MO141 Patient Advocacy

MO141 PATIENT ADVOCACY

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INTRODUCTION

In an era of unprecedented medical advancement access to health care is of utmost importance. Navigating the complex healthcare system in the United States can be a daunting and overwhelming task for most individuals. This can lead to poor patient outcomes and fear of the healthcare system as a whole. This is where patient advocacy can improve or even save countless lives.

Welcome to MO141, please take the time to reflect on many of issues you will encounter in the patient stories included and think about your own life, have you ever had an issue with health insurance, billing, or feeling heard? Many patients suffer through this on a daily basis.

As you delve into this course you will learn areas even you can improve. And ways to help the patients you will encounter throughout your career.

ATTRIBUTION AND OER REVISION STATEMENT

This book was created to simplify a challenging course and giving it a logical trajectory. With it students will be able to enter the workforce with a better grasp of health care advocacy. The following sources were used and revised to compile this textbook:

"US Healthcare system Chapter 5" by Deanna L. Howe, Andrea L. Dozier, Sheree O. Dickenson, University of North Georgia Press is licensed under CC BY-SA 4.0

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PART I
MAIN BODY

1.

MEDICARE & MEDICAID

1.1 LEARNING OBJECTIVES

By the end of this chapter, the student will be able to:

1. Compare Original Medicare and the different parts (Part A and Part B) and Medicare Part D with Medicare Advantage, also known as Part C
2. Describe the two trust funds that pay for or support Medicare
3. Discuss Medicaid and the Children's Health Insurance Program (CHIP)
4. List two objectives of the Patient Protection and Affordable Care Act
5. Discuss four healthcare delivery reforms of the Affordable Care Act (ACA)

6. Describe the breakdown of costs for federally-funded healthcare services proposed for federal year (FY) 2020

1.2 KEY TERMS

1. Basic Health Program
2. Centers for Medicare and Medicaid Services
3. Children's Health Insurance Program (CHIP)
4. Medicaid
5. Medicare
6. Medicare Part A
7. Medicare Part B
8. Medicare Advantage (Part C)
9. Medicare Part D
10. Medigap
11. Original Medicare
12. Patient Protection and Affordable Care Act (Affordable Care Act, ACA, Obamacare)

1.3 INTRODUCTION

Healthcare is paid for by federal or state funds, private insurance, or private pay. Health insurance is important to assist with the costs of healthcare but, arguably, most important to provide individuals easier access to healthcare. Most persons aged 65 and older are covered by **Medicare**,

having paid into the Social Security system during employment for at least ten years or forty quarters (U.S. Department of Health and Human Services [HHS], n.d.). For individuals under 65 years of age and noninstitutionalized, the Congressional Budget Office (CBO, 2018) projected that the majority of individuals (89%) would also have health insurance. Most health insurance for individuals under 65 years of age is from employment-based plans (two thirds). Government and state-subsidized **Medicaid** or **Children's Health Insurance Program (CHIP)** accounts for about one fourth of those with insurance. Others are insured with Medicare, nongroup policies, or other forms (about 4%), leaving 29 million people (11%) uninsured (CBO, 2018). The total cost for government-subsidized healthcare insurance—Medicare, Medicaid, and CHIP—was $1.3 trillion in 2016, comprising 38% of all healthcare expenses (Klees et al., 2018). In this chapter, we will explore federal and state-funded health insurance in greater detail. We also look at the U.S. Department of Health and Human Services (HHS) and identify services provided by the federal government for the health of all citizens.

1.4 FEDERALLY-FUNDED HEALTHCARE

The **Centers for Medicare & Medicaid Services (CMS)**

is a federal agency within the U.S. government's Health and Human Services department (HHS). CMS administers and operates the Medicare program. Medicaid, although administered by individual states, also receives oversight by CMS (CMS, n.d.a).

Medicare

Medicare is subsidized health insurance for persons aged 65 or older who are eligible for Social Security, for some individuals who are disabled, and for all patients diagnosed with end-stage renal disease (Congressional Budget Office [CBO], 2018; Klees et al., 2018). Medicare insurance is not automatic for those aged 65 and older; certain actions must be taken and criteria met. For individuals receiving social security benefits, an information packet is sent three months prior to the individual's 65th birthday, and specific actions must be taken by certain deadlines to obtain Medicare insurance (CMS, n.d.b).

The federal government offers Medicare insurance coverage in two main ways. The choice for the qualified recipient is Original Medicare or Medicare Advantage. Original Medicare is provided directly through Medicare, whereas MedicareAdvantage is provided by private insurance companies (CMS, n.d.b).

Original Medicare includes Part A and Part B. **Medicare Part A** covers hospitalizations, skilled nursing homes, some

skilled nursing home health services after hospitalization, and hospice. **Medicare Part B** covers physician's office visits, outpatient care, home health visits without prior hospitalization, medical supplies, and preventive services. Individuals with original Medicare. Part A and Part B, can choose any doctor or healthcare provider and any hospital who accepts Medicare in the U.S., without limitations. Original Medicare pays approximately 80% of costs incurred, and recipients aren't required to pay a premium for Part A. Premiums aren't required for Part A because eligible recipients or their spouses paid payroll taxes for Medicare during their working years. A monthly premium is required for part B Medicare, however (CMS, n.d.c).

Medicare Part D, effective as of 2006, provides coverage for prescription drugs (Kirchhoff, 2018). This is a separate plan, and beneficiaries pay a monthly premium. Low-income individuals are eligible for additional assistance (Kirchhoff, 2018). The prescription drug plans have a formulary, and the Medicare Part D beneficiary may have to pay full price if the medication prescribed is not on the formulary or has not received a qualifying formulary exception. Prices have been negotiated to obtain the best prices. Importantly, individuals applying for Medicare Part A and Part B should also apply for Medicare Part D concurrently to avoid a late penalty charge.

