

Case Study #1: Chronic Obstructive Pulmonary Disease (COPD)

Learning Objectives

Case 1 describes a patient's experience of chronic obstructive pulmonary disease (COPD) with a history of asthma. The interprofessional collaboration is role modelled between nursing, medical radiology, medical laboratory, and healthcare workers in the emergency department.

Note: The story told here is used in case 1 and case 2. The simpler version in case 1 can be used to teach novice students about health case studies. Case 2 reintroduces the patient from case 1 and expands her story with more details for more advanced study.

Learning Objectives

In this case, learners have an opportunity to:

1. Review etiological factors (i.e., risk factors, prevalence, comorbidities) associated with respiratory disease
2. Build knowledge related to the patient's experience of respiratory disease
3. Continue to develop comprehensive assessment, monitoring skills, and abilities (e.g., respiratory assessment, diagnostic studies, laboratory data)
4. Develop and justify optimal therapy based on the current understanding of the pathophysiology of COPD and available clinical evidence
5. Recommend interventions based on the risk factors, status, and progression of respiratory disease
6. Define the roles of healthcare professionals and the contributions they make to the healthcare team (or describe your own role and the roles of those in other professions)

Patient: Erin Johns



Erin Johns

Patient: Erin Johns

Date of Birth: 09/09/19xx

PERSONA

Erin Johns is 74 years old. She is widowed with four children, one of whom lives at home with her in their original family home in a small city in northern British Columbia. Two of Erin's children live within a one-hour drive from her, and one lives a three-hour flight away. She also has 10 grandchildren and one great grandchild. Erin communicates with her grandchildren by telephone and Skype using her iPad. Erin describes herself as a non-smoker, but she smoked socially when she was in her early twenties for about five years. She is a retired hairdresser. Erin also has a small hairless Chihuahua named Trixie. Erin spends her time socializing at her local community centre with her friends, and she likes to play Bingo. At home, she enjoys watching Netflix and playing "Solitaire and Scrabble with friends" on her iPad. Erin tends to feel down when she thinks about her lower financial status and her advancing age, and how she is becoming more forgetful and less energetic. She often feels alone but is grateful to have the company of Trixie and the few friends she has left who are still alive. She worries about falling and not being able to alert anyone to come to her rescue. Driving is becoming hard for her, and she finds getting to the clinic and picking up her medications more and more challenging, especially now that she doesn't have her own doctor anymore and she needs to go to the walk-in clinic.

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At Home

Day: 0

Time: 16h00

Place: At home

“Trixie stop barking!” Erin calls. She gets up from the couch slowly. “I can’t believe how tired I am.”

Taking a few steps towards the back door to let Trixie out, Erin stops at the corner of the kitchen island and puts a hand out to steady herself on the counter.

“Oh my. Can’t catch. My breath. Trixie. Stop barking.”

Remembering it was her late husband who took care of the dog, her eyes tear up slightly.

I miss him so, she thinks.

Moving toward the back door, Erin reaches down and lifts Trixie up onto the washing machine to place the leash on her.

“You stink, Trixie. Your bath will have to wait till I feel better. Not sure what is happening.”

Trixie, finally leashed, is lifted down and out they go through the back door into the cold winter air.

Erin gets down the steps and leans against the house to catch her breath. Meanwhile, Trixie relieves herself against a flower pot.

After about a minute, Erin begins to walk very slowly, with Trixie pulling on the leash. After about five minutes walking, Erin slows to a stop.

Looking back, Erin thinks to herself, “I have only walked about 50 meters. I am not sure I can even walk back to the house.”

Erin takes out her cell phone and calls her son at work.

“Thomas, I don’t feel well. You need to come home.”

“Mom, I’m at work. What’s up?” asks Thomas.

“I can’t. Catch. My. Breath. I think. I need. To go. To the. Hospital.”

“I will be there in 10 minutes, Mom.”

Emergency Room

Day: 0

Time: 18h00

Place: Emergency Room Triage

Sitting back in her chair, Jackie sighs. “Wow, this has been a long shift. I’m exhausted.”

Looking up from the desk, she sees an old green Ford truck stop in front of the Emergency Room. From the passenger door, an elderly lady slowly emerges. Reaching back into the truck, she pulls out a very small dog and slowly places it on the ground.

The older lady makes her way slowly to the doors, with the dog trailing her on a leash. Once she is inside the doors, Jackie notes that the woman displays pursed lip breathing, has a slight blue tinge to her lips and a very slow gait.

Finally making it to the triage desk, the lady leans against the desk and sighs loudly.

Jackie comes out from behind the desk and moves a wheelchair close to Erin for her to sit in.

“Hi, my name is Jackie and I’m the triage nurse today. How can I help you?”

“Thank you. My name. Erin. I feel awful. Can’t catch. My breath.”

Jackie pulls the **blood pressure and pulse oximetry machine** close to Erin and wraps the cuff around her right arm. She presses a button and the cuff inflates. On Erin’s left index finger she places a pulse oximeter.

After about 30 seconds, the machine beeps and displays the following vital signs:

Day: 0	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 18h00	96	180/90	28	36.5° C	85%

Grabbing a clipboard with an emergency assessment record on it, Jackie fills out the initial vital signs.

Referring to the [Triage and Acuity Scale](#) along with the vital signs, Jackie grades Erin's condition as "Triage Level III – Urgent".

A tall middle-aged man in workman's clothes approaches the triage desk. "How is my Mom doing?" asks Thomas.

"I think it would be best if Mrs. Johns stays with us awhile and has a doctor take a look at her. I will make arrangements for a spot for her to stay once we get her admission paperwork done. Can you and your Mom answer a few questions from Denise, the clerk who is just to the left of my desk?"

Denise, the admission clerk, comes over and introduces herself to Erin.

"Good evening. My name is Denise."

"My name is. Erin. This is my son. Thomas," Erin states breathlessly.

"Ok. Thomas, can you wheel your Mom close to my desk so I can input her information into the computer, please? That way we can get her a space in the ER quickly and have a doctor see her as well."

Thomas pushes the wheelchair over to the admissions desk.

"Do you have your Care Card with you?" asks Denise.

Erin hands over her Care Card to Denise, who rapidly inputs the information into the system.

"I see, Mrs. Johns, that you were at a clinic last week. Is this correct?"

Erin nods 'yes'. Thomas explains: "They changed her puffers and said to come back if there was any problem."

Denise nods her head. "Make sure you tell the nurses that."

Denise then asks, "Do you see anyone regularly at the clinic?"

"No. I see whoever is available. They change so often."

Looking up at Thomas, Denise asks, "Can I have your contact information, Thomas, in case we need to contact you?"

Thomas recites his cell phone number and tells Denise that he currently lives with his Mom, due to a complicated divorce that has left him a bit depressed and short of cash.

Denise nods and inputs the contact information into the computer.

"Well, that is all I need right now. I have called for a porter and they will move you to a spot where the doctor can see you."

Denise watches as the porter comes up to both Thomas and Erin and begins pushing the wheelchair through the doors into the back area of the Emergency Ward.

Denise shakes her head slightly and wiggles her nose. She thinks to herself, *That dog needs a bath. Poor thing.*

“Is this where. You are. Going to leave. Me. It’s a hallway!” Erin looks up at the porter pleadingly.

The porter looks at her. “You will need to wait here till there is a better spot for you,” and he walks away.

Erin pulls Trixie closer to her as she sits in the wheelchair. Thomas looks around at the chaos and sees people moving from curtained area to curtained area, all dressed alike in light blue scrubs. No one makes eye contact or even acknowledges them as the new arrivals.

Just as he is thinking this to himself, he feels a presence behind him. Turning around, he sees another nurse dressed in light blue holding a clipboard.

“Are you Mrs. Johns and her son, Thomas?”

Both nod affirmatively.

“My name is Jason. I’ve just come on shift. I see the triage nurse started your chart and that you have been admitted. What I need to do now is listen to your chest and ask you some questions. Is that ok?”

Jason watches both of them nod ‘yes’.

“Ok, then. Thomas, would you mind taking the dog outside so I can assess your mother?”

Thomas reaches down and gently extracts Trixie from Erin.

“Can you come get me after you’re done?” asks Erin.

Thomas: “Mom, I’ll walk Trixie and then put her in the truck. I have some biscuits that I can give her and she should be perfectly fine there.”

Thomas cradles the small dog, who begins to whimper quietly, and strides out through the doors to the emergency exit.

Jason pulls a chair closer to Erin. “I am going to ask you a few questions. This helps us to help you. Do you feel up to answering a few questions?”

“Yes.”

“When did you begin to feel short of breath?”

“About a week. Ago. I went. Clinic. Gave me new puffers. Seemed to help. Today. Walking Trixie. Cold out. Really short of breath. Called Thomas. Brought me here.”

Jason writes the information directly into the second page of the nursing record.

“The clinic notes indicate you have COPD. Is this correct?”

“Yes.”

“Do you have any other conditions?”

“No.” Erin smiles weakly. “Otherwise. Healthy.”

“Ok. That is enough right now. Let’s take your vital signs, and then I’m going to listen to your lungs and heart.”

Jason pulls the **vital sign machine** close to the wheelchair, attaches the BP cuff and the pulse oximeter, and presses the button.

As the cuff inflates, Jason looks carefully at Erin. He notes that her airway is patent and her breathing is rapid at 28/minute and appears shallow, with some nasal flaring.

The blood pressure cuff dings and the result appears on the screen.

“Ok, Mrs. Johns. Your blood pressure is higher than I would expect. Is this normal for you?”

Erin leans forward and peers closely at the numbers. “I think so. Top number. 150 to. 170. Normally.”

Day: 0	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 19h30	112	190/84	28	–	84% on RA

Jason nods. “Your **oxygen saturation is a bit low**, so I’m going to put you on a little oxygen. Is that ok with you?”

“Yes.”

Jason reaches over to draw in a cart from the hallway. He pulls out a set of nasal prongs and attaches them to an oxygen tank fitted at the back of the wheelchair. He **thinks to himself** and then sets the flow at 2 LPM.

“Let’s see if that helps with your shortness of breath. I’m now going to listen to your heart and lungs. I know we are in the hallway and I’ll do my best to not expose you. Are you ok with me examining you?”

“Yes. Not happy. In hallway.”

“I can understand that, but we’re very busy and I have no other place to give you. I hope this will only be for a couple of hours.”

Jason then carefully slips his stethoscope between Erin’s clothes and skin. Closing his eyes, he moves the stethoscope **systematically first to the anterior chest then posterior chest**. After listening, he quickly examines her abdomen and extremities.

“Ok, Mrs. Johns. I’m done right now. I see your oxygen levels appear to be a bit higher. Are you feeling a little less short of breath?”

“Yes, I feel a bit better.”

“Great! I am going to find the doctor and see what the plan will be for you. If you need any help, just wave your arms.”

Erin nods that she understands. Looking around, she shivers slightly at being sick and so exposed in the hallway. She watches Jason move towards the nursing station where there are two people who look like doctors. She thinks

to herself, “They look so young. How can they be doctors? I’m stuck in a hallway, can’t believe all the money we pay for taxes and this is the best they can do for me. When Thomas comes back, I’ll ask him to take me and Trixie home. This is ridiculous.”

Jason looks at the various people huddled around the nursing station.

He shakes his head slightly and mumbles, “Yeah, shift change for everyone.”

He walks up to Dr. Singh, whom he is most familiar with. As he approaches he hears Dr. Singh announce, “I’ll take the back rooms and the hallway patients. Stan, can you take the triage and trauma? I did that yesterday, and with that patient dying in the trauma room, I still have to sign off the chart and have a discussion with the coroner.”

Stan looks up at his peer. “Ok, but if it gets really busy, we’ll need to call someone in or you will need to help.”

Dr. Singh sighs. “If you need help, I will stay.”

Dr. Singh moves off to check the computer for emergency admissions and to start planning his shift.

Jason moves up beside him. “Can I interrupt?”

“Sure thing, Jason. What’s up?”

Trying to keep to **SBAR**, Jason says, “I just came on shift as well. New patient, Mrs. Johns, 72 years old, in Hallway B. Exacerbation of COPD, maybe pneumonia, no other medical history, **quite short of breath with low sats**. I placed her on **2 LPM prongs** with some relief and better sats. Breath sounds are quite quiet to the lower fields and she has a slight wheeze in the upper fields. She’s stable right now but I need some orders, please.”

“Ok, Jason. I agree that she’s stable right now, but with a big potential to deteriorate. I will follow the **COPD protocol** and write orders for a chest X-ray, some labs, puffers, **spirometry**, and an **ABG**. Let’s hold off on antibiotics till we have a firmer picture of pneumonia. I don’t want to overreact and prescribe something she doesn’t need right now. With her diagnosis and potentially **frequent antibiotic use**, we could set her up for a superbug. How does that sound?”

“I agree, and thank you. I’ll get the RT for the **ABG** and see if Medrad can do the X-ray portably.”

Dr. Singh pulls out a doctor’s order sheet. Jason places a sticker with Erin Johns’s identification on the top right corner.

Jason takes the orders from Dr. Singh and goes over to the unit clerk, Sheila.

Sheila looks at him with raised eyebrows. “I just got here, so please don’t tell me this is a long order set! My commute was terrible and daycare was late opening up. I already feel behind before I’ve even started.”

Jason smiles. “Aww, Sheila. I hate when my day starts like that. I once had to bring little Jim in to work when my daycare was late as well. Cathy picked him up a half hour into the shift. The orders are really short, as you would expect from Dr. Singh. Just what you need, no extras. Since you are settling in, do you want me to enter them into the computer?”

“That would be awesome!! I see Dr. Greg’s admitted a patient to 7B and the order set for that patient is seven pages. I would rather get started on that set, if you don’t mind.”

“No problem.” Jason moves away from the nursing station and signs on to a computer located just a few feet from Erin.

He types in all the information and generates the requisitions for the orders Dr. Singh wrote: CBC, lytes, BUN, creatinine, spirometry, and a portable chest X-ray, and medications as per COPD protocol.

Jason quietly moves towards Erin and notes that she is sleeping in the chair.

“Wow, I wonder when she last had a good sleep.” Jason gently touches her arm to wake her and updates her on her tests. He tells her that Dr. Singh will come by in a little bit, after the tests are done, to check on her.

Erin nods and then closes her eyes.

Place: Medical Laboratory

Alexa has just started her shift. Smiling inwardly, she thinks, *This is my third shift by myself after orientation. Can’t believe it. School does a good job of preparing you for the job, but nothing can prepare you for the work. It’s so busy. My feet already hurt.*

Straightening her scrub top, she leans over and double-checks her cart to make sure she has enough supplies to last the majority of the shift.

The lab supervisor approaches her. “Emergency is really busy right now. Would you mind going down there first before heading to the rest of the hospital? Sheila, the clerk down there, says there are about 20 lab reqs waiting.”

“Ok, I haven’t been there since I was a student.”

“No worries. James is already down there and he can help you out. He thoroughly enjoys the atmosphere of the Emergency.”

