Medications	Furosemide 20 mg po bid Potassium chloride 20 mEq po q am Atenolol 100 mg po q am Lisinopril 20 mg daily Diazepam 5mg po qhs prn for sleep Oxybutynin 5 mg PO BID Paroxetine 20 mg daily Valium 10 mg PO qhs prn Aspirin 325 mg po daily Toprol XL 25mg PO daily Lasix 40 mg PO daily Fosamax 35 mg po weekly Donepezil 10 mg po QHS Digoxin 0.25 mg po daily Coumadin 5mg MWF, 3mg T,Th, Sat Premarin 0.375mg daily for hot flashes
Allergies	No known drug or food allergies or intolerances
Tobacco	none
Alcohol	none
Illicit drug use	none
Medical history (PMH)	Edema Atrial Fib HTN General Anxiety Disorder Overactive Bladder Osteoporosis Insomnia Old MI 20 years ago
Childhood	Chicken pox Measles Mumps Scarlet Fever
Adult	Shingles
Surgical	ORIF left hip 2007 Cholecystectomy 1994 Hysterectomy 1956
Ob/Gyn	Gravida 3 Para 1
Psychiatric	Depression Mild Vascular Dementia
Vaccinations	Zostavax 2012
Flu	Flu Vaccine, fall last year
Pneumovax	Pneumovax 23 1989
Tetanus	Tdap 2013
FAM HX	
HTN	Father
DM	Father
Ca	Sister (breast, colon)
MI/CAD	Mother
CVA	Mother
Renal dz	None
Thyroid dz	None
TB	None
Suicide	None
Alcoholism	None
Substance Abuse	None
Social HX	Widowed, married her deceased husband at 16 years old, lives in the family home with her daughter, functionally independent with ADLs and

Instructions:
Formulate a plan that is consistent with standards of care for a geriatric patient and complies with BEERs, SToPP and START criteria.

Mrs. Magnolia Blossom DOB 4/21/1929. AA, widowed. Is seen today with her daughter.

Height:	5'3"
Weight:	108
BMI:	19.1
Pulse:	58
Temperature:	99.5
Respiration:	24
Blood Pressure:	110/62

CC: Her daughter responds, "She is just not acting like herself". She is not interested in doing her hobbies and refuses to leave the house"
Information source: Daughter due to patient's mental status

HPI: Duration about 3 days but worse over the past 24 hours. She was in an urgent care 3 days ago with new onset incontinence and prescribed new medication. There are no reports available from that patient encounter. Her daughter reports there was no diagnostic testing done at that time. Over the past 24 hours, her daughter has noticed a change in appetite with less intake than usual. Strong urine odor is reported. Her daughter reports symptoms are associated with nonfrightening hallucinations since yesterday (butterflies on her bedroom wall). She has had no recent falls. Her last BM was yesterday. She reports occasional use of diazepam with most recent dosage 1 month ago.
Relevant exam findings:

General Appearance	Appears stated age, does not appear to be in acute distress, petite body habitus, well groomed, alert, oriented to person and place but not time, relaxed facial expression
HEENT	Normocephalic, nontraumatic, teeth in good repair, no broken or missing teeth, tongue is furrowed and oral mucosa dull, no pharyngeal erythema or exudate, nasal mucosa pink
Neck and Chest	Full range of motion in neck, no evidence of adenopathy in anterior, posterior, submandibular, postauricular, supra- or sub clavicular lymph nodes. Nonpalpable thyoid, normal chest contour, atrophic breasts bilaterally
Respiratory	mildly tachypneic, no increased effort, normal breath sounds in all fields anteriorly and posteriorly, no increase in respiratory effort.
Heart	S1 and S2, no bruits, murmurs, gallops, or heaves. Pedal pulses are 2+, 1+ edema in bilateral lower extremities up to mid thigh
Abdomen	scaphoid abdomen, no pulsations, healed lower abdominal midline scar

		and diagonal scar at RUQ, Bowel sounds are tinkling x 4 quadrants, soft, nondistended, + suprapubic tenderness, no CVA tenderness or organomegaly
Neuro		Uncooperative with cranial nerve exam, clock drawing test. Knows her name and her daughter's name, she states she is in the doctor's office but She states, "it is morning of course" when asked what time it is.
Rectal exam		small amount of soft stool noted in rectal vault, no masses lesions. Sphincter tight without evidence of stool leakage. (stool impaction is a possible cause for low grade fever and confusion in geriatric patients).
Completion of Mini-mental status exam	no	This is not the recommended testing. You should look into this a bit more and consider other appropriate options.
Spinal exam	no	This is not relevant to this patient today.
Foot exam	no	This is not relevant to this visit today.