Medigap supplemental insurance is an optional insurance bought from private companies for persons with Original Medicare Part A and Part B. Medigap supplemental

insurance may pay for some of the costs not covered by Original Medicare—such as copayments, coinsurance, and deductibles—after Original Medicare has paid its part (CMS, n.d.d). Each person with Original Medicare A and B must have their own policy and pay individual monthly premiums for Medigap insurance. Of note, several important healthcare services are not covered by Medigap, such as prescription drug costs (provided under Part D Medicare), purchases of eyeglasses or hearing aids, dental or vision care, private-duty nursing, or long-term care.

Medicare Advantage (also known as Part C or MA Plans) is the second main option for receiving Medicare. With Medicare Advantage, Part A, Part B, and usually Part D are bundled (CMS, n.d.b). Additional benefits, such as dental, hearing, and vision, are also usually offered. Individuals with Medicare Advantage must choose healthcare providers and hospitals within a specific network; using outside providers will result in additional costs. There are monthly premiums. There are several plans to choose from, including the following: Health Maintenance Organization (HMO) plan, Preferred Provider Organization (PPO) plan, Private Fee-for-Service (PFFS) plan, and a Special Needs plan (SNP).

Medicare Advantage Health Maintenance Organization (HMO) plan

With this plan, a primary care provider is chosen within a given network and all services are provided within the network. The exception is emergency care and two out of area services: urgent care and dialysis treatment. A referral is required for any type of specialist. Usually, out of network care may be allowed but may cost more or the beneficiary may be required to pay all the costs. Prescription drugs are usually covered. Prior approval for tests and some services are required and rules must be followed (CMS, n.d.b). There are also HMO Point of Service (HMOPOS) plans within this plan. These HMOPOS plans allow out of network services withthe beneficiary paying higher copayments or having coinsurance (CMS, 2020).

Medicare Advantage Preferred Provider Organization (PPO) plan

This plan is very similar to an HMO but may have a little more flexibility with choosing healthcare providers and agencies within the network, including specialists; a primary care physician is not required. Using providers outside of the network is possible but usually it will cost more. Extra benefits

are usually provided, but there are extra costs associated with the benefits (CMS, n.d.b).

Medicare Advantage Private Fee-for-Service (PFFS) plans

With the PFFS plans, the plan dictates the fees for the healthcare providers at the time of service. Choosing a primary care provider is not required and referrals for specialists are not required. Drug costs may or may not be covered. Prior to each healthcare provider visit, the beneficiary must check with the provider to ensure acceptance of the insurance, and copayment is due when the service is provided (CMS, n.d.b).

Special Needs plan

With this plan, persons who have specific healthcare needs, disabilities or diseases with limited income have benefits customized to meet their needs (CMS, 2020). Examples of persons eligible for this type of Medicare plan are persons in nursing homes or other types of institutions, persons eligible for both Medicare and Medicaid, and persons with debilitating conditions, such as chronic heart failure, diabetes, dementia, end-stage renal disease, and HIV/AIDs. A primary care doctor is usually required, and referrals to specialists are also usually required. The plan may or may not cover out-of-network services. Prescription drugs are covered with this plan.

Cost of Medicare

The U.S. Treasury holds two trust funds solely for paying for Medicare; these are a Hospital Insurance (HI) trust fund and a Supplementary Medical Insurance (SMI) trust fund (CMS, n.d.e). The HI trust fund receives money in several ways. Monies are received for the fund through payroll taxes of working individuals, taxes of those receiving Social Security benefits, interest earned through trust fund investments, and Medicare Part A premiums from those who have purchased Medicare Part A but did not meet the eligibility requirements (paying into the system while working) for premium-free Medicare Part A. The SMI trust fund receives the premium payments from recipients of Part B and Part D and funds allocated from Congress and other sources, such as trust fund investment interest (CMS, n.d.e).

According to the Congressional Budget Office (CBO, 2018, April), Medicare costs in 2017 were $702 billion and accounted for 3.7% of the gross domestic product (GDP); in comparison, defense spending was $590 billion, accounting for 3.1% of the GDP. In 2017, there were over 58 million enrollees in Part A; over 53 million enrollees in Part B; and over 44 million in Part D with the following beneficiary payments in billions: $293.3, $308.6, and $100.1, respectively (Kleeset al., 2018).

Costs to the Medicare Part A recipient in 2020 for a hospitalization of one- to-60 days is a $1408 deductible (CMS,

2020). Medicare Part A also pays for a skilled nursing facility after hospitalization, if needed. If care in a skilled nursing facility is required following hospitalization after 20 days and up to 100 days, Part A pays, but the beneficiary must pay a coinsurance of $176 daily (CMS, 2020). After 100 days, the beneficiary is responsible for all costs (CMS, 2020). Costs for most of the Medicare Part B recipients in 2020 is $144.60 monthly with an additional monthly cost if the beneficiary's modified adjusted gross income tax is greater than $87,000 (individual) or $174,000 (joint), for the year 2018 (CMS, 2020). The 2020 annual deductible is $198 for all Part B recipients. There is a statutory provision for Social Security recipients called "hold harmless." This provision prevents the government from charging higher Part B premiums than the Social Security cost of living increase received in that same year. Medicare Part B is paid for by beneficiary premiums (25%) and U.S. Treasury (75%). Calendar year (CY) 2020 spending is expected to total $220 billion (HHS, n.d.). There are monthly premiums for Medicare Part D, with additional monthly fees based on the same income tax numbers as with Part B. Part D yearly deductibles are no more than $435 in 2020 (CMS, n.d.f). There may be a copayment or coinsurance payment for medications after the deductible is met. There is also a coverage gap—"donut-hole"—a temporary limit after $4020 of covered drugs have been spent in 2020. However, after reaching the limits, a large percentage of generic drug prices will be covered by Medicare (in 2020, 75%). As stated previously, individuals

who do not sign up for Part D when first eligible are charged. As explained, the costs for Original Medicare have several different parts and programs for seniors to extrapolate, whereas Medicare Advantage has most of these services bundled so may possibly be less confusing.