Alexa pushes her cart out of the lab area and heads to the elevator that goes to Emergency. She pushes the button for the Emergency floor and watches the buttons slowly creep towards that floor. Exiting, she pushes her cart up to the emergency staff doors, and taking a deep breath she pushes the button. As soon as the doors open, she sways back from the noise and the smells and the overwhelming sense of chaos.

“Oh my. Yep, school did not prepare me for this. Wow.”

Navigating her cart through the Emergency Department, she thinks to herself, *It’s just like driving in rush hour in a foreign country. There are rules but no one sticks to the lines.*

She quickly finds herself at the nursing station and moves towards the desk area where all the requisitions are waiting. She notes that James has taken all the stat ones, as there is not one in the pile. Looking through requisitions, she notes that they are all pretty similar and all the reqs have close to the same time on them.

“Ok, let’s start with this one,” she says as she places Erin Johns’s req on the top of her board. Looking at the req, she pulls out the appropriate lab tubes and labels them with Erin Johns’ stickers.

That done, she looks up. A frown creases her forehead, and she mumbles, “Hallway B. Where the heck is that?”

Jason, walking by, hears Alexa mumble and stops. “Hi, I’m Jason and Hallway B is my assignment. Who are you looking for?”

Alexa, looking somewhat sheepish, says, “I didn’t think anyone would hear me mumble in this noise.”

“It’s not so noisy and you do get used to it.”

“I’m looking for Erin Johns.”

“Erin is my patient. Let’s walk over here and down this corridor. I’ll introduce you. I haven’t seen you before. Are you new?”

“Yes, this is my third shift by myself after orientation. I’ve mainly been in the lab department or on the medical floors. I was in Emergency for some of my final preceptorship.”

“Excellent. This is a great place to work. Busy, but the people are knowledgeable and quite caring.”

As they move down the hallway, Alexa sees an elderly lady, still in her normal clothes and with a light blanket wrapped around her shoulders, sleeping in a wheelchair.

“Is that...?”

“Yes. That is Erin Johns.”

Jason moves confidently up to Erin and lightly touches her on the arm. Alexa notes that Erin’s eyes open quickly and they appear sharp and not withdrawn, like some of the patients she has seen.

“Mrs. Johns, this is Alexa, one of our lab technicians. She’s here to take some blood from you. Is that ok?”

Erin nods ‘yes’.

Alexa moves her cart closer. Looking at the req and then at Mrs. Johns, she says, “Can you tell me your name?”

“Erin Johns.”

“Your birthday?”

“06/06/19xx.”

“Excellent, thank you.” Alexa checks the identification band on Erin’s right wrist against the information on the requisition. Satisfied, she gathers the tubes, double-checks them, and picks up the venipuncture equipment and tourniquet. Following the [World Health Organization guidelines](#), Alexa prepares to take the required blood specimens.

Alexa first asks Erin to roll her sleeve up a bit more. Carefully putting the tourniquet around Erin's right upper arm, Alexa then swabs her inner antecubital space.

"Ok, this will pinch a bit."

Carefully sliding the needle under the skin, Alexa quickly finds the vein and pushes the first of three tubes into the vacutainer.

Once all the tubes are full, Alexa shakes them slowly and carefully to mix the blood and the anticoagulant. After that, she carefully places the tubes in the holder in the front of her cart.

"I'm all done, Mrs. Johns. I hope you feel better soon."

Alexa moves away and heads towards the nursing station. She looks down at the next req on her list and notes that it's not a hallway but a number. Looking around, she quickly finds number 12 and heads towards the next patient.

Place: Medical Radiography

Gurpreet checks the list of patients requisitions that need to be done. Looking at the list, she sees there are a number of emergency patients and floor patients. No requisitions are marked as stat.

"Ok, looks like we need a porter."

Glen looks across the lobby from where he is sitting. "What's that, Gurpreet? Do you need me?"

"Sorry, Glen, didn't see you there. Yes, can you go pick up Mrs. Erin Johns from Hallway B in Emergency, please?"

"Yes, no problem."

Glen pulls himself out of the chair and strides through the double doors of the Radiology Department. Looking quickly up and down the hallway, Glen makes his way down the back stairs to the Emergency Department.

Glen has been working in the hospital for about 15 years and knows every short cut there is. Taking the stairs two at a time, he arrives at a little used doorway into Hallway B of the Emergency Department.

Walking up to the nursing station at the far end of the hallway, he looks at Sheila, the unit clerk. "Hi ya, Sheila."

"Oh, hi Glen. What can I do for you?"

"Oi, how about dinner?"

"That's not what I meant!" Sheila smiles at her boyfriend and winks at him.

"I'm here to escort Mrs. Erin Johns to the Radiology Department for a picture."

Sheila looks at her assignment list and finds that Jason is the nurse. "Ok, Jason is caring for her. And there he is talking with Mrs. Johns."

“Thanks. See you after work?”

“I’m done at seven. Come down here when you’re finished. We can share a bus seat home.”

Glen smiles and walks towards Erin and Jason.

“Hi, my name is Glen and I’ve been asked to escort Mrs. Johns here to the X-ray Department.”

Jason frowns. “Can’t that be done portably?”

Glen shakes his head. “Not my call. Gurpreet asked me to escort her to the department.”

Jason leans down and explains to Erin that she needs a chest X-ray to help them figure out why she is short of breath.

Erin, looking a bit more tired, says, “I’ve had quite a few of those. I’d be glad to get out of this hallway. It’s so noisy.”

Glen grabs the back of the wheelchair, quickly turns her around and points the chair out the door. Striding to the elevator, Glen recaps for Erin the weather outside, the hockey game, and recent city events. Erin sits in her chair and pretends to listen.

Glen and Erin roll through the doors of the Radiology Department to see Gurpreet standing at the desk.

“Here is Mrs. Erin Johns, from Hallway B in the Emergency Department.”

“Thank you, Glen. Can you place her in Room 2, please? I’ll be right behind you.”

Time: 11h30

Place: Emergency Room, Hallway B

“When will I get my results?”

Glen looks at Erin. “I’m not the one to ask, I’ll let Sheila know you are back, so the doctor and Jason can look at your picture.”

“Thank you.”

Glen walks quickly away to the nursing station to inform Sheila that the chest X-ray is completed.

Erin looks up and down the hallway and sees less activity and some empty stretcher bays.

I do hope I can get a bed to lie down in, she thinks to herself. My backside is getting sore.

Without realizing it, Erin closes her eyes. Suddenly she feels a touch on her hand. Startled, she gives a little shout.

“Oh oh oh, it’s ok. My name is Matt. I had no intention of scaring you. Wow. Really sorry, Mrs. Johns.”

“It’s ok. I didn’t realize I had fallen asleep.”

“I’m a respiratory therapist and a couple of tests have been ordered for you. One is [spirometry](#), which I think you have had before, from the results in your chart, and the second one is a blood gas.”

“Spirometry is the blowing test, right?”

“Yes, that’s the one. Shall we do that one first?”

“Ok.”

Matt opens a small plastic bag to retrieve a freshly sterilized kit tube with a gauge on it. He quickly describes what he wants Erin to do.

“Mrs. Johns, I’m going to ask you to take a deep breath and then blow it out as hard as you can through this tube. We’re going to do this three times to make sure we get an accurate measurement.”

Erin sits a bit straighter in her wheelchair and nods. “I’ll try my best.”

Matt hands Erin the device. “Good. Ok, take a deep breath, then blow through the tube.”

Erin does as instructed, three times. After each time, Jason records the results on the requisition for spirometry.

“Ok, that is now done. You did a great job, Mrs. Johns.”

Erin nods her head and smiles slightly.

“Next, I need to do an [Arterial Blood Gas or ABG](#), so I must draw a small sample of blood from your wrist. This is a bit more uncomfortable than having your lab work done.”

Erin looks up questioningly. “Is it necessary? I had a blood gas done before and it really hurt!”

“I’ll try my best to not hurt you, but it is uncomfortable. Which hand do you use the most?”

“I am right-handed.”

Matt gently grabs Erin’s left hand and bends her elbow 90 degrees. He then performs the [Allen test](#).

“Ok, ok, everything looks good, Mrs. Johns.”

Matt then rubs an alcohol swab vigorously across Mrs. Johns’ wrist. Then he waves his hand back and forth to disperse the smell.

“I need you to relax and stay still while I do this, ok?”

Erin nods nervously.

Matt, holding the syringe at a 45 degree angle, slips the needle under Erin’s skin. Quickly the syringe fills with red fluid. Matt then withdraws the syringe and holds a gauze over the site.

“That wasn’t too bad. You are very good at this.”

“I’ve had a bit of practice, Mrs. Johns.” While holding pressure on her left wrist, Matt deftly removes the needle from the sample and caps the syringe. After a couple of minutes, he asks Erin to hold pressure but not to peek and not to let go until he comes back.

Taking the sample, Matt goes to the back area of the Emergency Department and runs the sample through the blood gas machine. The machine quickly prints out the result.

Matt goes back to Erin.

“Ok, let’s look under the gauze.”

Matt see no bleeding but notes a small bruise at the puncture site. He places a small gauze over the site and wraps a small dressing right around Erin’s wrist.

“Please leave this dressing on. We can take it off later tonight, but I want to make sure you don’t get left with a big bruise.”

Erin nods.

Matt steps away to find Jason and show him the results from spirometry and the blood gas.

Matt finds Jason at the computer in the nursing station.

“Hi, Jason. I have the results from spirometry and blood gases for Mrs. Johns.”

Jason looks up, smiles and says, “Ok, anything special?”

“Spirometry shows a decrease in vital capacity from what was taken at the clinic a couple of months ago. That’s not surprising, given that she’s back here. The ABG shows a rise in CO₂ and just normal PaO₂ on 2 LPM oxygen. She’s a bit compromised right now. I took a listen to her chest a little while ago. She sounds typically COPD-like, with nothing I didn’t expect.”

“Ok. Are the results on the clipboard?”

“Yes, and I hope you don’t mind I wrote the ABG in the chart as well.”

“You are awesome. I’ll go find Dr. Singh when I’m done here and see what he would like to do, but my guess is she is staying the night.”

Thirty minutes later, Jason says: “Dr. Singh, here are the spirometry results and ABG on Erin Johns.”

“Thanks.”

Dr. Singh reviews the results and comes to the same conclusions as Matt and Jason. “Let’s look at her chest X-ray.”

Dr. Singh pulls up the X-ray film onto the computer and both lean in to view the black and white picture. Jason

looks at the picture and then at Dr. Singh, thinking to himself that it looks like a normal X-ray, except the lungs look a bit long.

Dr. Singh sighs. “Ok, the X-ray shows a bit of infiltrates at the bases and your typical COPD hyper-inflation. Nothing that I would consider abnormal itself, but when we consider the ABG and the spirometry all together, I’d like to keep her overnight to see if she is going to get better or going to get worse. If it’s pneumonia, she will get worse overnight and the next day. If it’s just the cool weather we’re having and nothing infective, she should get a bit better with some care and attention. What do you think?”

“Matt and I were having the same discussion. I’m pretty sure I can find a bay for her to stay. Question is, will she want to stay?”

“I’ll go talk to her.”

“Hello, Mrs. Johns. My name is Dr. Amir Singh. I am one of the many people here taking care of you.”

“Not sure about taking care of me. First I’ve seen of you.”

Dr. Singh smiles. “So true. I’ve been more in the shadows than caring for you directly like Jason here. Both Jason and I have reviewed your tests and we believe you should stay overnight with us. I don’t think it’s serious, and if you are able to get a reasonable sleep and a few more puffs of the meds I’ve ordered, along with some oxygen, you may look better in the morning.”

“I’m feeling better. Not perfect. Can I have a bed? Can my dog visit me? Will someone call my son?”

Dr. Singh smiles. “Yes to all. I’ll call your son and let him know, and Jason here will find you one of our finest beds in the Emergency.”

“Thank you.”

Dr. Singh then nods to both Erin and Jason and walks over to where a nurse is gesturing for him at Bed 3.

Jason bends down to be eye level with Erin and says, “Give me a couple of minutes and I’ll find you a more private location.”

Erin nods and smiles. She grabs Jason’s hand and pats it kindly, like all the old ladies do with Jason.

After a discussion with the charge nurse and getting housekeeping to clean an area from a recent discharge, Jason moves Erin into the last stretcher bed furthest from the nursing station and the doors, the most private location they have and a coveted location for staff to take their breaks.

“This should be a lot better for you. You need to let me know if you need to use the washroom, as I’ll get another oxygen tank on wheels for you to use when you are up.”

“Thank you. What about my son and Trixie?”

“Dr. Singh and I updated Thomas. He’s not going to come in tonight but will in the morning. He says not to worry

about Trixie. Thomas said he was going to give her a bath and a meal and they were going to chill with some Netflix.”

“Oh, she really needs a bath. Been feeling awful not to be able to do even that small task. Trixie likes to watch Mad Men. That Mr. Draper is such a scamp!”

“Ok, Mrs. Johns. If you need anything, please push the call button.”

Day: 1

Time: 07h00

Dr. Notley is reviewing the list of patients to see this morning when he is approached by the charge nurse with a list of overnight patients that potentially could be sent home if everything is well.

“Can you look at these patients first? Let me know which ones can be sent home.”

Dr. Notley notes the first patient is Erin Johns, exacerbation of COPD, on 2 LPM nasal prongs, ABG shows higher than normal CO₂ and drop in PaO₂ with maybe something on the CXR.

Dr. Notley walks quickly down the hall to the last stretcher in the row of twenty. Seeing the curtain partially open, he announces himself. “Good morning. I’m Dr. Notley.”

Jackie, the nurse taking care of Erin, waves him in.

“Hello, Jackie. How are you doing?”

“Doing good right now. Mrs. Johns is doing quite well. I was at the triage desk yesterday when she came in. She didn’t look very happy nor well. This morning, I’ve taken her O₂ off and her sats have stayed 90-91% on room air. No cyanosis noted and her breath sounds have no wheezes and she is not coughing anything up.”

“Excellent. How are you feeling, Mrs. Johns?”

Erin looks at Dr. Notley and thinks to herself that he looks exactly how a doctor should look, with nice grey hair, pressed lab coat, and a stethoscope around his neck. Dr. Welby’s brother. “I’m much better. I feel a bit short of breath but not worse than usual. I can go to the washroom without stopping for breath. The food here is terrible and I would love something better.”

“Ok, good appetite and able to move around. Not sure we’re doing anything for you now, Mrs. Johns. I’d like to send you home with follow-up in the clinic tomorrow and the next day. I want to make sure that you are well followed and that this does not happen to you again.”

“Will you make the appointments? Can someone phone my son to pick me up?”

“That won’t be necessary, Mom. Trixie and I are already here.”

Dr. Notley nods and asks Thomas to come closer. He then goes on to explain what probably happened, with the

cold weather, stress and not taking her puffers regularly, leading to her coming to the Emergency. He then goes on to explain the importance of the medications and the follow-up appointments.