Relevant Diagnostic Testing and Rationale

Lab Test	Correct to Ask?	Result	Rationale
Clean catch urine	yes	Specific gravity 1.020, pH 6.5, Nitrites 1+, Leuko Esterase 1+, Protein 1+, Bacteria 2-30, RBCs 3	sudden onset of urinary incontinence raises suspicion of UTI
CBC	no	no anemia, leukocytosis	Geriatric patients often lack the physiologic response seen in younger adults. Defer unless suspicion of sepsis.
BMP	yes	Na 143, K 4.1, Cl 100, CO2 25, BUN 33, Cr 1.3, Ca 9.6	Necessary to appropriately dose medications and identify evidence of acute renal failure secondary to medications and acute change in condition
Chest x-ray	no	No acute cardiopulmonary process identified	No evidence supporting need for chest x-ray. Inappropriate utilization of resources.
CT of Head	no	No indication based on history or exam to support this diagnostic test	Inappropriate utilization of resources
Urine C & S	yes	>100,000 E. coli, resistant to Levaquin, Ciprofloxacin,	Empiric antibiotic therapy is indicated with a broad spectrum antibiotic with grame negative coverage since most UTIs in

		Cefuroxime.	women within the community are caused by E. coli. But tx must be tailored based on findings of C&S with possible discontinuance or change in treatment
INR	yes	2.3	A baseline prior to initiation of antibiotic therapy is essential in regulation of INR during therapy
Serum Digoxin Level	yes	0.9	Dig toxicity can lead to acute confusion and delirium
ECG	yes	NSR. Rate 60. Evidence of LVH in leads V4-6	Appropriate given her history and current vital signs.

Relevant Differential Diagnoses

Diagnosis	Correct to Select?	Rationale
Polypharmacy	yes	There is evidence of polypharmacy in review of the medication list
Adverse effect of a therapeutic medication	yes	Anticholinergic effects of medications may be responsible for change in condition
Urinary tract infection	yes	Exam and symptoms support this diagnosis.
Delirium	yes	Yes, symptom presentation and history support this diagnosis.
Worsening dementia	no	We are unable to identify if this change in condition will worsen dementia until several months following recovery.
Failure to Thrive	no	There is no evidence that this is an appropriate diagnosis
Constipation	no	There is no evidence to support the potential for this diagnosis based on report of last BM the day before and physical examination.
Caregiver Neglect	no	No evidence to support this.

Impression	**Correct to Select?**	**Rationale**
Urinary tract infection	yes	Mrs. Blossom's symptoms and exam findings support urinary tract infection. She is febrile, has suprapubic tenderness, and confusion. Her clean catch urine confirms the diagnosis
Polypharmacy	yes	By definition, it is clear that Mrs. Blossom has an issue with polypharmacy

Unspecified systemic agent causing adverse effects in therapeutic use	yes	It is evident that Mrs. Blossom likely has adverse effects from her recent medication change.
Constipation	no	History and exam findings ruled this out
Delirium	yes	Although mild, as defined, her history of visual hallucinations and current infection support this diagnosis.
Moderate Dementia	no	Based on the limited information and current mental status, we are unable to confirm a diagnosis of dementia or grade it.
Hypovolemia	yes	Yes, this is an appropriate diagnosis

There is certainly a great deal to consider with this patient. She has mild delirium likely due to an acute urinary tract infection. She is also hypovolemic based on her presentation and lab results.

Appropriate Treatment Plans: Students were advised in SABA to make all appropriate changes with regard to BEERs and STOPP START and without regard to concern over the number of changes made at one visit.