According to the HHS 2020 budget, Medicare Advantage enrollment is increasing and is expected to total 24 million beneficiaries in calendar year (CY) 2020 (HHS, n.d.a.). This estimated enrollment number will be around 42% of the amount of Medicare beneficiaries enrolled in Original Medicare, Part A and Part B. HHS reports that access to Medicare Advantage is available to almost all individuals nation-wide and the premiums have remained steady while benefits have increased. Total budget costs for Medicare Advantage are expected to be around $286.5 billion in federal year (FY) 2020.

1.5 JOINT FEDERAL/STATE FUNDED HEALTHCARE

Medicaid, also known as Title XIX of the Social Security Act, was signed into law in 1965 (Klees et al., 2018). Medicaid is funded by the state and federal government jointly with each state administering the program and with the federal government, through the Center for Medicare and Medicaid Services, providing oversight. Medicaid is health insurance for

the poor, some elderly, and some disabled persons (CBO, 2018). With Medicaid being administered by states, each state's eligibility and services covered are different (CMS, n.d.a). Certain benefits are mandatory for each state, however, while others are optional and may vary from state to state. Basic costs such as inpatient or outpatient hospitalization, home health services, and family planning services are some of the mandatory benefits covered. Optional benefits include various occupational, physical, or speech therapies, preventive screenings and rehabilitation services, and hospice. For a full list of mandatory and optional benefits, see Medicaid.gov. For FY 2018, 36,287,063 children were covered by Medicaid (CMS, n.d.e).

Children's Health Insurance Program (CHIP), also known as Title XXI of the Social Security Act, was signed into law in 1997. CHIP is another jointly- funded program that provides health insurance to those who are poor but whose income is not low enough to meet the Medicaid threshold (CBO, 2018, April). The CHIP and Medicaid programs have been successful in enrolling over 87% of children who are eligible (HHS, 2015). Various acts and laws have been passed by Congress to provide federal allocation of funds through FY 2027 (Klees et al., 2018). For FY 2018, 9,632,367 children were enrolled in CHIP (CMS, n.d.g).

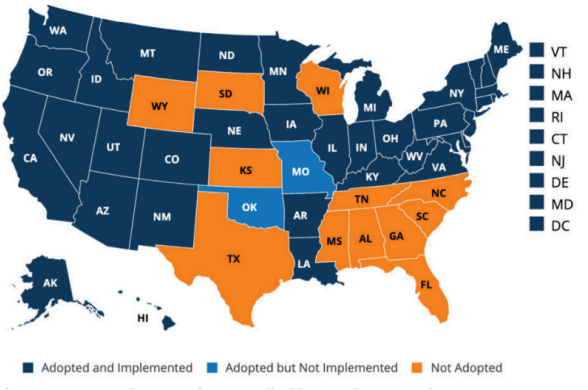
Enrollment in Medicaid and CHIP

As of August 2019, 71,969,720 individuals were enrolled in Medicaid and CHIP nationally, with children representing 50.5% of the total enrollment for both programs. Medicaid enrollment (adults and children) was 65,331,188 individuals. 6,638,532 individuals were enrolled in CHIP. 35,317,330 individuals were enrolled in CHIP or were children in the Medicaid program (CMS, n.d.a). In federal fiscal year (FFY) 2017, there were 46,405,189 children receiving Medicaid and CHIP funds (unduplicated enrollment numbers) compared to45,919,430 in FFY 2018, reflecting a 1% decline from 2017 to 2018 (CMS, n.d.e).

Patient Protection and Affordable Care Act

The **Affordable Care Act (ACA)**, signed into legislation in 2010 under President Obama (and therefore often called **Obamacare**), primarily provided monies (tax credits) to subsidize health insurance coverage for individuals through federal or state government marketplaces as well as expanded Medicaid coverage for individuals with low-income (CBO, May 2018). The ACA also created the **Basic Health Program**, also known as Medicaid expansion, a program granting states an option to expand Medicaid coverage to

individuals in the 138th to 200th percent of the federal poverty guidelines. Through the ACA, states received federal funding "equal to 95% of the subsidies for which those people would otherwise have been eligible through a marketplace" (CBO, 2018, May). Thirty-nine states have chosen to accept this option and are considered Healthcare.gov states (HHS, 2018). The states of Missouri and Oklahoma have adopted the plan but have not yet implemented it; the federal district of Washington, D.C., has implemented the plan (KFF, 2020). (Figure 1.1).



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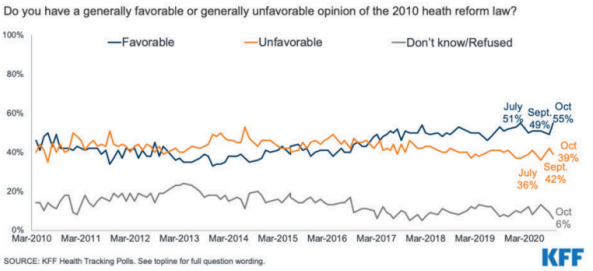
Within the Healthcare.gov states, state level issuers for health plans, essentially insurance companies, received subsidies from

the ACA to provide care for the people in the state. In the plan year 2014, there were 187 insurance carriers for the entire conglomerate of Healthcare.gov states; in plan year 2015 and plan year 2016,there were 217 insurance carriers. However, in plan year 2017, there were only 152 carriers; 121 in plan year 2018; and 144 in plan year 2019, thus decreasing. The number of issuers of health plans for each state ranged from one to six, thereby limiting choice of insurance carriers for states with only one insurance carrier. There are also a wide range of costs. The HHS Assistant Secretary for Planning and Evaluation (ASPE) (2018) provided the following information: premiums will increase up to 85% higher in 2019 ($405) compared to 2014 ($218) monthly for the silver plan. The silver plan is the second lowest cost plan and is considered the benchmark plan. Nebraska, the state that has adopted but not implemented the plan, had only one insurance carrier and would have the highest percentage increase ($686 in 2019 compared to $205 in 2014), whereas Indiana, a state with more than one insurance carrier, was slated to have the lowest percentage increase ($280 in 2019 compared to $270 in 2014) (HHS, 2018). Levitt (2020) reports that the ACA is structured so that the highest premium cannot increase above 9.5% of a person's income, with federal subsidies paying any costs over that amount. Perception of the enactment of the ACA was and remains controversial. The Kaiser Family Foundation (KFF) tracking poll conducted in October 2020 investigated the favorability view of ACA (Hamel et al., 2020). Participants

(1106 voters) show a larger favorable view than unfavorable view. (Figure 1.2).