Thomas shakes his head and reaches out for his mother's hand. "Thank you, doctor. I'll make sure she gets to the appointments. Are there any new prescriptions for her?"

"I'm going to send you home with the puffers she is using here, and I'm going to send a note to the clinic with our recommendations for meds for Mrs. Johns. That's why it's important to go to the clinic tomorrow."

Mother and son both promise to go to the clinic.

Thomas moves Trixie from inside his coat onto Erin's lap. The little dog excitedly jumps around and then curls up in the covers on Erin's lap.

"Cute dog, Mrs. Johns," Dr. Notley exclaims as he walks away to finish the discharge list and begin the paperwork to discharge Mrs. Johns.

Jackie then explains that they will have to wait until the paperwork is done for discharge and the clinic appointment. "Do you have any questions?"

Both shake their heads 'no'.

"Ok, I'll come back in a few minutes with your meds and the paperwork to sign for your discharge."

Case Study #2: Pneumonia

Learning Objectives

Case 2 describes a patient's experience of COPD exacerbation due to community acquired pneumonia. The patient in this case study has a complicated health history. The interprofessional collaboration is role modelled between nursing, medical radiology, medical laboratory, and health care workers in the emergency department.

Learners reviewing this case can consider how pneumonia affects COPD. Additionally this case offers opportunity for discussion on supporting families both in the Emergency Department and acute medicine areas. The interprofessional collaboration is ideal and offers opportunities for further discussion on why the collaboration works so well and what barriers would prevent ideal collaboration.

Note: The story told here is used in case 1 and case 2. The simpler version in case 1 can be used to teach novice students about health case studies. Case 2 reintroduces the patient from case 1 and expands her story with more details for more advanced study.

Learning Objectives

In this case, learners have an opportunity to:

1. Review etiological factors (i.e., risk factors, prevalence, comorbidities) associated with respiratory disease
2. Build knowledge related to the patient's experience of respiratory insufficiency, including COPD and pneumonia
3. Continue to develop comprehensive assessment and monitoring skills and abilities (e.g., relevant abnormal physical assessment findings, ABGs, lab, and diagnostic data)
4. Consider the links between evidence-based knowledge and practice in the care of patients with pneumonia (e.g., CAP guidelines)
5. Recommend interventions based on the risk factors, status, and progression of pneumonia (e.g., antibiotic therapy, oxygen therapy)
6. Define the roles of health care professionals and the contributions they make to the healthcare team (or describe your own role and the roles of those in other professions)

Patient: Erin Johns



Erin Johns

Patient: Erin Johns

Date of Birth: 09/09/19xx

PERSONA

Erin Johns is 74 years old. She is widowed with four children, one of whom lives at home with her in their original family home in a small city in northern British Columbia. Two of Erin's children live within a one-hour drive from her, and one lives a three-hour flight away. She also has 10 grandchildren and one great grandchild. Erin communicates with her grandchildren by telephone and Skype using her iPad. Erin describes herself as a non-smoker, but she smoked socially when she was in her early twenties for about five years. She is a retired hairdresser. Erin also has a small hairless Chihuahua named Trixie. Erin spends her time socializing at her local community centre with her friends, and she likes to play Bingo. At home, she enjoys watching Netflix and playing "Solitaire and Scrabble with friends" on her iPad. Erin tends to feel down when she thinks about her lower financial status and her advancing age, and how she is becoming more forgetful and less energetic. She often feels alone but is grateful to have the company of Trixie and the few friends she has left who are still alive. She worries about falling and not being able to alert anyone to come to her rescue. Driving is becoming hard for her, and she finds getting to the clinic and picking up her medications more and more challenging, especially now that she doesn't have her own doctor anymore and she needs to go to the walk-in clinic.

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Erin Johns: [Photo](#) by [Pacian commonswiki](#) is used under a [CC BY-SA 3.0 Unported](#) license.

At Home

Day: 0

Time: 16h00

Place: At home

“Trixie stop barking,” Erin calls. She gets up from the couch slowly. “I can’t believe how tired I am.”

Taking a few steps towards the back door to let Trixie out, Erin stops at the corner of the kitchen island and puts a hand out to steady herself on the counter.

“Oh my. Can’t catch. My breath. Trixie. Stop barking.”

Remembering it was her late husband who took care of the dog, her eyes tear up slightly.

“I miss him so,” she thinks.

Moving toward the back door, Erin reaches down and lifts Trixie up onto the washing machine to place the leash on her.

“You stink, Trixie. Your bath will have to wait till I feel better. Not sure what is happening.”

Trixie, finally leashed, is lifted down and out they go through the back door into the cold winter air.

Erin gets down the steps and leans against the house to catch her breath. Meanwhile, Trixie relieves herself against a flower pot.

After about a minute, Erin begins to walk very slowly, with Trixie pulling on the leash. After about five minutes walking, Erin slows to a stop.

Looking back, Erin thinks to herself, “I have only walked about 50 meters. I am not sure I can even walk back to the house.”

Erin takes out her cell phone and calls her son at work.

“Thomas, I don’t feel well. You need to come home.”

“Mom, I’m at work. What’s up?” Thomas asks.

“I can’t. Catch. My. Breath. I think. I need. To go. To the. Hospital.”

“I will be there in ten minutes Mom.”

Day 0: Emergency Room

Day: 0

Time: 18h00

Place: Emergency Room Triage

Sitting back in her chair, Jackie sighs. “Wow, this has been a long shift. I’m exhausted.”

Looking up from the desk, she sees an old green Ford truck stop in front of the Emergency Room. From the passenger door, an elderly lady slowly emerges. Reaching back into the truck, she pulls out a very small dog and slowly places it on the ground.

The older lady makes her way slowly to the doors, with the dog trailing her on a leash. Once she is inside the doors, Jackie notes that the woman displays pursed lip breathing, has a slight blue tinge to her lips and a very slow gait.

Finally making it to the triage desk, the lady leans against the desk and sighs loudly.

Jackie comes out from behind the desk and moves a wheelchair close to Erin for her to sit in.

“Hi, my name is Jackie and I’m the triage nurse today. How can I help you?”

“Thank you. My name. Erin. I feel awful. Can’t catch. My breath.”

Jackie pulls the **blood pressure and pulse oximetry machine** close to Erin and wraps the cuff around her right arm. She presses a button and the cuff inflates. On Erin’s left index finger she places a pulse oximeter.

After about 30 seconds, the machine beeps and displays the following vital signs:

Day: 0	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 18h00	96	180/90	28	36.5° C	85%

Grabbing a clipboard with an emergency assessment record on it, Jackie fills out the initial vital signs.

Referring to the [Triage and Acuity Scale](#) along with the vital signs, Jackie grades Erin's condition as "Triage Level III – Urgent".

A tall middle-aged man in workman's clothes approaches the triage desk. "How is my Mom doing?" asks Thomas.

"I think it would be best if Mrs. Johns stays with us awhile and has a doctor take a look at her. I will make arrangements for a spot for her to stay once we get her admission paperwork done. Can you and your Mom answer a few questions from Denise, the clerk who is just to the left of my desk?"

Denise, the admission clerk, comes over and introduces herself to Erin.

"Good evening. My name is Denise."

"My name is. Erin. This is my son. Thomas," Erin states breathlessly.

"Ok. Thomas, can you wheel your Mom close to my desk so I can input her information into the computer, please? That way we can get her a space in the ER quickly and have a doctor see her as well."

Thomas pushes the wheelchair over to the admissions desk.

"Do you have your Care Card with you?" asks Denise.

Erin hands over her Care Card to Denise, who rapidly inputs the information into the system.

"I see, Mrs. Johns, that you were at a clinic last week. Is this correct?"

Erin nods 'yes'. Thomas explains: "They changed her puffers and said to come back if there was any problem."

Denise nods her head. "Make sure you tell the nurses that."

Denise then asks, "Do you see anyone regularly at the clinic?"

"No. I see whoever is available. They change so often."

Looking up at Thomas, Denise asks, "Can I have your contact information, Thomas, in case we need to contact you?"

Thomas recites his cell phone number and tells Denise that he currently lives with his Mom, due to a complicated divorce that has left him a bit depressed and short of cash.

Denise nods and inputs the contact information into the computer.

"Well, that is all I need right now. I have called for a porter and they will move you to a spot where the doctor can see you."

Denise watches as the porter comes up to both Thomas and Erin and begins pushing the wheelchair through the doors into the back area of the Emergency Ward.

Denise shakes her head slightly and wiggles her nose. She thinks to herself, "That dog needs a bath. Poor thing."

“Is this where. You are. Going to leave. Me. It’s a hallway!” Erin looks up at the porter pleadingly.

The porter looks at her. “You will need to wait here till there is a better spot for you,” and he walks away.

Erin pulls Trixie closer to her as she sits in the wheelchair. Thomas looks around at the chaos and sees people moving from curtained area to curtained area, all dressed alike in light blue scrubs. No one makes eye contact or even acknowledges them as the new arrivals.

Just as he is thinking this to himself, he feels a presence behind him. Turning around, he sees another nurse dressed in light blue holding a clipboard.

“Are you Mrs. Johns and her son, Thomas?”

Both nod affirmatively.

“My name is Jason. I’ve just come on shift. I see the triage nurse started your chart and that you have been admitted. What I need to do now is listen to your chest and ask you some questions. Is that ok?”

Jason watches both of them nod ‘yes’.

“Ok, then. Thomas, would you mind taking the dog outside so I can assess your mother?”

Thomas reaches down and gently extracts Trixie from Erin.

“Can you come get me after you’re done?” asks Erin.

Thomas: “Mom, I’ll walk Trixie and then put her in the truck. I have some biscuits that I can give her and she should be perfectly fine there.”

Thomas cradles the small dog, who begins to whimper quietly, and strides out through the doors to the emergency exit.

Jason pulls a chair closer to Erin. “I am going to ask you a few questions. This helps us to help you. Do you feel up to answering a few questions?”

“Yes.”

“When did you begin to feel short of breath?”

“About a week. Ago. I went. Clinic. Gave me new puffers. Seemed to help. Today. Walking Trixie. Cold out. Really short of breath. Called Thomas. Brought me here.”

Jason writes the information directly into the second page of the nursing record.

“The clinic notes indicate you have COPD. Is this correct?”

“Yes.”

“Do you have any other conditions?”

“No.” Erin smiles weakly. “Otherwise. Healthy.”

“Ok. That is enough right now. Let’s take your vital signs, and then I’m going to listen to your lungs and heart.”

Jason pulls the **vital sign machine** close to the wheelchair, attaches the BP cuff and the pulse oximeter, and presses the button.

As the cuff inflates, Jason looks carefully at Erin. He notes that her airway is patent and her breathing is rapid at 28/minute and appears shallow, with some nasal flaring.

The blood pressure cuff dings and the result appears on the screen.

“Ok Mrs. Johns, your blood pressure is higher than I would expect. Is this normal for you?”

Erin leans forward and peers closely at the numbers, “I think so. Top number. 150 to. 170. Normally.”

Day: 0	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 20h00	92	170/90	26	36.4° C	84%

Jason nods. “Your **oxygen saturation is a bit low**, so I am going to put you on a little oxygen. Is that ok with you?”

“Yes.”

Jason reaches over to draw in a cart from the hallway. He pulls out a set of nasal prongs and attaches them to an oxygen tank fitted at the back of the wheelchair. He **thinks to himself** and then sets the flow at 2 LPM.

“Let’s see if that helps with your shortness of breath. I’m now going to listen to your heart and lungs. I know we are in the hallway and I’ll do my best to not expose you. Are you ok with me examining you?”

“Yes. Not happy. In hallway.”

“I can understand that, but we’re very busy and I have no other place to give you. I hope this will only be for a couple of hours.”

Jason then carefully slips his stethoscope between Erin’s clothes and skin. Closing his eyes, he moves the stethoscope **systematically first to the anterior chest then posterior chest**. After listening, he quickly examines her abdomen and extremities.

“Ok, Mrs. Johns. I’m done right now. I see your oxygen levels appear to be a bit higher. Are you feeling a little less short of breath?”

“Yes, I feel a bit better.”

“Great! I am going to find the doctor and see what the plan will be for you. If you need any help, just wave your arms.”

Erin nods that she understands. Looking around, she shivers slightly at being sick and so exposed in the hallway. She watches Jason move towards the nursing station where there are two people who look like doctors. She thinks

to herself, “They look so young. How can they be doctors? I’m stuck in a hallway, can’t believe all the money we pay for taxes and this is the best they can do for me. When Thomas comes back, I’ll ask him to take me and Trixie home. This is ridiculous.”

Jason looks at the various people huddled around the nursing station.

He shakes his head slightly and mumbles, “Yeah, shift change for everyone.”

He walks up to Dr. Singh, whom he is most familiar with. As he approaches he hears Dr. Singh announce, “I’ll take the back rooms and the hallway patients. Stan, can you take the triage and trauma? I did that yesterday, and with that patient dying in the trauma room, I still have to sign off the chart and have a discussion with the coroner.”

Stan looks up at his peer. “Ok, but if it gets really busy, we’ll need to call someone in or you will need to help.”

Dr. Singh sighs. “If you need help, I will stay.”

Dr. Singh moves off to check the computer for emergency admissions and to start planning his shift.

Jason moves up beside him. “Can I interrupt?”

“Sure thing, Jason. What’s up?”

Trying to keep to **SBAR**, Jason says, “I just came on shift as well. New patient, Mrs. Johns, 72 years old, in Hallway B. Exacerbation of COPD, maybe pneumonia, no other medical history, **quite short of breath with low sats**. I placed her on **2 LPM prongs** with some relief and better sats. Breath sounds are quite quiet to the lower fields and she has a slight wheeze in the upper fields. She’s stable right now but I need some orders, please.”

“Ok, Jason. I agree that she’s stable right now, but with a big potential to deteriorate. I will follow the **COPD protocol** and write orders for a chest X-ray, some labs, puffers, **spirometry**, and an **ABG**. Let’s hold off on antibiotics till we have a firmer picture of pneumonia. I don’t want to overreact and prescribe something she doesn’t need right now. With her diagnosis and potentially **frequent antibiotic use**, we could set her up for a superbug. How does that sound?”

“I agree, and thank you. I’ll get the RT for the **ABG** and see if Medrad can do the X-ray portably.”

Dr. Singh pulls out a doctor’s order sheet. Jason places a sticker with Erin Johns’s identification on the top right corner.

Jason takes the orders from Dr. Singh and goes over to the unit clerk, Sheila.

Sheila looks at him with raised eyebrows. “I just got here, so please don’t tell me this is a long order set! My commute was terrible and daycare was late opening up. I already feel behind before I’ve even started.”

Jason smiles. “Aww, Sheila. I hate when my day starts like that. I once had to bring little Jim in to work when my daycare was late as well. Cathy picked him up a half hour into the shift. The orders are really short, as you would expect from Dr. Singh. Just what you need, no extras. Since you are settling in, do you want me to enter them into the computer?”