Plan	Correct to Select?	Rationale
Macrobid 100mg q 6 hours x 7 days	no	Contraindicated with creatinine clearance less than 30 ml/min
Amoxicillin/Clavulanate 875/125mg q 12 hours x 10 days	no	This dosage is too high given her creatinine clearance is < 30ml/min
Ciprofloxacin 250 mg q 24 hours x 7 days (renal dosed)	no	C & S indicated resistance to medication. Inappropriate dosage and duration
Discontinue furosemide 20mg BID	yes	Duplicate medication and poor intake and lab results of Na and BUN. Restart upon follow-up if indicated.
Discontinue Atenolol	yes	Duplicate medication (also on Toprol XL)
Discontinue Lasix 40mg daily	yes	Yes, this is indicated to avoid further hypovolemia with reduced oral intake.
Discontinue Potassium 20 mEq q am	yes	Yes, with unopposed diuretic, there is greater risk of hyperkalemia with lisinopril
Discontinue diazepam 5mg	yes	Yes, it is on the BEERs list and is

prn for sleep		inappropriate for this patient. It is a duplicate-Valium also on her list.
Discontinue Valium 10mg PRN q hs sleep	yes	Yes, it is on the BEERs list and is not indicated for this patient. Duplicate med--also on diazepam
Change Coumadin to 3mg daily	no	No, her INR is in therapeutic range
Discontinue Coumadin	no	No, her history is pertinent for atrial fibrillation and this medication is indicated and appropriate
Discontinue lisinopril	no	No, this is not indicated at present. She has a pertinent history and indication. Discontinuance of duplicate beta antagonist should increase her BP and pulse
Change ASA to 81mg daily	yes	Yes, this is appropriate without evidence to support efficacy of 325mg dosage
Discontinue Toprol XL	no	Indicated and appropriate for history of MI. Discontinue of duplicate Beta antagonist may allow increase in pulse.
Discontinue oxybutinin	yes	Not indicated and potentially inappropriate. Reevaluating with dynamic testing after infection is resolved is appropriate.
Change digoxin to 0.125mg daily	yes	Yes, the current dosage is too high for geratric patients based on STOPP criteria and BEERs. This is a potentially inappropriate medication and does not have an indication if rate is controlled on Toprol XL. Consider discontinuance on follow-up if other medications manage ventricular response.
Follow-up in 1 week or sooner if worsening in condition in the next 24-48 hours	yes	Multiple medication discontinuances and acute change in condition
INR in one week	yes	To assure therapeutic range with antibiotic therapy
Follow-up in 3 weeks	no	Needs closer monitoring with antibiotic

		therapy, possible changes in INR and medication changes.
Amoxicillin 500/Clavulanate 125 mg q 12 hours x 10 days	yes	Yes, this is the best option and most logical prescribing choice for this patient. It provides gram negative coverage and is appropriately dosed based on renal function.

When making numerous changes necessary to treat complex issues, close follow-up and monitoring are essential to patient safety. Although you would make some the above changes over several encounters, this case gives you an excellent example of a patient scenario involving BEERs, STOPP and START, multiple comorbid conditions, and polypharmacy.

HPI: Report obtained from nursing staff due to patient's unreliable mental status.

85 year old female resident in a nursing facility. The staff report that her behavior has deteriorated this over the past few months post hip fracture. She is fighting during care and talking to her dead husband. She used to be very quiet and sleepy a few months back. She started doing more in activities but was becoming more and more confused and disoriented. For the past 2 months, she hears things that are not there and sees her dead husband in the hallway, which makes her agitated and frightened. This has worsened over the past month. She has been medically stable for the past several months.

Medication List
Metformin 500 mg bid (15 years)
duloxetine 30 mg bid (for past 2 years)
donepezil 10 mg q hs (for past 2 years)
famotidine 20 mg daily
loratadine 10 mg daily
atorvastatin 40 mg q hs
docusate 200 mg hs
metoprolol succinate 50 mg daily
aspirin 81 mg daily
multivitamin one tab daily
Allergies NKDA
Tobacco Non-smoker Alcohol No Past or current use Illicit drug use None

Medical history (PMH)Glaucoma, Alzheimer's Disease (10 years, moderate), Hearing loss, DM Type 2, peripheral neuropathy, DJD, atrial fibrillation, mild CKD. Had brain CT 4 years ago: cortical atrophy and periventricular white matter changes.