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According to Blumenthal et al. (2015), benefits of the ACA include allowing young adults to be added to their parent's health insurance policies until the age of 26 years old; providing availability of insurance to young adults, minorities, and the poor; providing quicker access to healthcare providers; and having less complaints about access to care and medical expenses. In addition to expanding health insurance, healthcare delivery reforms were another major component of the ACA (Blumenthal et al., 2015). The reforms include value-based healthcare rather than volume-based healthcare,

promotion of healthcare services integration, efforts to boost numbers of and payment to primary care providers, and a responsiveness to the constantly-evolving healthcare environment.

Value-based incentives include decreasing hospital reimbursement for thirty-day readmission rates or occurrence of hospital-acquired infections, with increased funds if certain cost and quality measures were obtained for hospitals as well as physician practices. For promotion of healthcare services integration, organizational arrangements with all parties involved in the care of a patient's inpatient or outpatient experience are combined, and the organization receives bundled payments for the care episode. By organizing the providers in this manner, the burden of keeping costs low and the quality high is on the healthcare providers within the organization. For those caring for patients with Medicare, savings can be accomplished and then passed on to the providers within the organization. To boost numbers and payment for primary care providers, states were mandated to pay primary care providers Medicare rates when seeing Medicaid patients. Also, funds were provided for scholarships and forgiveness of loans for primary care providers willing to work in underserved areas. In response to the continually evolving healthcare milieu, the Center for Medicare and Medicaid Innovation (CMMI) was created to devise and investigate various measures and plans to improve the quality

of healthcare and reduce the associated costs (Blumenthal et al., 2015).

According to Kirzinger et al. (2019), a health tracking poll conducted in November 2018 by the Kaiser Family Foundation (KFF) indicated that although the ACA plan remains controversial, many of the ACA provisions are desired by all Americans, regardless of their political persuasion. Those ACA provisions desired by greater than 60% of those surveyed included the following: allow young adults to stay on their parents' insurance plans until age 26; create health insurance exchanges where small business and people can shop for insurance and compare prices and benefits; provide financial help to low- and moderate-income Americans who don't obtain insurance through their jobs to help them purchase coverage; gradually close the Medicare prescription drug "donut hole" so people on Medicare will no longer be required to pay the full cost of their medications when they reach the gap; and eliminate out-of-pocket costs for many preventive services (Kirzinger et al., 2019).

Interestingly, overall physician visits have not increased since enactment of the ACA, although there have been more Medicaid patient visits (Gaffney et al., 2019; Johansen & Richardson, 2019). Klein et al. (2017) found similar results with emergency department visits in Maryland. Although the Medicaid population increased by 20% after the implementation of the ACA, there was no significant change in emergency department visits. Expectations were that

patients would utilize the new coverage to seek primary healthcare providers.

Kobayashi et al. (2019), assessed patients' feeling of well-being after receiving greater access to affordable healthcare and found that feelings of well-being did not improve. However, Blumenthal et al. (2015) reported those recently insured were happy with their new coverage. Moreover, 75% of those surveyed had promptly obtained appointments with appropriate healthcare providers and received those appointments in a timely manner within a four-week time period. The costs of healthcare were also reported as a problem less frequently.

Pause and Reflect

Do you know anyone who has received health care through the ACA?

Consider that the Supreme Court heard arguments regarding the constitutionality of ACA, in November 2020. The decision was 7-2 opinion that the challenge to the individual mandate had no standing. Thus, ending the case. Consider how a different opinion could have

affected the outcome. Or if, in the future, the ACA is repealed. How should the U.S. government protect those who are uninsured or who lose health insurance? How can the ACA better protect people with pre-existing conditions? Name two advantages and two disadvantages of the Affordable Care Act.

First Person Perspective

Ms. W., M.S.W., has a Concentration in Administration and Public Policy and is a Healthcare Advocate in her community.

Figure 1.3: First Person Perspective Source: Original Work Attribution: Deanna Howe License: CC BY-SA 4.0

Growing up in America, my insurance status was always tied to my father's employment. He was the one to hold the steady job with all the benefits. My mother cycled through employment after having my younger brother and then spent a few years as a caregiver for my ailing grandmother. In my senior year of high school, everything changed. At fifty years old, my father was diagnosed with

terminal cancer. It was an immense shock to my family; my parents had one child about to head to college and the other was just twelve years old. They did all they could to continue working and providing for our family, but a year later, my father needed to step away from working to commit himself to the costly and demanding experimental treatment he was undergoing. My father opted into the COBRA program, a costly alternative to ultimate loss of coverage, but my father had a whole treatment team in place within his current network and feared losing his place in the experimental trial he was in. My parents were forced to have a difficult conversation with me about how my mother, brother, and I were all about to lose our health coverage.