“That would be awesome!! I see Dr. Greg’s admitted a patient to 7B and the order set for that patient is seven pages. I would rather get started on that set, if you don’t mind.”

“No problem.” Jason moves away from the nursing station and signs on to a computer located just a few feet from Erin.

He types in all the information and generates the requisitions for the orders Dr. Singh wrote: CBC, lytes, BUN, creatinine, spirometry, and a portable chest X-ray, and medications as per COPD protocol.

Jason quietly moves towards Erin and notes that she is sleeping in the chair.

“Wow, I wonder when she last had a good sleep.” Jason gently touches her arm to wake her and updates her on her tests. He tells her that Dr. Singh will come by in a little bit, after the tests are done, to check on her.

Erin nods and then closes her eyes.

Place: Medical Laboratory

Alexa has just started her shift. Smiling inwardly, she thinks, “This is my third shift by myself after orientation. Can’t believe it. School does a good job of preparing you for the job, but nothing can prepare you for the work. It’s so busy. My feet already hurt.”

Straightening her scrub top, she leans over and double-checks her cart to make sure she has enough supplies to last the majority of the shift.

The lab supervisor approaches her. “Emergency is really busy right now. Would you mind going down there first before heading to the rest of the hospital? Sheila, the clerk down there, says there are about 20 lab reqs waiting.”

“Ok, I haven’t been there since I was a student.”

“No worries. James is already down there and he can help you out. He thoroughly enjoys the atmosphere of the Emergency.”

Alexa pushes her cart out of the lab area and heads to the elevator that goes to Emergency. She pushes the button for the Emergency floor and watches the buttons slowly creep towards that floor. Exiting, she pushes her cart up to the emergency staff doors, and taking a deep breath she pushes the button. As soon as the doors open, she sways back from the noise and the smells and the overwhelming sense of chaos.

“Oh my. Yep, school did not prepare me for this. Wow.”

Navigating her cart through the Emergency Department, she thinks to herself, “It’s just like driving in rush hour in a foreign country. There are rules but no one sticks to the lines.”

She quickly finds herself at the nursing station and moves towards the desk area where all the reqs are waiting. She notes that James has taken all the stat ones, as there is not one in the pile. Looking through reqs, she notes that they are all pretty similar and all the reqs have close to the same time on them.

“Ok, let’s start with this one,” she says as she places Erin Johns’s req on the top of her board. Looking at the req, she pulls out the appropriate lab tubes and labels them with Erin Johns’ stickers.

That done, she looks up. A frown creases her forehead, and she mumbles, “Hallway B. Where the heck is that?”

Jason, walking by, hears Alexa mumble and stops. “Hi, I’m Jason and Hallway B is my assignment. Who are you looking for?”

Alexa, looking somewhat sheepish, says, “I didn’t think anyone would hear me mumble in this noise.”

“It’s not so noisy and you do get used to it.”

“I’m looking for Erin Johns.”

“Erin is my patient. Let’s walk over here and down this corridor. I’ll introduce you. I haven’t seen you before. Are you new?”

“Yes, this is my third shift by myself after orientation. I’ve mainly been in the lab department or on the medical floors. I was in Emergency for some of my final preceptorship.”

“Excellent. This is a great place to work. Busy, but the people are knowledgeable and quite caring.”

As they move down the hallway, Alexa sees an elderly lady, still in her normal clothes and with a light blanket wrapped around her shoulders, sleeping in a wheelchair.

“Is that...?”

“Yes. That is Erin Johns.”

Jason moves confidently up to Erin and lightly touches her on the arm. Alexa notes that Erin’s eyes open quickly and they appear sharp and not withdrawn, like some of the patients she has seen.

“Mrs. Johns, this is Alexa, one of our lab technicians. She’s here to take some blood from you. Is that ok?”

Erin nods ‘yes’.

Alexa moves her cart closer. Looking at the req and then at Mrs. Johns, she says, “Can you tell me your name?”

“Erin Johns.”

“Your birthday?”

“06/06/19xx.”

“Excellent, thank you.” Alexa checks the identification band on Erin’s right wrist against the information on the requisition. Satisfied, she gathers the tubes, double-checks them, and picks up the venipuncture equipment and tourniquet. Following the [World Health Organization guidelines](#), Alexa prepares to take the required blood specimens.

Alexa first asks Erin to roll her sleeve up a bit more. Carefully putting the tourniquet around Erin's right upper arm, Alexa then swabs her inner antecubital space.

"Ok, this will pinch a bit."

Carefully sliding the needle under the skin, Alexa quickly finds the vein and pushes the first of three tubes into the vacutainer.

Once all the tubes are full, Alexa shakes them slowly and carefully to mix the blood and the anticoagulant. After that, she carefully places the tubes in the holder in the front of her cart.

"I'm all done, Mrs. Johns. I hope you feel better soon."

Alexa moves away and heads towards the nursing station. She looks down at the next req on her list and notes that it's not a hallway but a number. Looking around, she quickly finds number 12 and heads towards the next patient.

Place: Medical Radiography

Gurpreet checks the list of patients requisitions that need to be done. Looking at the list, she sees there are a number of emergency patients and floor patients. No reqs are marked as stat.

"Ok, looks like we need a porter."

Glen looks across the lobby from where he is sitting. "What's that, Gurpreet? Do you need me?"

"Sorry, Glen, didn't see you there. Yes, can you go pick up Mrs. Erin Johns from Hallway B in Emergency, please?"

"Yes, no problem."

Glen pulls himself out of the chair and strides through the double doors of the Radiology Department. Looking quickly up and down the hallway, Glen makes his way down the back stairs to the Emergency Department.

Glen has been working in the hospital for about 15 years and knows every short cut there is. Taking the stairs two at a time, he arrives at a little used doorway into Hallway B of the Emergency Department.

Walking up to the nursing station at the far end of the hallway, he looks at Sheila, the unit clerk. "Hi ya, Sheila."

"Oh, hi Glen. What can I do for you?"

"Oi, how about dinner?"

"That's not what I meant!" Sheila smiles at her boyfriend and winks at him.

"I'm here to escort Mrs. Erin Johns to the Radiology Department for a picture."

Sheila looks at her assignment list and finds that Jason is the nurse. "Ok, Jason is caring for her. And there he is talking with Mrs. Johns."

“Thanks. See you after work?”

“I’m done at seven. Come down here when you’re finished. We can share a bus seat home.”

Glen smiles and walks towards Erin and Jason.

“Hi, my name is Glen and I’ve been asked to escort Mrs. Johns here to the X-ray Department.”

Jason frowns. “Can’t that be done portably?”

Glen shakes his head. “Not my call. Gurpreet asked me to escort her to the department.”

Jason leans down and explains to Erin that she needs a chest X-ray to help them figure out why she is short of breath.

Erin, looking a bit more tired, says, “I’ve had quite a few of those. I’d be glad to get out of this hallway. It’s so noisy.”

Glen grabs the back of the wheelchair, quickly turns her around and points the chair out the door. Striding to the elevator, Glen recaps for Erin the weather outside, the hockey game, and recent city events. Erin sits in her chair and pretends to listen.

Glen and Erin roll through the doors of the Radiology Department to see Gurpreet standing at the desk.

“Here is Mrs. Erin Johns, from Hallway B in the Emergency Department.”

“Thank you, Glen. Can you place her in Room 2, please? I’ll be right behind you.”

Time: 11h30

Place: Emergency, Hallway B

“When will I get my results?”

Glen looks at Erin. “I’m not the one to ask, I’ll let Sheila know you are back, so the doctor and Jason can look at your picture.”

“Thank you.”

Glen walks quickly away to the nursing station to inform Sheila that the chest X-ray is completed.

Erin looks up and down the hallway and sees less activity and some empty stretcher bays.

“I do hope I can get a bed to lie down in,” she thinks to herself. “My backside is getting sore.”

Without realizing it, Erin closes her eyes. Suddenly she feels a touch on her hand. Startled, she gives a little shout.

“Oh oh oh, it’s ok. My name is Matt. I had no intention of scaring you. Wow. Really sorry, Mrs. Johns.”

“It’s ok. I didn’t realize I had fallen asleep.”

“I’m a respiratory therapist and a couple of tests have been ordered for you. One is [spirometry](#), which I think you have had before, from the results in your chart, and the second one is a blood gas.”

“Spirometry is the blowing test, right?”

“Yes, that’s the one. Shall we do that one first?”

“Ok.”

Matt opens a small plastic bag to retrieve a freshly sterilized kit tube with a gauge on it. He quickly describes what he wants Erin to do.

“Mrs. Johns, I’m going to ask you to take a deep breath and then blow it out as hard as you can through this tube. We’re going to do this three times to make sure we get an accurate measurement.”

Erin sits a bit straighter in her wheelchair and nods. “I’ll try my best.”

Matt hands Erin the device. “Good. Ok, take a deep breath, then blow through the tube.”

Erin does as instructed, three times. After each time, Jason records the results on the requisition for spirometry.

“Ok, that is now done. You did a great job, Mrs. Johns.”

Erin nods her head and smiles slightly.

“Next, I need to do an [Arterial Blood Gas or ABG](#), so I must draw a small sample of blood from your wrist. This is a bit more uncomfortable than having your lab work done.”

Erin looks up questioningly. “Is it necessary? I had a blood gas done before and it really hurt!”

“I’ll try my best to not hurt you, but it is uncomfortable. Which hand do you use the most?”

“I am right-handed.”

Matt gently grabs Erin’s left hand and bends her elbow 90 degrees. He then performs the [Allen test](#).

“Ok, ok, everything looks good, Mrs. Johns.”

Matt then rubs an alcohol swab vigorously across Mrs. Johns’ wrist. Then he waves his hand back and forth to disperse the smell.

“I need you to relax and stay still while I do this, ok?”

Erin nods nervously.

Matt, holding the syringe at a 45 degree angle, slips the needle under Erin’s skin. Quickly the syringe fills with red fluid. Matt then withdraws the syringe and holds a gauze over the site.

“That wasn’t too bad. You are very good at this.”

“I’ve had a bit of practice, Mrs. Johns.” While holding pressure on her left wrist, Matt deftly removes the needle from the sample and caps the syringe. After a couple of minutes, he asks Erin to hold pressure but not to peek and not to let go until he comes back.

Taking the sample, Matt goes to the back area of the Emergency Department and runs the sample through the blood gas machine. The machine quickly prints out the result.

Matt goes back to Erin.

“Ok, let’s look under the gauze.”

Matt see no bleeding but notes a small bruise at the puncture site. He places a small gauze over the site and wraps a small dressing right around Erin’s wrist.

“Please leave this dressing on. We can take it off later tonight, but I want to make sure you don’t get left with a big bruise.”

Erin nods.

Matt steps away to find Jason and show him the results from spirometry and the arterial blood gas.

Day: 0	pH	O ₂	CO ₂	HCO ₃
Time: 23h00	7.45	80	50	35

Matt finds Jason at the computer in the nursing station.

“Hi Jason, I have the results from spirometry and blood gases for Mrs. Johns.”

Jason, looks up, smiles and says, “Ok, anything special?”

“Spirometry shows a decrease in vital capacity from what was taken at the clinic a couple of months ago, with her FEV1 / FVC ratio < 0.7. That’s not surprising, given that she is back here. The ABG shows a rise in CO₂ and just normal PaO₂ on 2 LPM oxygen. She is a bit compromised right now. I took a listen to her chest a little while ago. She sounds typically COPD-like with nothing I didn’t expect.”

“Ok. Are the results on the clipboard?”

“Yes, and I hope you don’t mind that I entered the ABG in her chart as well.”

“You are awesome, I will go find Dr. Singh when I am done here and see what he would like to do, but my guess is she is staying the night.”

Day 1: Emergency Room

Day: 1

Time: 02h00

Place: Emergency Room

Jason decides to take another set of vital signs:

Day: 1	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 02h00	86	160/90	22	36.5°C	90%

Time: 02h30

“Dr. Singh, here are the spirometry results and ABG on Erin Johns.”

“Thanks.” Dr. Singh reviews the results and comes to the same conclusions as Matt and Jason. “Let’s look at her chest X-ray.”

Dr. Singh pulls up the [X-ray film](#) onto the computer and both lean in to view the black and white picture. Jason looks at the picture and then at Dr. Singh, thinking to himself that it looks like a normal X-ray except that the lungs look a bit long.

Dr. Singh, sighs, “Okay, the X-ray shows a small amount of infiltrates at the bases and your typical COPD hyperinflation. Nothing that I would consider abnormal itself, but when we consider the ABG and the spirometry all together, I would like to keep her overnight to see if she is going to get better or going to get worse. If it’s pneumonia, she will get worse overnight and the next day. If it’s just the cool weather we are having and nothing infective, she should get a bit better with some care and attention. What do you think?”

“Matt and I were having the same discussion. I am pretty sure I can find a bay for her to stay in. Question is, will she want to stay?”

“I’ll go talk to her.”

“Hello, Mrs. Johns, my name is Dr. Amir Singh. I am one of the many people here taking care of you.”

“Not sure about taking care of me. First I’ve seen of you.”

Dr. Singh smiles. “So true, I have been more in the shadows than caring for you directly like Jason here. Both Jason and I have reviewed your tests and we believe you should stay overnight with us. I don’t think it’s serious, and if you are able to get a reasonable sleep, a few more puffs of the meds I have ordered along with some oxygen, you may feel better in the morning.”

“I am feeling better. Not perfect. Can I have a bed? Can my dog visit me? Will someone call my son?”

Dr. Singh smiles. “Yes to all. I will call your son and let him know, and Jason here will find you one of our finest beds in Emergency.”

“Thank you.”

Dr. Singh then nods to both Erin and Jason and walks over to where a nurse is gesturing for him at Bed 3.

Jason bends down to be at eye level with Erin and says, “Give me a couple of minutes and I will find you a more private location.”

Erin nods and smiles. She grabs Jason’s hand and pats it kindly, like so many older ladies do with Jason.

After a discussion with the charge nurse and getting housekeeping to clean an area from a recent discharge, Jason is able to move Erin into the last stretcher bed farthest from the nursing station and the doors. It’s the most private location they have and a coveted location for staff to take their breaks.

“This should be a lot better for you. You need to let me know if you need to use the washroom as I will get another oxygen tank on wheels for you to use when you are up.”

“Thank you. What about my son and Trixie?”

“Dr. Singh and I updated Thomas. He is not going to come in tonight but will in the morning. He says not to worry about Trixie. Thomas said he was going to give her a bath and a meal and they were going to chill with some movies.”

“Oh she really needs a bath. Been feeling awful not to be able to do even that small task. Trixie likes to watch *Mad Men*. That Mr. Draper is such a scamp!”

“Ok, Mrs. Johns. One more set of vitals and then you can sleep. If you need anything please push the call button.”

Day: 1	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O2 Saturation
Time: 02h00	86	160/90	22	36.5°C	90%

Day: 1**Time: 07h00****Place: Emergency Room**

Dr. Notley is reviewing the list of patients to see this morning when he is approached by the charge nurse with a list of overnight patients that potentially could be sent home if everything is well.