No further falls since admitted to nursing home. Uses walker for stability/support.

Childhood chicken pox as child. Healthy childhood Adult Overall healthy most of her life. Occasional cold in the past. Dx with DM Type 2 at 65 years of age and has been managed well with metformin. Other diagnoses listed above all occurred in her 70's.

Surgical Left hip fx with replacement 9 months ago s/p fall in the home

Ob/GynG0, normal paps/exams all her life. Never wanted to have children.

Vaccinations

Tdap 2010,

Zostavax 2011.

All others UTD

Flu Annually in October

Pneumovax had at 70 yoa

FAM HX See below HTNFather, DMMother and sisterCaNoneMI/CADFather, CVA: None, Renal dz Mother--CKD due to uncontrolled DM; Thyroid dz None: TB: None; Suicide: None; Alcoholism:None, Substance Abuse, None,

Social History: Psychiatric Recurrent Mild Depression. She was placed in nursing home 9 months ago after her husband died and she fell and broke her hip. At home, she had been mistaking husband for a stranger and attacking him with her walker. Used to be very social, enjoyed going to church and community functions. Did a lot of volunteer work, was very active. Worked as a server on and off for years. Born in Fremont, NC Education: High School; Occupation: server when she worked. Homemaker, Family Situation Niece visits once a month. No other family involved. Interests/Hobbies: Reading, sewing, going to church

Review of Systems

Questions	Appropriate?	Response
Has she had any falls since admission?	yes	No
Has she had any injuries of any type?	yes	No
How is she eating?	yes	Well.
Any weight loss or changes?	yes	No. stable for 3 months
How is she sleeping?	yes	sleeps little at night, naps rarely during the day
Does she wander?	yes	Yes, within the facility. No attempts to elope reported
Is she continent?	yes	Yes, no bowel or bladder incontinence.
Is she complaining of any pain or any other symptoms?	yes	No

Physical Exam:

Exam Component	Appropriate	Findings	Rationale
HEENT	yes	negative	We need to look for contributing reversible factors of delirium. No evidence of oral decay or infection, no evidence of cerumen impaction, oral mucosa moisture is a good indicator for hydration and/or anticholinergic side effects of medications
Neuro with cranial nerves	yes	CN II-XII grossly intact. No cogwheel rigidity or bradykinesia. No tardive dyskinesia or dysarthria on exam. Reduced sensation below level of knee bilaterally to 10g monofilament exam	
Lungs/heart/chest	yes	S1S2; RRR, no murmurs, bruits, thrills, rubs. No JVD, Lungs CTAB	
abdomen	yes	Normal/negative	
extremities	yes	No edema, 2+ pulses = B/L, 3/5 strength = b/l. feet and legs warm to touch.	
MMSE	yes	16/30	
Mini Cog	yes	1/3 recall Poor clock Positive screen for dementia. CLOX 1 and 2: Poor executive and visiospatial function	
Appearance/speech	yes	85 yo white female self-propelling in wheel chair, good eye contact and superficial rapport. hard of hearing. Facial features symmetrical, normocephalic, appears stated age. Normal volume and rate, coherent, repeats ideas	
Affect/mood	yes	Euthymic mood. "I'm fine"	

Thoughts	yes	No suicidal or homicidal ideation. No auditory or visual hallucinations on exam. Fair associations, delusion that she still works and husband is still living and "he is here somewhere"
Sensorium/Cognition	yes	Oriented to self. Poor short and long term memory. Insight and judgment impaired
Diagnostic Testing		
Lab Test	Correct to Ask?	Result
BMP	yes	Sodium: 137, Potassium: 3.9, Chloride: 100, CO2: 24, BUN: 15, serum creatinine: 1.6, eGFR non AA 36.63
random glucose	yes	145
HgA1c	yes	7.3
CBC	yes	WBC: 7.0, Hgb: 12.9, HCT: 34.7, Plt: 250
TSH	yes	1.123
Cholesterol/LFTs	yes	LDL: 110, HDL: 35, trig: 189, Hepatic function wnl
Protein and albumin	yes	Protein: 6.0, Alb: 4.1
UA	yes	trace WBC, negative nitrites, negative leukoesterase
ECG	yes	NSR, QTc 389
Differential Diagnoses	Correct to Select?	
Acute psychosis due to schizophrenia	no	