At nineteen, I was terrified trying to navigate healthcare on my own, but thankfully my state had just expanded care under the Affordable Care Act. I was one of the many first-time enrollees in the state's Apple Health through their Health

Benefit Exchange. By this time, I was a full-time college student, working part time, and trying to afford a place on my own. Being able to qualify for state Medicaid gave me peace of mind that access to medical care wasn't something I had to worry about. The same month my insurance coverage began, I came down with the norovirus. I fell ill very quickly while receiving treatment, and I was transported from the urgent care facility to a nearby hospital via ambulance where I was admitted for overnight observation. When I left the hospital, I was terrified of the medical bill I would receive in the mail. I knew I could never afford it, but thankfully that bill never came. To this day, I am grateful for the access to needed services that the expansion of the Affordable Care Act has afforded me. I was able to access coverage through a job for a few years, but when I decided to go back to school for my master's degree, I had comfort knowing that I would once again be able to access care. No one should have

to choose between getting the medical care they need and being able to provide a clear path for their future. Thanks to Washington state's commitment to expand Medicaid under the ACA ten years ago, I am able to share this with you today. First person perspective vignette collected and created by Deanna Howe, 2020 For your consideration: Ms. W. describes the fear of having to navigate the unfamiliar territory of finding health insurance. Her state is one of many which provide access to expanded Medicaid health services. If you were a voter, would you vote in favor or against ACA Medicaid expansion? Why or why not? For college students who are unable to remain covered under a parent's plan, should the government offer an insurance protection benefit under the ACA? Consider what would have happened to Ms. W. had ACA insurance coverage not been available to her during the illness she described. What financial implications might Ms. W. face?

First person perspective vignette collected and created by Deanna Howe, 2020.

1.6 FEDERALLY FUNDED ORGANIZATIONS FOR THE PROMOTION OF HEALTH

The U.S. Department of Health and Human Services (HHS)

The mission of Health and Human Services (HHS) is "to enhance and protect the health and well-being of all Americans by providing for effective health and human services and by fostering sound, sustained advances in the sciences underlying medicine, public health, and social services" (HHS, n.d., p.2). There are nine divisions and more than 100 programs provided by HHS. The nine divisions are as follows: the Administration for Children and Families, the Administration for Community Living (ACL), the Centers for Disease Control and Prevention (CDC) (which has subsumed the

previous stand-alone Agency for Toxic Substances and Disease Registry), the Centers for Medicare and Medicaid Services (CMS), the Food and Drug Administration (FDA), the Health Resources and Services Administration (HRSA), the Indian Health Service, the National Institutes of Health (NIH) (which has subsumed the previous stand-alone Agency for Healthcare Research and Quality [AHRQ]), and the Substance Abuse and Mental Health Services Administration (SAMHSA).

The FY 2020 Budget allocates $1,286 billion for all of HHS programs and services. The $1,286 billion is divided as follows: 53% for Medicare; 32% for Medicaid; 8% for discretionary programs; 3% for children's entitlement programs; 3% for other mandatory programs; and 1% for temporary assistance for needy families (TANF) (HHS, n.d., p. 2) (Figure 1.4).

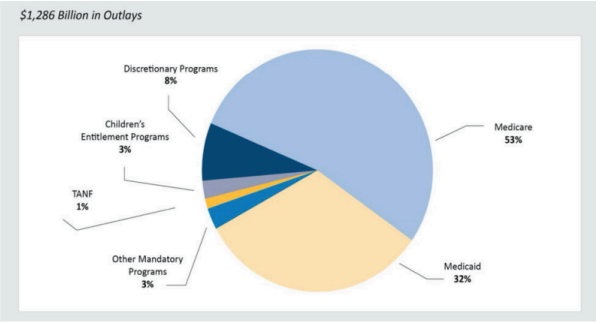

Figure 1.4: Composition of the FY 2020 Budget Source: US Department of Health and Human Services Attribution: US Department of Health and Human Services License: Public Domain

Centers for Medicare and Medicaid Services (CMS)

The mission of the CMS is as follows: "The Centers for Medicare and Medicaid Services supports innovative approaches to improve quality, accessibility, and affordability" (HHS, n.d., p. 49). As stated previously, the CMS funds,

administers, and operates the Medicare program and the Center for Medicare and Medicaid Innovation agency. Medicaid and CHIP, although administered by individual states, also receives funds and is overseen by CMS (HHS, n.d.). The FY 2020 budget proposal requests $60.5 billion over the 2019 budget and is expecting a savings of $954.1 billion due to changes made and being made. The priorities for the CMS as outlined in the 2020 budget (HHS, n.d.) are reducing prescription drug costs, transforming the healthcare system to one that pays for quality and outcomes (value-based care), combating the opioid crisis, and reforming America's health insurance system (pp. 65–67). To decrease drug costs, reforms are focused on improving competition, negotiating for better prices, providing incentives for lower list prices, and lowering out-of-pocket costs for patients (HHS, n.d.).

To transform the healthcare system to one that pays for quality and outcomes, some of the reforms include allowing accrediting bodies of hospitals and other healthcare facilities to release accrediting surveys. Also, several hospital-required quality programs will be consolidated to one program, thus decreasing regulatory burden. There is an effort throughout the plan to provide equitable payments to all parties involved in healthcare who provide the same type of services. To reform America's health insurance system, several proposals make Medicare payments more equivalent to the private pay market, provide greater choices for beneficiaries, and encourage innovation at the consumer and state level. Consolidation of

medical school payments for physicians and reforms for medical liability are also planned.

The Food and Drug Administration

The Food and Drug Administration's (n.d.) mission statement is as follows:

> The Food and Drug Administrations' (FDA) is responsible for protecting the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, the nation's food supply, cosmetics, and products that emit radiation. FDA also advances the public health by helping to speed innovations that make medicines more effective, safer, and affordable; and by helping the public get the accurate, science-based information they need to use medicines and foods to maintain and improve their health. Furthermore, FDA has responsibility for regulating the manufacturing, marketing, and distribution of tobacco products to protect the public health and to reduce tobacco use by minors. Finally, FDA plays a significant role in the nation's counterterrorism capability by ensuring the security of the food supply and fostering development of medical products to respond to deliberate naturally emerging public health threats. (Para. 1)

Advancing innovations for effective, safe, and affordable medication and medical devices; foods safety; management of tobacco products; and counterterrorism are priorities for the FDA. A highlight for FY 2018 was setting a record for approving the most generic medications in a single year (971), compared to a five-year average of 771 generics approved per year. In addition, the FDA provided for the emergency approval and authorization for COVID-19 vaccines in 2020. This action paved the way for an early campaign to provide protection to millions of U.S. citizens as well as persons throughout the world.