“Can you look at these patients first? Let me know which ones can be sent home. Mrs. Erin Johns in the far room appears to be a little worse. We may need to find her a bed.”

Dr. Notley nods “I’ll see Mrs. Johns quickly and then take a look at the potential discharges. I trust your judgement so starting drawing up the paperwork on those patients so that when I agree we can move them quickly.”

Dr. Notley pulls up Erin Johns’s electronic record: Exacerbation of COPD, on 2 LPM nasal prongs, ABG shows higher than normal CO₂ and drop in PaO₂ with maybe something on the CXR.

Dr. Notley walks quickly down the hall to the last stretcher in the row of 20. Seeing the curtain partially open, he announces himself, “Good morning, I’m Dr. Notley.”

Jackie, the nurse taking care of Erin, waves him in.

“Hello Jackie, how are you doing?”

“Doing good, thanks. Right now, Mrs. Johns is not doing as well as expected. I was at the triage desk yesterday when she came in. This morning, I have increased her O₂ to 5 LPM and I’m asking the RT to come by and assess her for [face mask or Optiflow](#). I am not sure [which option is best](#).”

Her sats have stayed [90–91% on 5 LPM](#), work of breathing appears increased, and her breath sounds have [expiratory wheezes in upper fields](#) with [coarse crackles in lower fields](#).”

“That is a bit disappointing. How are you feeling Mrs. Johns?”

Erin looks at Dr. Notley and thinks to herself, *He looks exactly how a doctor should look, nice grey hair, pressed lab coat and a stethoscope around his neck.*

“I feel tired. Can’t catch breath. Can’t get out. Of bed. Had to use. Bedside commode. What is happening. To me?”

“Well, Mrs. Johns, that is a very good question. We anticipated that you would get better with additional puffers and a good night’s sleep. Obviously that has not happened. I am going to listen to your chest and then order some tests to help find out why you’re not feeling yourself. I expect that we’re going to have to start you on antibiotics and admit you to the medical floor for additional treatment.”

“I don’t want to stay here.”

“Mrs Johns, I would like you to stay. I know it’s challenging being away from family...”

“My dog, Trixie.”

“Yes our pets are family. You have a long term condition called COPD. I suspect that you also have [pneumonia](#) as well. If you go home, you will likely get worse.”

“You mean die!?”

“Yes, that could happen. I don’t ask my patients to stay without a good reason. Do you trust me?”

Mrs. Johns looks down and twists the white wrinkled bed sheet in her hands, “You do look. Like a good doctor. Ok. I trust you.”

“Thank you. I am going to listen to your chest now and then write some orders for tests, and talk with the medical team to get you a bed as soon as possible. Your stay may not be long with us if we can get the right treatment.” Dr. Notley lifts his stethoscope off his neck, places the ear pieces in his ears and gently places the bell on Erin’s chest. He listens methodically, [anteriorly and posteriorly](#).

“Thank you Mrs. Johns. Jackie and I are going to step out now and see a couple of other patients but we will be back.”

Jackie and Dr. Notley step through the curtain and make their way to an alcove to have a more private discussion.

“What do you think Dr. Notley?”

“I agree with you Jackie, Mrs. Johns looks a lot worse. Her chest sounds very congested and wheezy. O₂ requirements are going up. I expect she has [community acquired pneumonia](#). I would like to order another [CXR](#), [CBC](#), [ABG](#), and a [sputum sample](#). I’ll see if the lab has [the gram stain](#) on the earlier sputum sample which may help guide us. I will also order some antibiotics but will check with pharmacy to make sure I order the correct one. I will admit her and let the medical admit team know they have a new patient. Anything else you need?”

“That sounds good. I will have the RT get the ABG now so we can get the right [O₂ therapy](#).”

“Excellent. Your other two patients are on my discharge list. How are they doing?”

“Both are excellent. No complaints and both are already dressed and have called for a ride. They both need scripts for the meds that were ordered last night. Once you have seen them, I will move them to the waiting room so we can get the areas clean and ready for a couple of the hallway patients that need a spot.”

“Okay. Let me quickly see them. I’ll write the scripts and discharge orders so you can move them. Thank you.”

Dr. Notley heads over to Beds 18 and 19 to talk to the patients ready for discharge. Jackie waits for a bit in case he needs something and then moves off to the nursing station to page the RT.

Time: 07h30

Jackie sees Alexa come into the unit and quickly walks over to her.

“Hi Alexa, do you have a minute to check a patient with me and draw an [ABG](#)?”

“Oh, hi Jackie. Just give me a minute to finish running this blood gas and gather some stuff. I can meet you at the bedside. Which patient?”

“It’s Mrs. Johns in the back room.”

Alexa nods and rapidly walks over to the ABG machine to run the blood gas. Jackie turns and goes to Mrs. Johns’s stretcher.

“Mrs. Johns, Alexa, a respiratory therapist will be here shortly to assess you and draw a blood gas which will help us help you.”

“Ok. Had one. Yesterday. I think”

“Yes that is correct, and here is Alexa.”

Alexa places her hand lightly on Erin’s wrist to feel for a pulse and introduces herself. “Hi Mrs. Johns, I am Alexa, a respiratory therapist. I am going to listen to your chest, poke your wrist here for a blood test, and depending on the result, make some adjustments to your [oxygen therapy](#) before you head upstairs to the ward. Are you okay with that plan?”

“Yes.”

“You appear quite short of breath so I won’t ask you to move around a whole lot.”

Alexa checks the [oxygen flow](#), the position of the [nasal prongs](#), and [listens to Erin’s chest](#). Taking her right wrist, Alexa performs the [Allen test](#).

“Everything looks good. I am going to go ahead and do the test now.”

Alexa efficiently obtains the [ABG](#). Erin does not even flinch and is just lying back in her bed breathing rapidly.

“You did great Mrs. Johns. I am going to have Jackie hold your wrist for a few more minutes while I go and run this sample through a special machine.”

Jackie comes over and holds Erin’s wrist firmly to prevent bruising. Alexa moves off quickly to the blood gas machine.

A few minutes later Alexa comes back. She takes a look at Erin’s wrist and puts a light pressure dressing on it. She then shows Jackie the ABG results.

Day: 1	pH	O ₂	CO ₂	HCO ₃	SaO ₂
Time: 08h30	7.3	65	52	27	89

“Thanks Alexa, the CO₂ is about normal for Mrs. Johns with the COPD but the oxygen levels are much lower which is a bit concerning.”

“I agree, I think I will place her on [Optiflow](#) right now, and when she goes up to the floor ask whoever is covering

up there to take another look. I think we can follow just with monitoring her on the pulse oximeter and not require another blood gas until maybe tomorrow.”

“Sounds good to me.”

Jackie leans down and explains the plan to Erin who weakly nods her head.

Alexa moves off quickly to gather the Optiflow equipment and returns a couple minutes later. She sets up the humidifier and places the high flow nasal prongs in Erin’s nose. Making some adjustments to the flow, Alexa leans in. “How does that feel Mrs. Johns?”

“It’s a bit better. Thanks” Looking up at the SaO₂ displayed on the screen, both Jackie and Alexa can see the number increase to 93%.

Alexa listens to Erin’s breath sounds and finds no real changes.

“Ok Jackie, I think she is fine right now. Dr. Notley ordered a CXR and I think we should do it portably. I will call the department to ask them to do so. I think the transport to x-ray and back may be too much activity at this time.”

“I agree. I can call them if you wish?”

“No, I’ve got this. You probably have other things to do this morning.” Alexa indicates the two patients that need to be moved to the waiting room and have their discharge forms completed.

“Yeah. It is pretty busy but not too bad. Almost feels slow given how it was the last couple of days.”

Alexa smiles and moves towards the nursing station to call the X-ray department. Jackie walks over to the two patients waiting in chairs for their paperwork to be completed so they can leave.

Alexa Calls X-ray Department

“Hi, this is Alexa. I am the RT in the Emergency department. I think you have a req for a CXR for Mrs. Erin Johns?”

“Just a minute, let me check.”

Alexa hums a Drake tune to herself as she waits. Smiling to herself, she remembers his concert from last week.

“Yes, we have the req for Mrs. Johns. I was about to call for a porter for her as we are ready to take her picture.”

“We would prefer that it is done portably. I have just placed her on high flow and she is really short of breath. I am concerned that if we move her that she may deteriorate or worse.”

“Now we don’t want ‘or worse.’ I will mark that she is unstable and will ask the tech to perform the X-ray portably.”

“Awesome. Thank you!”

Alexa hangs up the phone and moves off to find Jackie to let her know.

Place: Medical Radiography

Serge looks at Emily, the unit coordinator for X-ray and frowns. “She can’t come to the department?”

“Yes, that’s correct. The RT says she is unstable and is concerned that she won’t do well being moved about.”

“Okay, I hope there is someone to help me out down there.”

“I am sure there is, Serge. Your back will be fine. You might want to think about a different sport to do on your days off. I saw the YouTube video of your rugby game that you posted. That game is violent. You took some pretty good hits.”

Serge smiles. “Yeah. My partner says the same thing, yet he comes to every game and cheers us on. I think he gets a kick out of seeing me being flattened on the field!”

Emily laughs. “I also like to see you flattened. Your expression after being run over is one of pure confusion, as in ‘How could this happen to me?’”

Serge laughs. “Okay, I can only take so much ribbing here. I’m off to Emergency. Sharon and Preeti are the only ones in the department right now. They are in the back helping out in Room 2 with a chest tube insertion. You can page me if anything comes in. They will probably be busy for another 30 minutes or so.”

Emily nods her head and goes back to the computer.

Serge heads quickly out the doors and takes the back stairs to the Emergency Department. In the alcove by the back stairs in Emergency is the portable X-ray machine. He grabs an unexposed plate and places it in the cassette bin on the back of the machine. He then checks the charge and pre-sets a chest technique of 85 kvp and 5 mAs before unplugging the machine. He navigates the X-ray machine to Erin’s stretcher. Looking at the requisition for the reason for the exam, he thinks to himself, “SOB. Not much of a history.” Driving the X-ray machine to the end of the bed, he pulls out the X-ray tube to point towards his client.

“Good morning, Mrs. Johns.” While reaching to read her name band, he continues, “My name is Serge and I am going to take a picture of your chest today.” Serge notes the large nasal prong Optiflow and then looks at the SaO₂ on the screen and sees the number in the low 90s. *Ok, that is not bad, but not great*, he thinks. *I can see why they asked for a portable.*

Erin weakly opens her eyes to see a very large man with a jet black beard holding what looks to be a rectangular metal board. *Looks more like a lumberjack than anything else*, she notes. *What is he going to do to me?*

Erin turns her head a bit more towards Serge. “What?”

Serge smiles broadly “Mrs. Johns, I am going to take an X-ray of your chest. Dr. Notley has requested this test to help us help you.”

“Ok, that makes a bit more sense. I am feeling. Very tired so. What do you need. Me to do?”

“Oh nothing. You just relax there in bed. Who is your nurse today?”

“Jackie.”

“You are kidding right? Nurse Jackie? Like the TV show?”

Just then Jackie comes up behind Serge and rests a hand lightly on his elbow. “That’s right, just like the TV show. Do you want my autograph?”

Serge quickly turns around. “I was just kidding!” Jackie looks at him sternly for about 10 seconds then breaks into a smile. “You cannot believe how often I hear that comment. I wish that damn show never was on TV.”

Serge visibly relaxes. “Can you help me position Mrs. Johns so we can get the best picture possible?”

“Would be happy to do so. Thanks for doing this portable. I am not sure that she would have tolerated going to the department.”

“We are a bit short-staffed today so it’s a bit of a stretch for us, but yes, I can see why you asked.”

Turning his attention back to Mrs. Johns, he says to her, “We are going to get you sitting up straight in your stretcher. Looks like you’re high up enough on the bed that we don’t need to boost you.”

Serge and Jackie position Erin into [high fowlers](#) and place the X-ray plate behind her back. “This is a hard board, but it won’t be for too long.” From the side of the stretcher, Serge reaches around Mrs. Johns to make sure there is enough of the [Imaging Plate \(IP\)](#) on both sides of her and above her shoulders. “Try your best to hold still.” Serge walks back to the portable X-ray machine to adjust his pre-set technique to 90 kVp @ 3.2 mAs to hopefully compensate for her SOB. *That should give a faster exposure*, he thinks. Meanwhile, Mrs. Johns wiggles from the discomfort of the plate, and the IP slips down from where Serge had placed it. He does not notice.

“Okay Mrs. Johns, I’m going to take that X-ray now. Hold still.” Serge reaches for the lead apron hanging on the portable machine. He opens the collimation wide and adjusts the tube head to match his IP. Speaking very loudly, he calls out, “X-ray, Bed 3!” On cue, Jackie and all the other personnel scatter. Turning back towards Mrs. Johns, he says, “Breathe in. Mrs. Johns, take a breath in!” Serge watches her chest fall and rise, and takes the X-ray on what he hopes is inspiration. “X-ray clear!” He pulls Mrs. Johns forward on his own, and slips out his plate. “I’ll sit you back a little. Let me know when...” He starts to bring her head down until she nods.

“Thanks Mrs. Johns. I am all done now. Dr. Notley should have the result in a few minutes. Thanks, Nurse Jackie.”

Jackie scowls at Serge and lightly punches him in the arm. “Be careful now. I saw that YouTube video of you playing rugby. I could see me cheering-on the opposing team.”

Serge rolls his eyes. “Who hasn’t seen that video? It’s going to haunt me for a long time.”

“No longer than the Nurse Jackie show for me.”

Serge smiles and backs the portable X-ray machine away from the bedside and navigates it back to the alcove. He plugs it in and readies it for the next use.

Opening the back stairwell door, he take the stairs two at a time back to the department.

Place: Medical Laboratory

Alexa, who was the lab tech on duty yesterday, checks the list of patients she was just handed by the unit coordinator. *Wow, I got Emergency again*, she notes to herself. *This is either going to be a good day or not*. Looking through the list, she sees the familiar name of Erin Johns. “I wonder how she is doing? I think I will go see her first.”

Alexa pushes her white cart to the elevator and makes her way to the Emergency Department. Checking in at the nurses station she confirms that Erin Johns is still in Emergency and that she is in the back area.

Alexa proceeds to Erin’s bedside and looks behind the curtain to see the elderly woman sleeping. Moving towards her, she touches Erin’s hand only to see her startled.

“What now? Who are you? Where am I?”

“It’s okay Mrs. Johns. My name is Alexa and you are in the hospital. Dr. Notley ordered some lab tests for you and I am here to [draw them](#).”

“Oh, you are the girl from yesterday.”

“That is correct.”

“You were so gentle; what do I need to do?”

“Just relax, Mrs. Johns. I need to check your ID band and ask you some quick questions.”

Alexa checks the ID band against the requisition and the blood tube labels and sees that everything is correct.

“Can you tell me your birth date?”

Erin recites her birth date easily to Alexa.

“Excellent. Can you tell me your middle name?”