UTI	no
Senile dementia of the Alzheimer's type with psychotic features	yes
Uncontrolled diabetes	no
Unidentified medical complication	yes
Drug-drug interaction	yes
Anticholinergic effect of medication	yes

Impression		Appropriate?
Senile Dementia of the Alzheimer's Type with psychotic features		yes
Glaucoma		yes
Diabetes Type 2		yes
Neuropathy		yes
DJD		yes
Atrial Fibrillation		yes
Urinary Tract Infection	No indications of this	no
Constipation	No indications of this	no
Mild Depression, recurrent		yes
Schizophrenia	No supporting information for this	no

Plan:

Start Cipro 500 mg BID	no	No indications for this

D/C loratadine	yes	No indication for this and increased anticholinergic side effects.
D/C famotidine	yes	No symptoms and has increased drug to drug interaction risks
Make no changes as she has Alzheimer's and we can't change her response to the disease process	no	We can help improve the symptoms of the disease and need to make sure we rule out other physiological causes of changes in behavior
Add Namenda	no	This could be considered, but since she clearly has psychotic symptoms with danger to herself and others, atypical antipsychotic medication is indicated at present. Not the best option.
Follow up in 1-2 months	no	She needs follow up within 2 weeks or sooner; order to call if any change in condition.
Add Risperidone 1 mg daily	no	Needs to be renal dosed. CrCl is less than 30ml/min (CG formula), start low; 0.25 mg daily. Increase by 0.25-0.5 mg/day every week if poor response in one week to a target of 2mg/day
Monitor glucose weekly fasting with A1c/CMP in 1 month	yes	Risperidone has a moderate effect on glucose and must be renal dosed The fact that they would monitor these are important. The time frame is relative to clinical judgment. It would not be safe to approach a physically hostile patient for a lab draw for the safety of others until she is more stable. Baseline labs could be deferred for one month.

Integration in therapeutic milieu	yes	Attempt social interaction as tolerated. Staff should help with hobbies/interests and promote interaction, praise for positive behaviors. Promote safety of self and others. Support
Start haloperidol 1mg	no	1st generation antipsychotics are not the best option for treatment of dementia related psychosis due to significant extrapyramidal adverse effects. Best used in treatment of psychosis in acute delirium.
Risperidone 0.25mg daily	yes	This is the correct starting dosage and the best option for treatment of her symptoms in regard to side effect profile and effects on blood chemistry.
Check lipid panel in one month	yes	We want to monitor lipid panels during treatment with antipsychotic medications due to effect on triglycerides

An 80 year old white female was seen in your office 2 months prior for a painful rash along her left rib cage that was present for 4 days before her initial office visit. She was diagnosed with Herpes Zoster and treated with supportive measures and pain medication (Hydrocodone5/325 1 tab every 6 hours) which she took until ..

Vital Signs BP 138/74; HT 64 inches; WT 137.4; P 72; R 14; T 96.8
NKA

Medications	**PMH**	**Past Surgical History**
HCTZ 12.5 mg daily	Hypertension	Rt total hip replacement
Alendronate 35 mg	Osteoporosis	Cholecystectomy
Calcium Carbonate 500 mg tid	Osteoarthritis	
Cholecalciferol 50,000 IU q month	Alzheimer's Disease	
Nabumatone (Relafen) 500 mg po BID	Cervical Spinal stenosis	
Donezepil 10 mg q hs	**OBGYN**	
Acetaminophen 650 mg q 4 hours prn (taking it q 4 hours)	G2P2, vaginal deliveries: female then male. Normal paps all her life. No problems	

Childhood diseases: noncontributory	**Immunizations** UTD. Declined Zostavax every year
FH: Father HTN; otherwise neg	Flu last fall Pneumovax at 70 years old
SH: Widow for 5 years, married for 50 years, lives in assisted living. She is very 4 years college; Retired elementary	Tdap 2010

Overall healthy. Most recent MMSE was 3 months ago: 22/30=mild dementia. Stable on donezepil, Stage 3/7 AD; main deficit is short term memory and organizational ability. Independent with ADLs. unable to do IADLs. No falls in fast year. Sleeping well, no incontinence, no weight changes