The Health Resources and Services Administration

The mission of the Health Resources and Services Administration (HRSA) is the following:

> The Health Resources and Services Administration (HRSA) is the primary federal agency for improving healthcare to people who are geographically isolated, economically or medically vulnerable. HRSA works to improve health through access to quality services, a skilled health workforce and innovative programs. (HHS, n.d., p. 16)

Funds are provided for primary health centers, increasing the healthcare workforce in areas of shortage, funds for reducing maternal mortality and child health, and HIV/AIDs

programs. Healthcare systems, such as Poison Control and Organ Transplant, and healthcare systems in rural areas are also provided funds.

The Indian Health Service

"The mission of the Indian Health Service is to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level" (HHS, n.d., p. 22). Funds are provided to expand healthcare and provide facilities for the American Indian population. Preventive health services and special programs, such as for diabetes education, are examples of other areas receiving funds.

The Centers for Disease Control and Prevention

The mission statement for the Centers for Disease Control and Prevention is multifaceted. The mission statement is as follows:

> The Centers for Disease Control and Prevention (CDC) works 24/7 to protect America from health, safety, and security threats, both foreign and in the United States. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

> CDC increase(s) the health security of our nation. As the nation's health protection agency, CDC saves lives and protects people from health threats. To accomplish its mission, CDC conducts critical science and provides health information that protects our nation against expensive and dangerous health threats, and responds when these arise. (HHS, n.d., p. 27)

Some of the funds provided are for such preventative strategies as immunizations; prevention of such diseases as HIV/AIDS, viral hepatitis, and sexually transmitted diseases and tuberculosis; and health promotion. Some funds are for management of chronic diseases, such as high blood pressure and diabetes. Recently, because of the rise in opioid addictions and overdoses in the U.S., the opioid epidemic has been a focus of the CDC. More recently and presently, viruses such as the coronavirus have taken center stage. Occupational safety and health, environmental health, overall public health preparedness, and global health are also critical areas of emphasis.

The National Institutes of Health

According to HHS, "The National Institutes of Health's (NIH) mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability" (HHS, n.d., p. 37). Some of the research

priorities for 2020 include the opioid crisis, neonatal abstinence syndrome, chronic pain, and childhood cancer. The quality and safety of healthcare, precision medicine, and health services research are other priorities.

The Substance Abuse and Mental Health Services Administration

The mission statement of the Substance Abuse and Mental Health Services Administration is the following: "The Substance Abuse and Mental Health Services Administration (SAMHSA) reduces the impact of substance abuse and mental illness in America's communities" (HHS, n.d., p. 45). Funds for this department support community mental health services, children's mental health services, and behavioral health clinics. The mental health needs of students, substance abuse prevention and treatment, and suicide prevention programs are also priorities.

The Administration for Children and Families

According to HHS, "The mission of the Administration for Children and Families promotes the economic and social well-being of children, youth, families, and communities, focusing particular attention on populations such as children in low-income families, refugees, and Native Americans" (HHS, n.d.,

p. 100). The Administration for Children and Families' proposed 2020 budget provides funds for the following in descending order: temporary assistance for needy families; Head Start; Child Care and Development Fund; foster care and permanency; child support enforcement; and refugee and entrant assistance. These departments provide monies for vulnerable populations, such as those needing temporary financial assistance, child abuse victims, human trafficking victims, runaways and homeless individuals, and for foster care. Funds are provided with goals to improve the lives of low-income families, especially through early childhood programs and childcare.

The Administration for Community Living (ACL)

The mission of the Administration for Community Living is: "The Administration for Community Living maximizes the independence, well-being, and health of older adults, people with disabilities across the lifespan, and their families and caregivers" (HHS, n.d., p. 116). The ACL provides monies for nutritious meals to senior centers and homebound individuals. Monies are also provided to fight elder abuse and neglect, Alzheimer's disease, and disability programs.

The Office of the Secretary

The Office of the Secretary, though not a division, is responsible for oversight of all HHS programs. These several staff divisions, agencies, and programs report directly to the Secretary for HHS:

1. Office of the Secretary, General Departmental Management. "The General Departmental Management budget line supports the Secretary's role as chief policy officer and general manager of the department" (HHS, n.d., p. 120).

2. Office of the Secretary, Opioids and Serious Mental Illness. This is a new office and was developed as a result of 64,000 deaths to drug overdoses in 2016 (HHS, n.d.).

3. Office of the Secretary, Office of Medicare Hearings and Appeals. The Office of Medicare Hearings and Appeals provides a forum for the adjudication of Medicare appeals for beneficiaries and other parties. "This mission is carried out by a cadre of Administrative Law Judges exercising decisional independence under the Administrative Procedures Act with the support of a professional, legal, and administrative staff" (HHS, n.d., p. 124).

4. Office of the Secretary, Office of the National Coordinator for Health Information Technology (ONC). The mission of this office is "To help lower healthcare costs, empower consumer choice, and improve provider satisfaction, ONC will work to make health information more accessible,

decrease the documentation burden, and support electronic health records' usability" (HHS, n.d., p. 126).

5. Office of the Secretary, Office for Civil Rights (OCR). The mission of this office is as follows: "The Office for Civil Rights is the Department's chief law enforcer and regulator of civil rights, conscience and religious freedom, and health information privacy and security" (HHS, n.d., p. 128).

6. Office of Inspector General. "The mission of the Office of Inspector General is to protect the integrity of Department of Health and Human Services programs as well as the health and welfare of the people they serve" (HHS, n.d., p. 130).