“That must be a trick question. I don’t have a middle name.”

“Yes. I need to confirm that you are who you are and not someone else. This makes sure that the test is done on the right person.”

Erin nods her head. Alexa wraps a tourniquet around Erin’s right upper arm. She assesses the [brachial vein](#) and sees it stand out after a few seconds. Nodding to herself, she reaches back into her cart and gathers the correct tubes. “This is going to feel like a pinch. Are you ready?” Erin just nods. Alexa quickly inserts the needle into the vein and fills each of the tubes. Releasing the tourniquet she places a cotton swab on Erin’s puncture wound. “Please hold here, Mrs. Johns. I just need to label your tubes.” After labeling the tubes, Alexa checks the site and sees no further bleeding. Alexa places a small round band-aid on the site. “All good. You okay?”

“Yes I am fine for being locked up in this place.”

Alexa nods and turns to cart and leaves Mrs. Johns.

Time: 09h30

Dr. Notley approaches Jackie. “Okay, the medical team has accepted Erin Johns. Can you get her ready to go to the 7th floor? She will be under Dr. Honicutt’s team.”

“She is pretty well ready to go. I need to fill out her transfer assessment information and gather any belongings. She has been asking when she can get out of this noisy place.”

Dr. Notley smiles and turns to the unit coordinator. “Can you ask for a porter to help Jackie take Erin Johns to the floor please?”

“Glen will be back from Diagnostics shortly and he knows to check with Jackie next about the transfer.”

“Excellent. Okay, I am off to the triage desk to see who will fill that stretcher.”

“Thanks.” Looking at the unit coordinator, Jackie asks, “Can you hand me up one of those transfer assessment forms please?”

“Sure thing.”

Jackie takes the form handed to her, reviews the notes and Erin’s chart, and fills it out quickly, remembering to include the son Thomas’ cell phone number and Erin’s concern about her dog, Trixie. “I will have to include that she wants her dog to visit as well. Not sure about the policy up on the 7th floor with dogs. Anyway they will figure it out. Oh, almost forgot—better find Alexa the RT so she can get the O2 tank.”

Jackie walks back to Erin’s stretcher to find Alexa already with a portable tank and setting it up.

“I was just going to page you to see if you knew about the transfer.”

“A little bird by the name of Glen let me know that this may be happening. I will go up with Glen and transfer my notes over to the floor RT so they are aware to check in on Mrs. Johns often.”

Jackie smiles. “Glen always seems to know when things are happening. He’s the one who showed me the video with Serge taking that hit.”

“Mrs. Johns, in a few minutes, Glen and Alexa are going to take you up to the 7th floor. You will be in a semi-private room, meaning that you will have one other person with you. I will phone your son so he is aware of your move.”

“Can my dog visit?”

“I am not sure; you will need to ask the nurses up there.”

Erin looks a bit disappointed and sinks back into her pillow.

Just then Glen comes around the corner “All ready to go?”

“Yes, here is the transfer assessment, and Alexa will report to the floor RT. Let them know all the latest results are in the system. Here is her bag of meds. I have started the antibiotic, and it’s infusing on the pump.”

“Okay, sounds good. Leave her to us, she is in good hands.”

“Take care Mrs. Johns.” Jackie watches as Glen pushes the stretcher out of the Emergency Room towards the patient elevator. She notes to herself, “She does not look happy but does look slightly better with some oxygen on. Ok, I wonder who will be taking her place?”

Jackie turns around and heads to the nursing station to find out who will be filling the stretcher.

Day 1: Medical Ward

Day: 1

Time: 10h30

Place: Medical Ward (Seventh Floor)

As the elevator doors open, Erin is greeted with a view that overlooks the city. Erin sighs, “Oh, I so wish I could be out there rather than here. I wonder if my room will have this view.” Glen grunts as he pushes the stretcher over the gap between the elevator and the door. Alexa follows him as he weaves past visitors and other professionals waiting for the elevators.

At the nurses’ station, Glen announces that Erin is the patient from Emergency. Tracie, a new BSN graduate, stands up from the computer screen. This is just her tenth shift on the seventh floor. “Hi Glen. Mrs Johns is going to be my patient. I have prepared Room 712 for her and she will be next to the window, in Bed 1.”

“Awesome. Okay Mrs. Johns, let’s get you into your room.”

Glen, with Alexa and Tracie following him, pushes the stretcher part-way down the hall to Room 712. Sliding it easily past the patient in Bed 2 he maneuvers the stretcher right beside the bed and locks the wheels. Alexa and Tracie go to the other side of the bed and all three [assist](#) Erin to move across to her new bed.

“Oh my. [I can’t. Catch my. Breath.](#) Help. Me.”

Alexa steps towards the bed and moves the oxygen tubing from the portable tank to the wall outlet. “Mrs. Johns, I want you to try to take some deep breaths through your nose and blow out through your mouth. Slightly close your lips together like you are whistling.”

Erin takes a deep breath in through her nose and breathes out through her partially closed mouth.

“Very good, Mrs. Johns. Keep going. Another breath. Excellent.” Alexa watches the SpO₂ monitor move from 88% to 93% with Erin taking slow deep breaths.

“How do you feel now?”

“Really tired but I can. Catch my breath now. Thank you.” Erin reaches her hand out and gently touches Alexa’s hand. Alexa smiles back and pats Erin’s hand a couple of times.

“Mrs. Johns, my name is Tracie and I will be the nurse caring for you. I am going to step outside and review your chart so I can plan your care and then I will be back in a few minutes. Do you need anything right now?”

“No, but can my dog visit me here?”

“Yes, we do allow pets during the evening visiting hours as long as your roommate in the bed beside you is okay with your dog coming in. I will check with him and see if there are any patients with allergies to pets on the unit.”

“Very good, thank you.”

Tracie and Alexa step outside the room, followed by Glen pulling the stretcher out, only banging the wall lightly as he pulls it around the corner of Bed 2.

Alexa speaks. “Okay Tracie? I have placed Mrs. Johns on opti-flow and her Sats are pretty good when she does not exert herself. Orders are to keep Sats above 93%. I will talk with the RT covering this floor so they can come by and see her frequently.”

Tracie flips through the papers from Emergency including the transfer form. “Looks good. I do have one question though. Why did you ask her to breathe through closed lips like whistling?”

“That is called [pursed lip breathing](#). Some patients with COPD do it naturally. It helps keep the alveoli open and prevents them from collapsing and making her oxygenation worse.”

“Oh, I sort of remember that from school. I will have to look that up. Thank you.”

“Okay, if you need anything, please call the floor RT and they will come and help out.”

“Will do.” Tracie moves back to the desk to review the chart, lab work and other tests. She notes that the antibiotics have started and the next dose according to the transfer form is in four hours.

“Ok, everything looks fine right now. I need to start the admission assessment.”

Tracie gathers the vital sign machine and her stethoscope and heads to Erin’s room.

“Hi Mrs. Johns, I would like to have a closer look at you and take your [vital signs](#). Is that ok?”

“Yes, I have nothing else to do. I am feeling better.”

Tracie attaches the blood pressure cuff to Erin’s arm, places the pulse oximeter on her finger and then inserts the temperature probe under her tongue. While the machine is humming, she looks critically at Erin and thinks to herself: *It looks like she is breathing a bit faster than normal, chest expansion seems symmetrical, she has a bit of nasal flaring.*

The vital signs machine beeps and Tracie records all the vitals onto the admission assessment.

Day: 1	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 18h00	96	180/90	28	36.5° C	85% on Optiflow

“Mrs. Johns, I need to lift up your gown a bit and listen to your heart and lungs.”

Erin sighs and pulls her gown out from under her. Tracie systematically **listens** to Erin’s heart and lungs, and records her findings along with the respiratory rate onto the admission assessment form.

“Thank you Mrs. Johns. I am almost done. Can you tell me your birth date, day of the week, and who is prime minister?”

Erin answers each of the questions and tells Tracie she knows she is in the hospital. Tracie goes on to **fully assess** Erin and record her findings on the admission assessment form.

“Ok, thank you. I’m all done right now. Do you need anything?”

“When is lunch?”

“It should be coming up anytime now. I think I heard the lunch cart in the hallway so you should be getting it soon.”

“Thank you. I don’t need anything right now.”

Day 2: Medical Ward

Day: 2

Time: 07h00

Place: Medical Ward

Tracie walks into the nursing station and heads to her usual chair. She moves the assignment book towards her and see that she has the same assignment as yesterday. *That's ok, she thinks. At least I know the patients.* She looks up at the patient board and sees that there have been only two admissions since yesterday and one discharge. "Looks like it could be a busy discharge and admissions day."

Jim comes down and pulls his chair close to Tracie's "Hi Tracie, how's it going?"

"So far so good, how was your night?"

"Night was quiet. Mrs. Johns required some adjustments in her Optiflow which the RTs took care of. Mr Alex had a bit of [sundowner syndrome](#) and was quite restless, but otherwise the night was pretty quiet."

"Great. Ok, let's do the report so you can get home."

"Yeah, I have to get out of here quick. I'm taking the kids on a field trip later in the afternoon. Twenty-six Grade 2 kids. I can't believe I volunteered to chaperone after a night shift."

Tracie laughs, "Lucky you."

Jim then walks Tracie through the night and updates her on changes to her patients. After reporting, Jim heads out, while Tracie quickly looks through the charts to plan her morning.

Tracie notes she has a lot of 08h00 medications so decides to [prepare these meds](#) and then do her patient checks at the same time.

Tracie makes her rounds and drops off all her medications. With that done, she notes to herself, *Everyone seems all right now, having breakfast. I didn't see any issues off the top. I'll give everyone a few minutes and then do vitals, assessments and discharges.*

Tracie sits down to check the RT's note on Erin Johns when Erin's call bell rings. She gets up from her chair and walks down the hallway to her room.

"Hi, Mrs. Johns. How can I help?"

"I can't catch my. Breath. I took. My oxygen off. Just to eat. Put it. Back on. I am. Short of breath."

"I want you to take some deep breaths. In through your nose and out through your mouth. Remember to close your lips slightly as you breathe out. I'm going to get the vitals machine and be right back."

Tracie grabs a vital signs machine from the hallway charger and brings it into Erin's room to take her vital signs.

"Ok, let's start checking you out." Tracie wraps the blood pressure cuff around Erin's left arm, pulse ox on the right forefinger, and temperature probe under the tongue. About 30 seconds later she notes that the blood pressure is up a bit and oxygen saturation is down. Temperature is unchanged with the same low grade fever. Respiratory rate is up as well and heart rate is above 110. *This is not going in the right direction, she thinks. I may need the RT to come see her.*

Day: 2	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O ₂ Saturation
Time: 07h30	112	165/90	22	36.5°C	83% on RA

"Ok, Mrs. Johns, let's listen to your heart and lungs."

Tracie **systematically auscultates**, thinking, *Not any change from what I remember from yesterday.*

"How are you feeling now?"

"A bit better. Not great."

"I'm going to ask the RT to come and see you right away."

"Oh my. Am I dying?"

"Gosh, no, Mrs. Johns. The respiratory therapist is here to help both you and me. They manage your oxygen and help you with breathing."

"Oh. Good."

"I will be right back." Tracie moves quickly out to the main hallway to the nursing station. She then asks for the RT to be paged and to come to Erin John's room.

The unit coordinator looks up. "What should I tell them?"

"Mrs. Johns is quite short of breath and has **low sats on Optiflow**. I'm not sure what to do next."

"Done. If they have any further questions, I'll transfer their call to the phone outside the room."

"Thank you."

Tracie heads back to Erin's room.

Tracie has the vitals machine do another cycle of vital signs but not the temperature. She reads the machine, thinking, *Heart rate is down to slightly less than 100. Respiratory rate is still up and sats have only improved slightly.* Tracie records all this information and her assessment into Erin's chart. Just then Alexa, the RT, enters the room.

Day: 2	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O2 Saturation
Time: 07h45	98	165/90	22	—	85% on Optiflow

"Hi... Tracie?"

"Yes, you remembered. So you must also remember Mrs. Johns."

"Yes I do, so her sats have not improved? You asked her to deep breath like yesterday?"

"Yes. She has improved slightly but not very much with the deep breathing."

"Ok, let's take a look. Hi, Mrs. Johns do you remember me?"

"Yes, you were. In Emergency?"

"That is right. I understand you are a bit short of breath?"

"Yes. A bit more. Than just a. Little."

"Ok, I'm going to listen to your chest and then I may have to take some blood from your wrist again."

Erin just nods. Alexa methodically [assesses](#) Erin's [respiratory system](#).

"Ok, Mrs. Johns, your breath sounds don't seem much different they did in Emergency, but obviously you are not feeling your best. I think I am going to have to change your oxygen treatment to a [face mask](#). Have you had a face mask before?"

"No."

"It's a mask that covers both your mouth and nose. It allows me to give you a bit more oxygen than the system you are currently on. I am going to get the equipment to do so and we will see how you do with the new oxygen treatment and whether you need another needle poke in your wrist."

Alexa steps out to the storeroom and selects a [high flow mask with humidifier](#). Back in Erin's room she sets the equipment up and turns the flow meter up as high as it goes. Looking at the humidifier bottle, Alexa notes a good amount of bubbling.

"Mrs. Johns, I'm going to take away those nasal prongs and place a mask on your face."

Alexa then confidently changes the therapy and places the high flow mask on Erin.

“Now take some deep breaths slowly, and blow out through your mouth. How does that feel now?”

“A bit better. Thank you.”

Turning to Tracie, Alexa states: “I have placed her on .65FiO2 high flow face mask. Can you do another set of vitals for me?” Tracie hits start on the vitals machine.

Both health professionals and Erin look at the numbers as they appear on the screen.

Day: 2	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O2 Saturation
Time: 08h05	98	165/90	22	—	092% on High Flow FM

“Ok, Mrs. Johns, your oxygen level is better and your other vitals look the same as they did when I first came on shift. Are you feeling better?”

“Yes thank you.”

Alexa looks at both Erin and Tracie. “I have another patient to see next door but before I leave I will come back and see how Mrs. Johns is doing.”

Tracie nods and follows Alexa out of the room. “What do you think is going on? Why did her saturations drop, Alexa?”

“Her pneumonia might be progressing a bit. Sometimes that happens even with antibiotics. Antibiotics take about three days to really work well. In the meantime if she could stand it, we should see if Physio can see her and maybe get her moving, which will help with chest expansion. One of the worse things to do is to just lie about. Is she due for a CXR?”

“Yes, I saw that she will be getting one around 2 PM this afternoon. Can she go down with that mask on?”

“No problem. I will make sure there is a full tank available. Tony is the RT in Emergency and he also covers X-ray if need be. I will let him know in case there is an issue while she is down there.”

“Ok, I will talk with the doctor about a physio order and let him know you have adjusted her O₂.

“Thanks. I will look in on her after I see my other patients on this floor. If her sats stay up where they are, I don’t believe she needs a blood gas.”

“Awesome. Ok, see you later.”

