increased. • If at any time the QTc is above 500 msec on a repeat EKG, citalopram should be discontinued indefinitely. (Lexi Special Alert for citalopram states: "If a patient is found to have persistent prolongation [>500 msec] of QT_c measurements, citalopram should be discontinued.") • Also monitor for signs and symptoms of arrhythmia such as palpitations, chest pain, shortness of breath, dizziness, syncope Bupropion - seizures and rarely increased psychosis SSRI's, SNRI's and vilazodone - Sexual dysfunction, increased anxiety, insomnia, headache, weight gain, hyponatremia (rare) and increased bleeding risk (rare), serotonin syndrome (rare) If escitalopram, venlafaxine, desvenlafaxine or sertraline are chosen, repeat EKG should be performed and signs and symptoms of arrhythmia should be monitored for (see above monitoring for increasing citalopram) SNRI's - blood pressure q shift, renal and hepatic function (acceptable range q 3 months annually

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			should not be made more often than every 4-6 weeks to a usual maximum of 225mg (doses up to 375mg have been used and are acceptable) 6) Desvenlafaxine 50mg daily (no additional benefit seen above 50mg per day) 7) Vilazodone 10mg daily for 7 days, then 20mg daily for 7 days then 40mg daily thereafter Unacceptable: mirtazapine, fluvoxamine, paroxetine, trazodone, nefazodone, oral MAOI's, TCA, fluoxetine • Mirtazapine would not be preferred because of risk of increasing cholesterol and high potential for sedation which pt. could not tolerate with quetiapine – although this could be a later option to switch to or add on to bupropion or citalopram to help with residual depressive symptoms andinsomniadown the road • Fluvoxamine generally not used for MDD because of short half life, drug interactions, usually reserved for OCD or other treatment refractory anxiety disorders • Paroxetine and trazodone not recommended b/c of sedation potential – but may be added or switched to if insomnia does not improve with current medication changes	Vilazodone - nausea/vomiting/diarrhea

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			• Nefazodone not often used due to hepatotoxicity concerns • MAOI's not indicated at this time (diet restrictions, risk in overdose, drug interactions) • TCA's - Should try alternative 2nd generation antidepressant before using a TCA (anticholinergic and cardiac side effect burden, risk in overdose), also patient has failed nortiptyline • Fluoxetine (failed treatment)	
Hypokalemia (mild)	2	Increase potassium to above 3.5 mEq/L (ideally above 4.0mEq/L to minimize risk of Torsades)	K-Dur 40 mEq PO now, repeat x 1 in 2 hours (40 – 100 mEq in divided doses to minimize GI upset) IV KCl acceptable but not preferred in a psychiatric ward because of inherent risk with IV tubing (suicide precautions)	Hyperkalemia, GI distress Repeat potassium level daily until normalized Monitor magnesium level if potassium does not normalize within 2 days or earlier if they have any signs or symptoms of arrhythmia (chest pain, dizziness, shortness of breath, syncope)
Nicotine dependence	2	Minimize anxiety/cravings associated with nicotine withdrawal	Nicotine 21mg/24 hr transdermal patch to upper body/outer arm daily Acceptable Alternatives: 1) Nicotine gum 4mg Q 1-2 hours PRN nicotine cravings (max 24 pieces per day) 2) Nicotine lozenge 2-4mg Q 1-2 hours PRN nicotine cravings (max 5 lozenges every 6 hours and 20 lozenges per day) 3) Nicotine nasal spray 1-2 sprays/hour; do not exceed 10 sprays per hour (maximum 80 sprays per day)	Control of smoking urges, agitation/anxiety associated with nicotine withdrawal Side Effects/Safety: Blood pressure and heart rate (range q8hrs to daily), jitteriness/anxiety/nervousness, headaches, insomnia Patch – skin irritation, nightmares Gum/lozenges – dysguesia Nasal spray/inhaler – nasal/throat burning and irritation, headache,