CC: "I am still having pain in my left side"

HPI:

Question	Correct to Ask?	Patient Answer	
Can you describe the pain?	yes	It is a burning, achy pain along my left ribs. I took tylenol for it but it didn't help	
How long has it been going on?	yes	It started after I had the rash a few months ago. The rash went away but the pain has not	
Can you point to the face that best describes your pain?	no	This one	Number pain scale is more appropriate to use with this person
What makes the pain worse?	yes	It is worse at night. I can't sleep more than a couple of hours. Moving and wearing a bra makes it worse.	
How has this affected you?	yes	I can't go out anymore because I can't wear a bra. I can't go out half dressed	
What makes the pain better?	yes	Nothing. Staying busy helps to distract me from the pain.	
How bad is the pain at its worst on a 0-10 scale?	yes	8	
Describe your pain level at its best	yes	It is the same all the time	
What is your pain level on average ?	yes	It stays the same all the time, about a 7-8	

Physical Exam Findings:

Exam	Correct to Ask?	Finding
General appearance	yes	Pleasant, appears mildly uncomfortable, appears stated age
Cardiac/Chest	yes	S1S2, No murmurs, thrills, bruits, no peripheral edema. Pedal pulses 2+ bilaterally. BLE warm to touch. T6 dermatome from left lateral spine to left sternum approximately 2 inches wide
Respiratory	yes	No increased respiratory effort, normal excursion, symmetrical chestwall expansion with triggering pain response. CTA, no pinpoint tenderness along area of pain
Abdomen	yes	Flat abdomen, non-distended, non-tender, no organomegaly, BS normoactive x 4 with tinkling sounds noted
skin	yes	No lesions, rash, ulcerations, or bruising. Hypopigmented area folls. Hypersensitivity to light touch along same area
Musculoskeletal	yes	Tenderness over C5-C6 vertebrae. Trigger bands over left supraspinous muscles. No focal tenderness at T6 vertebrae, Gait WNL, ambulates with single post cane

Lab and Diagnostic Testing

Lab Test	Correct to Ask?	Result
Chest x-ray and spinal films	yes	Negative for fx or acute disease process
CMP	yes	CrCl of 29ml/min based on labs. All others WNL

The chest and spine x-rays are negative for fractures and no acute disease processes seen. Her LFTs are within normal limits. Her creatinine clearance is 29ml/min using CG based on her current labs. This is a decline from 3 months ago (was 33.1ml/min).

Differential Diagnoses

Diagnosis	Correct to Select?	Rationale
Post-herpatic neuralgia	yes	Correct!
Rib Fracture	yes	History of Osteoporosis
T6 Compression Fx	yes	Hx of OP, localized pain radiating to chest
Costochondritis	yes	Must differentiate bone, nerve, and musculoskeletal pain
Osteoarthritis	yes	hx of degenerative joint disease
Atypical Chest Pain	yes	?? Pain from pleuritis, pericarditis, MI

Impression	Correct to Select?	Rationale
Post-herpatic Neuralgia	yes	Correct!
Cervalgia C5-C6	yes	May be contributing to overall discomfort as a secondary issue
Myocardial Infarction	no	Not supported
Rib Fracture	no	Not supported
Depression	no	Not supported
Plan	**Correct to Select?**	**Rationale**
Obtain current CMP to include LFTs	yes	To confirm correct renal dosing of meds and to check for any liver changes related to tylenol use.
Chest x-ray	yes	to R/o rib Fx
spine x-rays	yes	To R/O fracture
Discontinue Relafen and acetaminophen	yes	Not helpful and potentially harmful
Hydrocodone 5 mg po q 6 hours prn	yes	Will help with pain
Lidoderm 5% patch to T6 area on in am, off at bedtime	yes	Will help with the specific neuralgia
Gabapentin 300 mg po q hs for 1 week, then 2 po q hs	yes	Q day is renal dosing for her. Standard of care for neuralgia
Follow up in 1-2 months	no	Will need sooner follow-up within 2 weeks and sooner with any side effects or new signs/symptoms
Constipation prevention	yes	Hydrocodone effect