Time: 09h00

“Hi Dr. Hunicutt, I’m Tracie. One of my patients, Erin Johns, is under your care.”

“Aw, yes the older lady with COPD and pneumonia. How was her night?”

“Night was pretty good, needed some adjustment on her Optiflow but otherwise slept well. My concern is what

happened this morning. She became quite short of breath and anxious. I called the RT and we made some adjustments and moved her to high flow face mask at .65. Sats responded and she improved to 93% and has stayed there for the past hour. Appears quite relaxed now. No other changes in breath sounds or temperature. Very little sputum production.”

“Very good. Let’s go and see her now and see if I need to make any further adjustments.”

Both Tracie and Dr. Hunicutt walk down the hall to Erin’s room. As they enter, they see Erin sitting in bed with a green oxygen mask on, flicking through the TV channels.

“You have a lot more channels than I do at home, but nothing is on. This darn mask blocks some of my view as well. How much longer do I keep the mask on?”

“Hi, Mrs. Johns, my name is Dr. Hunicutt, and I am the doctor helping to care for you. I see you are less short of breath right now. Would you mind if I listen to your chest?”

“Sure, but I am feeling a bit tired of all the people looking at my chest.”

“I understand Mrs. Johns, but this is one way we can assess how well you are doing and if we need to change treatments.”

Dr. Hunicutt takes his stethoscope out and systematically listens to Erin’s heart and lungs. Then he proceeds to examine the rest of Erin.

“Very good. Thank you, Mrs. Johns.”

“If it was very good, I wouldn’t be here.”

“My apologies. It is ok. Your lungs are not the healthiest due to your COPD, and by listening to your chest I can see that you do have lots of [consolidation](#) in both lower lobes.” Dr. Hunicutt points to where he heard the [bronchial breath sounds](#).

Erin looks down at her chest to see where Dr. Hunicutt is pointing. “Oh my, that is about half of each lung.”

“That is about right. Not all is lost. I believe you are on the right antibiotics. We are still waiting for the sputum test to tell me that, and you will also get a chest X-ray today to confirm that the pneumonia is not spreading more. Tracie, is there something more you would like to do for Mrs. Johns?”

“I would like to have Physio come and see her and get her moving a bit more.”

“I think that is a very good idea. I will write the order. They may not come today, but that doesn’t mean Mrs. Johns cannot [sit in a chair or stand at the bedside](#). I don’t want her doing too much, but she does need to move a bit more.”

“We can do the chair. What about bathroom?”

“Commode at bedside until she is below 50% oxygen. Anything else?”

“Alexa the RT said she would wait to do another blood gas as her sats are ok right now.”

“I agree. But I will write an order for another blood gas tomorrow morning to see how we stand with CO₂ and PaO₂. I want to ensure that her COPD is not getting worse as well. At this point, our other option is BiPAP which I’m pretty sure Mrs. Johns will not be happy with, so let’s see if we can manage her without going to intensive care.”

“Thank you. I think that will do. Mrs. Johns, do you have any questions?”

Erin, looks back at them from the TV. “Can my dog visit?”

Dr. Hunicutt looks at Tracie who shrugs her shoulders “Yes I think that will be ok as long as it’s well behaved and ok with your roommate to have her in this room.”

“Trixie is very well behaved and a small dog. She will be so pleased to see me.”

Both Dr. Hunicutt and Tracie smile, nod at Erin and leave the room.

Outside the room, Dr. Hunicutt asks if anything else needs to be done. Tracie points at a couple of other rooms where she has patients and explains that two patients need discharge orders, and two others need lab work looked at, as pharmacy is stating that antibiotic coverage may not be appropriate. Dr. Hunicutt nods his head and gives her the thumbs up sign as he heads to the chart rack to begin the process of discharge and looking at labs.

Tracie begins the process of recording the interaction with Dr. Hunicutt and Erin.

Over the course of the day, Tracie was able to get Erin up twice to the bedside commode and twice to a chair for 30 minutes each time. Erin’s saturation stayed stable along with her other vitals signs.

When the shift changed rolled around, Tracie was very happy to see Jim come into the unit. “Wow, I did not think I would see you tonight.”

“Me neither. They called me for overtime during my chaperoning of a school trip.”

“Man, you must be exhausted.”

“Yeah but no more than usual. Got some shut-eye before coming in. Anyway, how was your day?”

Tracie gives an overall report of two discharges and two new admissions. She updates Jim on changes to Erin’s oxygen levels and her increased orders for activity.

“Awesome. Thanks. Will I see you in the AM?”

“I believe you will. I’m doing four days in a row. I traded my night shifts so I could attend a play with my husband. We have had so little time together with him finishing his PhD, and my shift work. He promised not to talk research, and take me out on a real date if I would change my night shifts.”

“Wow, I am so jealous. Well, have a good sleep and we will see you in the morning.”

“Good night.”

Day 3: Medical Ward

Day: 3

Time: 07h00

Place: Medical Ward

Tracie walks slowly up the walkway behind a patient in a walker entering the hospital. She remarks to herself, *Wow. My third day-shift. I didn't think I would miss the changeover time to nights.* “Here, let me get the door for you,” Tracie says as she opens the door for an elderly patient who then asks directions to the Ultrasound Department. Tracie points him in the direction of the Diagnostics Department and explains that he can follow the blue line right to the check-in desk.

Tracie turns in the opposite direction and enters the elevator that takes her to the seventh floor. The doors open, and she is greeted with the familiar disinfectant smells. Walking quickly to the staff room, she shrugs out of her coat and puts on her duty clogs. Looking in the mirror, she moves errant hair strands behind her ears and runs her hands over her uniform. “I guess I am ready. Let’s go see if anything has changed overnight.”

Walking out of the staff room to the main nursing station, Tracie finds Jim finishing off his night’s charting.

Jim looks up. “Wow, I am glad to see you.”

“Ok, that answers my first question. I have the same assignment as yesterday?”

Jim smiles. “Yes you do. I asked specifically to keep you with the same group of patients as you know them and it will provide some consistency.”

“Are you ready to hand over to me?”

“Just give me a minute to finish this last note and chart my meds that I just gave to Room 5. It has been very busy and I have not really had a chance to sit down all night.”

“Ok, I am going to grab a glass of water. I’ll be right back.”

A few minutes later, Tracie sits down beside an obviously exhausted Jim to get the handover report.

“Where to start? Let’s start with Mrs. Erin Johns if that is ok?”

“Sure. I am hoping she had a quiet night.”

“Yes, she had a better night than her roommate and some of the other patients on the floor. Last night we needed to adjust her oxygen up as her sats went to 90% and even dropped further with movement. The RTs saw her a number of times, but elected to not do an ABG at this time.” Jim points at the vital signs flow sheet. “Her heart rate, temp, and BP are up slightly from what you recorded yesterday. Ins and outs are even balance. She was a bit happier at visiting time when her son and dog visited, but then became quite tearful when they left. She is due for lab work this morning, a CXR and potentially an ABG, especially if you can’t decrease her oxygen.”

“If I remember correctly, the Physio will also assess her. Is she still on [IV antibiotics](#)?”

“Yes, it’s only day two and we have no results from the sputum sample in the system. We could be changing them tomorrow if we get the culture/sensitivities then. Her next antibiotic is due at 10 and she has some other meds at 08h00.”

“Great, who is next?”

Jim then goes through the rest of the patient assignment.

Leaning back in his chair, Jim rubs his hand through his closely cropped hair. “That’s it for me. I’m going to change into my gear and cycle home in time to take the kids to school. Any questions?”

“Nope. Have a good sleep.”

“See you tonight. I’m scheduled to come in.”

“Awesome.”

Jim walks quickly to the staff room and disappears through the door. Meanwhile, Tracie takes a quick look through her patient charts to plan her priorities for the day.

“Bed 5 is ready for discharge, so should be ok for the next little bit. Beds 6 and 7 had a rough night. I will see them and then be off to check on Mrs. Johns.”

Sighing a little as she stands, Tracie heads off to Bed 6.

Time: 08h15

“Good morning Mrs. Johns, how are you doing?”

Tracie looks towards Erin and sees a very sleepy elderly woman. *Wow, she looks like she has aged even more since yesterday.*

Erin looks up and attempts to say something but it comes out as “Argg argg.” Her voice muffled by the mask and the sound of the bubbling from the humidifier.

Tracie furrows her brow. *Hmmm. I wonder. That does not sound right.*

She pulls the vital sign machine up to the bedside and hooks Erin up. Immediately she notes that Erin's oxygen saturation is down again to 90%, then thinks to herself, *Ok, I am going to have to call the RT. May need to adjust her FiO₂.* About a minute later the machine beeps and the vitals are displayed on the small screen. Tracie records them on the vital sign flow sheet.

Day: 3	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O2 Saturation
Time: 08h00	96	170/90	22	36.5°C	90% on FM

"Mrs. Johns, I am going to listen to your lungs and heart."

Erin nods her head, "So tired."

Tracie places the stethoscope in her ears and the bell against the Erin's chest. She quickly moves the bell around on Erin's chest in a systematic manner. Standing up straight, and stretching her arms out after leaning over the bed, she thinks, *There seems to be a bit more coarse sounds mid to lower field bilaterally. A few wheezes on expiration. Heart sounds are normal.*

"Mrs. Johns, I am going to give you some **Ventolin** and ask the RT to come and see you to make sure you are on the right oxygen setting."

Erin looks up and just nods.

Tracie heads over to the nursing station and asks the unit coordinator to page the RT for her.

A few minutes later, the RT, Herman calls back.

"Hey, this is Herman, I am the RT covering the floors today."

"Thank you for calling back so quickly. Did you get report on Mrs. Erin Johns?"

"She the lady on the seventh floor with pneumonia and COPD, and on high flow face mask?"

"Yes, that is Mrs. Johns. This morning when I assessed her she complained of being tired. Sats are around 90%, RR is up slightly along with HR and BP. Breath sounds are a bit coarser in the lower fields with wheezes on expiration in the upper. I have just started her on some Ventolin. I am not sure about adjusting her FiO₂ further or whether her COPD is getting worse which is causing her to feel tired. There is an order for an ABG if there is a change in patient's condition. I would like you to come and see her."

"Sounds like I should pop up there. I am seeing a patient on the fourth floor right now and titrating his oxygen. Can you wait about 10 minutes?"

"I can. I am pretty sure Mrs. Johns will be ok as well. I will recheck her saturations after the Ventolin treatment."

"That's an excellent idea, I will be up as soon as I can."

"Thanks." Tracie hangs up the phone. Pushing back the errant hair strands behind her ears, she stands up and

heads down the hallway again to Mrs. Johns's room. Entering the room she finds a very tall, fit woman leaning over the bedside of Mrs. Johns.

"Can I help you?" Tracie asks.

"Hi, my name is Gladys. I am a Physio student doing a preceptorship, and Mrs. Johns's name is on our list of patients to see today. I thought I would come by and see Mrs. Johns to see what physio she needs and then plan a time to come back to do physio with her."

"Oh, ok. Sorry, I didn't see your name tag. My name is Tracie, and I am the nurse caring for her. I don't think this morning is a good time. Mrs. Johns's oxygen saturations are down a bit and her breath sounds are a bit coarser than yesterday. Last night she required an increase in her FiO_2 . She has been complaining of feeling tired and she seems a bit sleepier than normal."

Gladys looks down at Erin who is propped up with a few pillows at 45 degrees.

"Tracie, would you have a few minutes to help me **reposition** Mrs. Johns? I think I can help improve her saturations with better position for expansion and maybe lead her to do some deep breathing exercises and coughing exercises to help move her secretions out."

"I can help."

"Ok, I am just going to get a bolster, can you find a couple more pillows for me?"

"Yes, I think so. There is always a shortage of pillows. Most are like placemats, and patients are always hoarding them as one is never fluffy enough."

Gladys smiles and moves out the door to the storeroom to find a bolster.

A few minutes later, both Gladys and Tracie are standing together at the end of the bed looking at Erin.

"Ok Gladys, what are we going to do?"

"I would like to position Mrs. Johns more upright in bed with her arms resting on pillows on the overbed table. I am not familiar with these beds but I believe we can move the foot of the bed so Mrs. Johns is in more of a sitting position."

"Sounds good. Let's get started."

Both Gladys and Tracie work together to move Erin into a chair-like position while in bed. They place the bolster at Erin's back to ensure correct body alignment. After positioning Erin, both step back to admire their work.

"I'm going to check Mrs. Johns's vitals again to see if this movement helped. I'll go get the machine to do that."

"I am going to see if I can get her to **deep-breathe and cough**. Maybe moving or clearing those secretions will help."

Gladys moves closer to Erin. “Ok, Mrs. Johns, I want you to take a deep breath”. Erin takes a weak breath in through her mouth. “That’s great. And now breathe out.” Erin coughs weakly.

“That is very good Mrs. Johns. I want you to take a slow deep breath to the count of three then breathe out to the count of three.” Gladys demonstrates what she is asking. “Do you understand?”

Erin nods her head. “Ok, breathe in, 1, 2, 3. Hold. Breathe out 1, 2, 3. Very good.” Erin begins coughing and making frantic motions with her hands to remove the O₂ mask. Gladys removes the mask and hands a tissue to Erin. Erin coughs a moderate size amount of green sputum into the tissue.

“Oh my. I am so sorry. I can’t believe I coughed that up. Yuck.”

“Mrs. Johns, this is what we want you to do. Let’s do the breathing and coughing exercises some more, and see if we can clear your lungs a bit.” Gladys then leads Erin through five more deep breathing and coughing exercises. At the end of each deep breath, Erin coughs out more greenish/yellow sputum.

At the end of the fifth attempt, Tracie walks into the room with the vital sign machine. “Sorry, I had to answer Bed 6’s call bell. Did I miss anything?” Tracie walks to Erin and attaches the machine to her arm and finger.

Gladys smiles, “Do we need a sputum sample? Mrs. Johns has coughed out quite a bit of stuff.”

“No, I don’t think so. One was sent from Emergency that we are still waiting on. If she is coughing now we can always have you come back and assist us to get another specimen.”

The vital sign machine beeps and displays the vital signs on the screen. Saturations are up quite a bit and HR and BP are back to normal for Erin. Temperature is still low grade fever. Tracie records the vital signs.

Day: 3	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O2 Saturation
Time: 09h00	86	150/85	18	36.5°C	95% on FM

“Wow, great improvement Mrs. Johns. Getting you up in bed and breathing better has certainly helped.” Erin smiles weakly.

Tracie stares at Erin for a moment longer and thinks, *She looks more alert, eyes are open, better eye contact, overall she looks much better than when I first came on shift.*

The RT, Herman, arrives in the room and looks at Mrs. Johns, Gladys, and Tracie. “Hi, I’m Herman. You paged me earlier to come and see Mrs. Johns.”

“Hi, Herman, I’m Tracie and this is Gladys. She’s a physiotherapist.”