7. Public Health and Social Services Emergency Fund (PHSSEF). The mission of this office is as follows: "The Public Health and Social Services Emergency Fund directly supports the nation's ability to prepare for, respond to, and recover from the health consequences of naturally occurring and man-made threats" (HHS, n.d., p. 133).

1.7 SUMMARY

This chapter has explored federally funded healthcare (Medicare) and jointly federal/state funded healthcare (Medicaid and CHIP). It looked at the costs of the programs. It described the Affordable Care Act and it has discussed other federally funded programs provided through the HHS.

1.8 REVIEW QUESTIONS

1. How would you explain the difference between the Medicare choices to someone close to retirement age?

2. How is Medicare funded?

3. During what circumstances can Medicaid and the Children's Health Insurance Program be utilized?

4. What are two objectives of the Patient Protection and Affordable Care Act?

5. What are four healthcare delivery reforms of the Affordable Care Act?

6. How are the FY 2020 HHS budget funds allocated?

2.

PRIVATE INSURANCE

2.1 LEARNING OBJECTIVES

By the end of this chapter, the student will be able to:

1. Define managed care
2. List the pros and cons of managed care
3. Distinguish the primary types of health maintenance organizations
4. Discuss how managed care impacts healthcare
5. Explain private insurance
6. Explain problems associated with Fee-for-Service healthcare plans
7. State questions to consider before deciding on a healthcare plan
8. Discuss the benefits of worker's compensation insurance

for employees

2.2 KEY TERMS

1. Health Maintenance Organization (HMO)
2. Exclusive Provider Organization (EPO)
3. managed care
4. medical underwriting
5. Point of Service plan (POS)
6. Preferred Provider Organization (PPO)
7. provider networks
8. worker's compensation insurance
9. Private Insurance

2.3 INTRODUCTION

Healthcare coverage for average Americans has been much discussed over the years. Private insurance and managed care organizations are often confusing to consumers. This chapter will provide a brief summation of private insurance and four major types of **managed care** organizations. These four major types of managed care organizations are as follows: Preferred Provider Organizations (PPOs), Point of Service plans (POS), Health Maintenance Organizations (HMOs), and Exclusive Provider Organizations. The chapter will include discussion on the advantages and disadvantages of managed care options.

Finally, there is discussion of worker's compensation insurance.

2.4 FEE-FOR-SERVICE

Fee-for-Services plans were the staple of healthcare service plans in the U.S. before the advent of private insurance and managed care organizations. Fee-for-service is a method for which healthcare providers are paid for each individual service rendered. Payment can be from an individual or through a health insurance plan. Treatments or procedures that were deemed necessary by the healthcare provider were often conducted without approval from insurance agencies (U.S. Legal, 2019). This caused discord between healthcare providers and insurance companies who frequently disagreed on prescribed healthcare treatments. This conflict often resulted in delayed consumer medical care. Private healthcare insurance and managed care organizations would eventually change the way healthcare services were offered and payments for services were received.

2.5 PRIVATE INSURANCE

Healthcare coverage not sponsored by the government is known as **private insurance**. Many individuals have private insurance through their employers. In fact, approximately 60%

of non-elderly Americans do so (Anderson, 2018). An employer sponsored private insurance policy charges employees a fee for their insurance coverage. However, many companies cost share and pay a significant amount of employee premiums. This fee is usually deducted from the employee's paycheck. There is often an open enrollment time frame whereby employees can choose the desired health insurance coverage options. New employees are offered the opportunity to gain healthcare coverage upon their hiring date as well. The option of private insurance is very important to a lot of employees and their families, so many people investigate private insurance benefits when job seeking.

While the employer-sponsored private health insurance is quite popular, some individuals can purchase private insurance without an employer. For instance, self-employed individuals may purchase private healthcare plans from insurance companies. Before the **Affordable Care Act (ACA)**, the acquisition of individual private insurance was a bit more complicated. For one thing, individual market insurance companies could decide the costs of premiums and whether to accept or deny individual healthcare coverage based on pre-existing conditions. This process is known as **medical underwriting** and is no longer used because of the Affordable Care Act (Healthinsurance.org, 2020). The ACA now prohibits discrimination against an individual based on pre-existing conditions, and the cost of the coverage is no longer a factor in determining the premium (Norris, 2019).

The cost of healthcare coverage depends on several factors. For example, the cost of private insurance may be influenced by the number of individuals the plan covers. The price may differ between the employee only having coverage for themselves versus the employee having healthcare coverage for their immediate family members. Additionally, components of private insurance healthcare plans may include options for medical, vision, dental, and short-term, long-term, and disability care coverage. Further, an overwhelming majority of U.S. residents have health insurance plans that are a part of a managed care program (Speights, 2018).

2.6 MANAGED CARE BACKGROUND

According to the U.S. National Library of Medicine (2019), managed care insurance plans consist of contractual agreements between medical facilities and healthcare providers to render healthcare at lower consumer costs. The providers are known as the managed care network. Managed care systems help provide organization, quality, and cost containment to healthcare services for clients.

Managed care has historical beginnings from the late 1920s (National Council on Disability, n.d.). Dr. Michael Shadid launched a small Oklahoma hospital to provide needed medical care for farmers who had limited access to such care.

An annual fee schedule covered the care this hospital provided. This type of medical service with yearly fees or prepaid contracts by physicians began to expand both in Oklahoma and such other places as California. Through the years, the term managed care became associated with this type of contractual healthcare coverage. Managed-care plans helped curtail increasing healthcare costs by discouraging participating physicians from needless patient hospitalizations. Physicians were also required to provide healthcare at lower costs.

With managed care, healthcare providers receive predetermined fee-for-service rendered to clients. Unnecessary medical treatments are often avoided because of the insurance company's refusal to pay without preauthorization. This helps decrease consumer healthcare costs.