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			4) Nicotine inhaler 6-16 cartridges per day Counseling Points: Patch - remove patch in evening to reduce risk of nightmares Gum – instruct patient to chew slowly until it tingles, then park gum between cheek and gum until tingle is gone; repeat process until most of tingle is gone (~30 minutes) Lozenge – do not chew or swallow, allow to dissolve slowly	dyspepsia, rhinitis Inhaler - cough
Hyperglycemia (impaired fasting glucose)	3	Screen for diabetes (repeat fasting glucose, HbA1c, or oral glucose tolerance test) Weight loss (5-10% of body weight over 6 months) Screen for and prevent metabolic syndrome	Required interventions: 1) Educate the patient about weight loss, nutritional considerations (low-calorie, low-fat, moderate-carbohydrate, low-saturated fat [<7% of total calories]), increasing physical activity (at least 150 minutes/week of moderate [50%–70% maximal heart rate] intensity exercise, resistance training is recommended for 30 minutes 3 times/week) and importance of smoking cessation 2) Record waist circumference (all other factors to monitor previously recorded including blood pressure, HDL, blood glucose, triglycerides) 3) Schedule follow-up appointment with PMD to periodically monitor for diabetes and metabolic syndrome (every 6 months-1 year)	Weight loss (see goals), maintain HDL > 40mg/dL, triglycerides < 150mg/dL, waist circumference < 40 inches, blood pressure < 130/80, blood glucose < 100mg/dL (follow same frequency as antipsychotic metabolic monitoring guidelines listed above)

<table>
<tr><th>Health Care Problem</th><th>Priority</th><th>Therapeutic Goals</th><th>Recommendations for Therapy</th><th>Monitoring Parameters and Endpoints</th></tr>
<tr><td></td><td></td><td>Prevention of diabetes</td><td>4) Discontinue quetiapine which may be contributing to impaired glucose tolerance

Acceptable options: Metformin may be initiated for impaired fasting glucose at 500mg BID (patient has 1 risk factor [father with DM])</td><td>Re-evaluate for diabetes in 3-6 months

Monitor SCr every 3 months – 1 year, gastrointestinal side effects, HbA1c every 3-6 months</td></tr>
<tr><td>Hypercholesterolemia</td><td>3</td><td>Decrease risk for CHD and MI</td><td>Required: Reinforce therapeutic lifestyle changes (TLC) (from Dipiro Table 28-9)<table><tr><td>Total fat</td><td>25–35% of total calories</td></tr><tr><td>Saturated fat</td><td>Less than 7% of total calories</td></tr><tr><td>Polyunsaturated fat</td><td>Up to 10% of total calories</td></tr><tr><td>Monounsaturated fat</td><td>Up to 20% of total calories</td></tr><tr><td>Carbohydrates</td><td>50–60% of total calories</td></tr><tr><td>Cholesterol</td><td>< 200 mg per day</td></tr><tr><td>Dietary Fiber</td><td>20–30 grams per day</td></tr><tr><td>Plant sterols</td><td>2 grams per day</td></tr><tr><td>Protein</td><td>Approximately 15% of total calories</td></tr></table>Acceptable: Increasing simvastatin to 20mg PO QHS current level of risk low – 1 risk factor (smoking)</td><td>Maintain LDL < 160mg/dL, (< 100 mg/dL optimal)

Repeat lipid panel in 6-12 weeks and every 3-6 months

Monitor for adverse effects of simvastatin: Myopathy, increase in ALT/AST (check at baseline and yearly), increase in blood glucose</td></tr>
</table>

<table>
<tr><th>Health Care Problem</th><th>Priority</th><th>Therapeutic Goals</th><th>Recommendations for Therapy</th><th>Monitoring Parameters and Endpoints</th></tr>
<tr><td></td><td></td><td></td><td>Note: Discontinuing quetiapine may also result in lipid levels normalizing</td><td></td></tr>
<tr><td>Obesity (Class II -BMI 37.8)</td><td>3</td><td>Reduce weight and maintain healthy lifestyle
• 5-10% of body weight loss over 6 months (~ 1-2 lb/week)</td><td>Required:
1) Counsel regarding health risks of obesity