“Happy to meet you all. So, what can I help with for Mrs. Johns here?” Herman moves closer to Erin, checks her mask then works his way back to the humidifier and checks the flow meter on the wall. He nods his head, thinking, *Exactly like I was told. No real changes in therapy.*

Tracie then gives a quick report including changes overnight and what happened thus far this morning.

Herman rubs his chin. “Ok, she is improved with physio but is still on high flow. We know she is a **CO₂ retainer** which may explain her being sleepy this morning, and she has not had an ABG since being in Emergency. Doctor orders give me some leeway on taking an ABG. I would like to do an **ABG** and see where we are and if there are really any changes since Emergency. From her saturations here it looks like we could drop her FiO₂ a bit. So let’s do this: I will drop her FiO₂ a bit to bring her sats to 93% and then go gather the stuff for an ABG radial stab. We will let her rest for a few more minutes and then I will do a gas.” Herman adjusts the FiO₂ while keeping an eye on the saturations displayed on the vital sign machine. He makes a couple of more adjustments and sees the sats stabilize at 93%. He gives the FiO₂ to Tracie who records it in the nurses’ notes and flow sheet.

Herman leans closer to Erin. “How does that feel with the oxygen decreased a little?”

“I feel a little better than earlier. I am still short of breath.”

“Ok, that may not change very quickly. I am going to listen to your lungs. Is that ok?”

Erin nods her head. “Sure, why not? Everyone else has had a listen.”

Herman pulls his stethoscope out and systematically auscultates Mrs John’s chest. “Not too bad. A bit decreased to the bases with coarse sounds and no wheezes.”

Tracie smiles at Gladys. “That does sound better than what I heard this morning.”

Herman says, “Ok, she seems ok right now. I am going to get my stuff to **do the ABG** and will be back in about 10 minutes.”

Both Tracie and Gladys nod. Tracie moves to Erin. “Do you need anything right now?”

“Can you hand me the TV remote so I can watch *The View*?” Tracie finds the remote on the bedside table and hands it to Erin.

Gladys pats her hand “I will come back in about 30 minutes and see if you need to be repositioned or if you feel strong enough to get into a chair.”

Erin waves a hand at both of them, dismissing them as she stares up at the TV.

Tracie and Gladys move out of the room.

“Thank you Gladys for your help. You did a great job in there.”

“Thanks Tracie. It was really nice to see that I made a difference. I’m going to talk with my preceptor about what I did and see another patient. I will come back in about 30 minutes to see how Mrs. Johns is doing.”

“Awesome. Let me know if you need my help. I am going to see my other patients and hand out my 10am meds and antibiotics.”

Time: 10h00

Herman comes up to the desk and sees Tracie charting. “Hi Tracie, I’ve done the ABG on Mrs. Johns and have

sent it to the lab. We should be getting the results in about 30 minutes or less. I'm going to see a patient on the tenth floor. I will check the system for the results and I may come back and make additional changes to her FiO₂."

"Thank you Herman. I really appreciate your help."

Time: 11h00

Tracie logs into the clinical system in the hallway outside Erin's room. "Ok, let's find the ABG result. Wow, that ABG result looks much better, O₂ and sats better, CO₂ is high but looks normal for her. Nice. Looks like Herman can bring her FiO₂ down." Next, Tracie checks to see if the culture and sensitivity is back. "C/S is still pending. **Gram stain** shows **gram positive cocci**. Ok, not sure what that means. I will have to ask Dr. Hunicutt."

Tracie signs off the system, turns around and runs directly into Herman, "Oh, I am so sorry."

"No problem. Did you see the ABG result?"

"Yes, it looks better than even in Emergency."

"Yes it is, but you have to remember she is on a higher amount of O₂."

"Yeah, I never considered that. Good point."

"I am going to go in and adjust her FiO₂ down a bit more. If she continues to improve we can probably move her later today or tomorrow to Optiflow again."

"Excellent. I will come in with you and do a **focus assessment**."

"Sure, no problem."

Both Herman and Tracie enter Erin's room to find her watching the TV intently.

Erin looks at them both, noticeably sighs, and asks herself silently, *What do these two want? I am trying to watch my show.*

"Hi, Mrs. Johns. Herman here is going to make some adjustments to your oxygen level. And with the test we did earlier, we may be able to move you to a more comfortable type of mask."

Tracie moves the vital sign machine to Erin's bedside and attaches it to her left arm and right finger.

Herman checks the pulse ox saturation and then begins to adjust the FiO₂. He thinks, *It's now below the toxic level of oxygen, which should help.*

The oxygen saturation stays stable. Tracie listens to Erin's chest and finds that the air entry is decreased to her bases, with a few crackles, and no wheezes noted. Vital signs are unchanged from the morning.

"You are looking pretty good, Mrs. Johns."

"If I was really doing that well, you would ask me to leave."

“Not quite asking you to leave; probably in another few days. Dr. Hunicutt will come by today to update you.”

“Ok Tracie, I have decreased the FiO_2 below .50 and she looks to be holding her saturations really well at 93%. I will come by towards the end of the shift and if things are good, move to Optiflow.”

“Thanks Herman.”

Just then Gladys enters the room. “Hi Tracie. Hi Mrs. Johns, how are you doing?”

“They say I am better.”

“Good, would you like to sit in a chair or move to a different position?”

“Chair would be much better.”

Gladys then directs both Tracie and Herman to assist her to move Erin to a bedside chair. Erin **transfers** easily.

“Oh, that is so much better on my behind.”

“Yes, we need to be careful that you do not get any bed sores. Plus, moving around helps your lungs out. Tomorrow I will come by and get you walking the hallways.”

“Great, not looking forward to that.”

Gladys and Tracie smile. Tracie leans forward and adjusts the blanket on Erin. “All good. Need anything right now?”

“No, is lunch coming soon?”

“Yes, it should be here in the next half hour.”

“Ok, then I am good.”

Gladys and Erin leave the room together. Tracie heads to the nursing station to complete her charting, and Gladys heads off to find her preceptor.

Time: 19h00-shift change

“Hi Jim, how are you this lovely evening?”

“Hi Tracie, I am doing well. I had a great sleep.”

“Awesome. You have the same patients as last night.”

“Cool. Should be a quick report.”

Tracie then describes the status of each of the patients. Coming to Erin’s chart, Tracie explains, “Mrs. Johns is doing much better, up in a chair today. Deep breathing exercises and cleared a lot of sputum. FiO_2 less than .5. Gram stain came back gram positive, but Dr. Hunicutt says not too helpful for adjusting her antibiotics. C&S

should be available tomorrow. The RT did not want to move quite yet to Optiflow and they may do so tomorrow. She is still comfortable on the mask, and the humidity may help clear secretions.” Tracie then goes through the rest of the assessment.

“Looks good, thanks Tracie. I guess tomorrow is your last day shift?”

“Yes, see you in the morning.”

Day 4: Medical Ward

Day: 4

Time: 10h30

Place: Medical Ward

“Hi Tracie, I’m here to review a couple of patients for discharge.”

“Hi Dr. Hunicutt, I would also like to talk about Mrs. Erin Johns.”

“Oh the lady with pneumonia and COPD. She is doing better, yes?”

“Much better it seems, her C&S results are in along with the rest of her morning lab work. I have her assessment here to review. The RT has moved her to Optiflow again and Physio is seeing her daily, and ambulating her in the hallway starting today.”

“That sounds good. Big improvement. Ok, the discharges I will get to. Let’s look together at the C&S results.”

Dr. Hunicutt pulls up the lab results for Erin and immediately goes to the C&S.

“Ok Tracie, what antibiotic is Mrs. Johns on?”

Tracie pulls up the MAR. “She is on [ceftriaxone](#) 1 gram IV q 24 hours, and [azithromycin](#) 500mg IV q 24 hours.”

“Excellent. That is the recommended coverage. Now let’s look at her C&S.”

On the computer screen, Tracie sees a list of about 10 antibiotics with either R or S beside each. For the antibiotics that Erin is on, she sees an S beside each one. “The antibiotics Mrs. Johns is on are appropriate for her as the bacteria is sensitive to them,” says Tracie.

“Correct,” states the doctor. “And since Mrs. Johns is doing well and you are mobilizing her, I would like to get rid of her IV to make that job easier.”

“How are you going to do that? I know azithromycin comes in PO form, but ceftriaxone is only IV.”

“Take a look at the list and see if there is another antibiotic that you recognize that can be given PO.”

Tracie considers the list again, thinking, *No, gentamycin is IV, cefotaxime is IV... Oh wait, here is levofloxacin.* She speaks up, “Ok, Dr. Hunicutt, I think levofloxacin can be given PO.”

“That’s correct, and since the two antibiotics are different classes and work slightly differently, we are cross-covering Mrs. Johns so she should continue to get better.”

“I think she will be happy to have the IV capped.”

“Most patients are. So I am going to write the orders for levofloxacin 750mg PO q 24 hours and azithromycin 250mg PO daily. Has she had her antibiotics today?”

“Yes. She should be just finishing now on the IV pump.”

“Great. I will state to start these with breakfast tomorrow. Now let’s go see her and then I’ll see the discharge patients and write their orders.”

Both Dr. Hunicutt and Tracie get up and move towards Erin’s room. As they get closer to the room they can hear the occasional bark. Coming into the room they see a small hairless dog sitting on Erin’s lap and Erin’s son sitting on the edge of the bed. Erin is playing tug of war with a face cloth and the dog.

Tracie looks at the whole scene and shakes her head, thinking, *That is one ugly dog but wow, Mrs. Johns seems really happy today.*

“Hi Mrs. Johns, do you remember me?”

Erin slowly looks up from her game of tug of war with Trixie to consider the man standing before her. “You are my doctor, I believe?”

“That is correct, at least for the time that you are in the hospital. I don’t have an office, but the whole hospital could be considered my office. Tracie and I have reviewed your chart and your treatment regimen and we will be making some adjustments to your IV. With your improvement and walking, it looks like we can cap your IV and start you on oral antibiotics.”

Erin looks at both of them. “I’ve had oral antibiotics before and they upset my stomach.”

“Well, if your stomach is not upset now with the IV antibiotics, I don’t expect you will be upset with the oral ones, because it’s the same medication. Let’s try it and see.”

“Oh, so I get rid of this?” Erin indicates the IV in her left arm.

Tracie, shakes her head. “Mrs. Johns, I will remove the tubing, but we will leave the rest in your arm in case something changes. I am sure you don’t want another IV started. I will wrap it up with a dressing, and it will be less bothersome without the tubing attached.”

Erin’s son looks up at Dr. Hunicutt. “When can she come home?”

“That’s a good question. I would like to do another chest X-ray today. Your mom needs a couple of more days of

antibiotics and to be completely off any oxygen therapy for 24 hours. Once that is met, I would be pleased to see her go home with you.”

“How long will that be?”

“Oral antibiotics start tomorrow so the earliest for home would be three days from now maybe two if your mom tolerates no oxygen starting tomorrow. I don’t think we need to rush. She is getting great care here.”

“True, but I need some help at home too.”

“That may be, but your mom is pretty sick. When she goes home she will not be up to helping out very much and you will need to take care of her a bit longer.”

Thomas looks down at his feet and seems resigned to what Dr. Hunicutt says.

Dr. Hunicutt looks at both of them. “Any questions?”

When neither of them makes eye contact or speaks, the doctor adds, “All right then, I will order the chest X-ray and let Tracie cap off your IV. I will see you tomorrow.”

Dr. Hunicutt leaves.

Tracie goes outside and grabs supplies to cap off Erin’s IV. Just as she is finishing, Gladys comes in and says, “Ready for a walk Mrs. Johns?”

“No, but Trixie is. Can we take her?”

“Oh, we’re not going outside. Let’s just walk up and down the hall a bit. We need to build up your stamina.”

Thomas reaches out and picks up Trixie. “I’ll take her outside. I have to go to work anyway. Trixie is staying with the next door neighbors so she will be ok. I will see you tomorrow, mom.”

Gladys and Tracie reposition Erin and [get her standing](#). Tracie follows behind with the oxygen tank as Gladys encourages Erin to walk.

Erin looks around the hallway as she leaves her room, and says, “I can’t believe I need two people to help me walk. This getting old really is not what I expected.”

“You are doing well. Let’s keep going.”

Tracie and Gladys navigate Erin to the lounge and back to her room. Just as they get her back, Glen, the X-ray porter comes in with a wheelchair. “Hey, it’s picture time. Ready to smile, Mrs. Johns?”

Erin looks up at Glen and thinks, *He does look familiar. He is striking, maybe another doctor?* She answers him, “I sort of remember you.”

Glen smiles “I am the lovely gentleman who will escort you to the Radiology Department. Gurpreet is awaiting your presence to take a picture.”

“Oh right, I remember you. You drive a wheelchair like a race car.”

Tracie and Glen laugh. Gladys helps Glen get Erin into the wheel chair. Glen hangs the oxygen tank on the back of the chair. “All right, let’s see if we can set a record to the department.”

“Oh, no—you take it slow, you whipper-snapper. I am just feeling fine and don’t need to crash into anything.”

“I’m a safe driver.” Glen maneuvers the wheelchair out into the hallway and to the elevators. They take the elevator to the second floor which opens directly facing the doors of the Radiology Department.

Glen pushes Erin in and around to X-ray Room 2. “Hey Gurpreet, Mrs. Johns is here.” Her chest X-ray is completed after which Glen wheels Erin to the elevator and back to the seventh floor.

Tracie sees Glen and Erin coming down the hallway and meets them in Erin’s room. Tracie helps Erin from the wheelchair to a chair at the bedside and covers her with a blanket. “Do you need anything right now?”

“No. I am a bit tired but should be good.”

Glen and Tracie leave Erin to herself.

Discharge

Day: 6

Time: 10h00

Place: Medical Ward

Jim, the RN, walks with Dr. Hunicutt to Erin's room.

"Hi, Mrs. Johns. This is Dr. Hunicutt and he has some great news for you."

"Mrs. Johns, you have been off oxygen for 24 hours, and your X-ray from a couple of days ago was improved from when you were first admitted, so I think you are ready to go home."

"Thank the gods."

"Now, this does not mean resuming normal activities yet. You are still going to be tired and I will want you to take the antibiotics for another week to ensure that we have fully cleared up your pneumonia. If you stop taking them, you will be back here, and much worse off."

"Ok, take the antibiotics and take it easy—got it."

Nurse Jim calls Erin's son and provides discharge instructions to both Erin and her son.

Appendix: Overview

This table provides a summary of the key elements for each health case study.

Case	Issue/Concept	Scenario Context	Healthcare Roles
Erin Johns #1	Respiratory Disease – Chronic Obstructive Pulmonary Disease (COPD)	Emergency Room	Nurse
		Diagnostic Imaging- X-ray	Admission Clerk
		Clinic – Community follow up	Porter
			Doctor
Erin Johns #2	Respiratory Disease – Chronic Obstructive Pulmonary Disease (COPD) – Pneumonia	Emergency Room	Medical Radiography Technologist
		Diagnostic Imaging -X-ray	Respiratory Therapist
		Medical Ward	Medical Laboratory Technologist