2) Encourage a low-calorie , low-fat diet (from Dipiro Table 154-4)
<table>
<tr><th>Nutrient</th><th>Recommended Intake</th></tr>
<tr><td>Total fat</td><td>25 to 35% or less of total calories</td></tr>
<tr><td>Saturated fat</td><td><7% of total calories</td></tr>
<tr><td>Monounsaturated fat</td><td>20% of total calories</td></tr>
<tr><td>Polyunsaturated fat</td><td>10% of total calories</td></tr>
<tr><td>Cholesterol</td><td><200 mg/day</td></tr>
<tr><td>Protein</td><td>15% of total calories</td></tr>
<tr><td>Carbohydrates</td><td>50 to 60% or more of total calories</td></tr>
<tr><td>Fiber</td><td>20 to 30 g</td></tr>
<tr><td>Calories</td><td>Overall daily intake reduced by 500 to 1,000 kcal</td></tr>
<tr><td>Total caloric intake</td><td>1,200 to 1,600 kcal/day for most men</td></tr>
</table>
3) Recommend moderate physical activity for at least 30 minutes per day on most days of the week</td><td>Monitor weight and waist circumference at least monthly (patient should be encouraged to measure at least weekly), may consider monitoring caloric and fat intake via a food diary</td></tr>
</table>

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			4) Recommend behavioral modification and a behavioral contract, social support groups (ex: weight watchers) Acceptable: initiating orlistat (should be offered only after 6 months of above treatment) Unacceptable: • Phentermine/topiramate - associated with high rate of depression and anxiety as side effects • Phentermine or diethylpropion – may exacerbate agitation/psychosis New Drug Update: Lorcaserin approved June 2012, projected availablility - first quarter of 2013 • Lorcaserin may be used if bupropion is chosen as the antidepressant o Could potentially interact with serotonergic agents due to it's MOA (5-HT_{2C} agonist) o Monitor for rare side effect of suicidal thoughts Surgical weight loss interventions not ideal at this time but may be a future option once psychiatric symptoms are under control	Side effects: diarrhea, abdominal pain, oily stools, headache hepatotoxicity (rare)
Smoking Cessation	3	Reduce and eventually cease smoking (NOTE: this may be listed under nicotine dependence above)	Required/optimal: Educate patient on risks of smoking, assess readiness to quit, If ready to quit: Bupropion (see	See monitoring parameters above

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			depression section above) and/or nicotine replacement therapy (see below) If not ready to quit: provide motivation to quit and recommend reassessing readiness at a later date Acceptable: nicotine replacement 1) Patch 21mg/day for 6 weeks, followed by 14mg/day for 2 weeks, then 7mg/day for 2 weeks 2) Gum – (same directions as above), at least 9 pieces per day for the first 6 weeks, then 1 piece every 2-4 hours for 2 weeks, then every 4- 8 hours for 2 weeks 3) Lozenges – same directions as above for first 6 weeks, then 1 lozenge every 2-4 hours for 2 weeks, then every 4-8 hours for 2 weeks 4) Nasal spray as above 5) Inhaler as above Unacceptable: varenicline (psychiatric side effects such as suicidal ideation, mood changes)	
Discharge Planning	3	Coordinate care to enhance re-assimilation into the community, set patient specific-goals (Note: this may be included in acute schizophrenia treatment above)	Psychosocial rehabilitation program (cognitive therapy, basic skills training, vocational training, supported housing, etc.)	Prevention of re-hospitalization, improved functioning in the community (ability to perform activities of daily living [ADL's], communicate with peers), eventual achievement of patient-specific goals (Ex: employment, independent living)
Toxicology screen positive for benzodiazepines	3	Maintain sobriety	Ask about substance use (Ativan IM given in ER night before urine sample taken so + not indicative of abuse)	Monitor for signs and symptoms of benzodiazepine withdrawal if dependence is suspected

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
(NOTE: this last row is not required)				