2.7 MANAGED CARE ORGANIZATIONS

Given that employers pay a considerable portion of U.S. healthcare insurance costs, the introduction of managed care organizations provides a more systematic guideline for healthcare providers to follow, which helps cut those costs (U.S. Legal, 2019). Physicians and statisticians usually work together to devise generalized guidelines for clients based on their symptoms or conditions. When this is done, the managed

care organizations can prescribe what treatments and procedures are most beneficial to applicable clients based on client diagnoses and symptoms. Managed care organizations also predetermine the cost of these treatments and procedures, including hospital stays (if needed).

Provider networks are a pivotal component of managed care systems. Members of provider networks may include hospitals, advanced healthcare practitioners, and doctors who work together to provide the most efficient, cost-effective care for consumers. There are two types of provider networks: in-network providers and out-of-network providers. As the names indicate, in-network providers work with insurance plans to provide services, while out-of-network providers opt not to participate in contractual agreements. Providers choosing to become part of a managed care system agree to work with networks in attempts to contain costs of healthcare services. Additionally, providers that opt to become part of a managed care system are expected to comply with specified quality standards and predetermined healthcare costs to decrease the amount clients are expected to pay (U.S. National Library of Medicine, 2018).

2.8 TYPES OF MANAGED CARE ORGANIZATIONS

Preferred Provider Organizations

(PPO)

Preferred provider organizations (PPOs) are a prevalent type of managed care organization. PPOs have a **Preferred Provider Arrangement** which serves as a contractual agreement with a group of large healthcare providers to keep the cost down for clients. Costs associated with client care are predetermined, which prohibits physicians from charging higher client fees (Medical Mutual, 2020). Enrollees within PPOs have a choice to use providers and hospitals within the network or not. Incentives, such as decreased deductibles and lower copayments, are used to encourage consumers to use in-network doctors. If the enrollee chooses to use a provider that is not part of the network, the cost of the rendered healthcare service is higher. In other words, enrollees can opt to save their cost by choosing a provider within the network. Nevertheless, no referral is needed if the client selects a provider outside of the network. The premium of a PPO is often higher than an HMO, which means the costs to the client is higher. However, it should be noted that PPOs are more flexible than HMOs.

Pros	Cons
Larger network	Higher premiums
Can go out of network	Deductible
No referral needed	

Point of Service Plan (POS)

Point of Service (POS) plans are like PPOs except when the client chooses a provider outside of the network and has a referral from their primary healthcare provider, the cost of services is covered by the medical insurance (Small Business Majority, 2019). However, if the client chooses to see an out-of-network provider without a physician referral, the client is responsible for a portion of the bill. The client will also have to meet their deductible and copayment. A **deductible** is a cost the consumer is required to prepay to receive the benefits indicated in the health insurance policy (WiseGeek, 2020). Consumers may have high or low deductible plans depending on their preferences. A high deductible requires the consumer to pay more out of pocket expenses, while a low deductible requires consumers to pay less. Once the deductible is met, the insurance company will cover the cost of the services. The healthcare premium cost is often influenced by the type of deductible an individual selects.

Pros	Cons
Can go out of network	Need to file claims for out-of-network care
No referral needed	Higher deductible than PPO and HMO

Health Maintenance Organizations (HMO)

In contrast to PPOs, HMO enrollees do not have the same level of flexibility when choosing a provider. Yet, HMOs are associated with lower premiums. Additionally, while a primary care physician is not required in a PPO, a primary care provider must be selected in an HMO. Named by Dr. Paul Elwood, the purpose of HMOs was to offer prepaid group practices, which meant lower cost
and improved utilization of healthcare services for consumers (Yesalis et al., 2013). Not surprisingly, the advent of HMOs was met with resistance from physicians who preferred more flexibility when providing care under the fee-for-service plan.

HMOs generally cover treatment costs if care is rendered within the network. However, it should be noted that treatments for emergency care, out-of-area urgent care, or out-of-area dialysis care services are excluded from provider

networks, which means patients can receive these services from providers outside of the network without penalty (U.S. Centers for Medicare & Medicaid Services, n.d.). With this type of plan, it is recommended that approval for services is obtained before services are rendered to decrease the client's cost (U.S. Centers for Medicare & Medicaid Services, n.d.). Except for yearly screening, referrals are needed for specialist visits. HMOs usually do not provide coverage for services rendered outside of the network unless it is a service that the listed providers are not conducting. Individuals receiving care from providers outside of the network may ultimately be responsible for the cost of care received unless in the case of an emergency.

Pros	Cons
Lower premiums	Need to stay in network
Lower costs than PPO	Referral needed to see a specialist

Exclusive Provider Organizations (EPO)

Consumers opting for an **exclusive provider organization (EPO)** managed care plan receive insurance coverage when

they receive care from in-network providers (Silva, 2019). However, if an out-of-network provider is chosen, the services are not covered by the health insurance plan, unless in an emergency. Consumers with the EPO plan have a primary care physician who provides comprehensive care. It should be noted that unlike other types of insurance plans, EPO clients have a limited network from which to choose. An advantage of EPOs is that referrals are not needed for a specialist visit.

Pros	Cons
Referral not needed	Need to stay in network
	Limited network

2.9 WHICH TYPE OF HEALTHCARE PLAN IS RIGHT FOR YOU?

Many managed care plans are available and which plan fits you and your family's needs is a personal choice. Individuals should be knowledgeable about the options of each plan based on several factors. Some general questions to think about when deciding include the following:

- Do you have a preferred primary care provider? If so, are they participating in a managed care organization?
- How much are you willing to contribute to healthcare premiums monthly?
- How much flexibility do you desire regarding healthcare provider choices?
- Do you often visit a specialist? If so, are they members of a managed care group?
- Are you willing to pay a copayment or coinsurance if required?

Pause and Reflect

Has your workplace ever given you a booklet of the health plans available to choose from? There may be several noted, with all the prices for copays, deductibles, yearly maximums, and services provided. How do you choose?

What are some advantages and disadvantages of a managed care system?

2.10 WORKERS'

COMPENSATION INSURANCE

Workers' compensation insurance provides benefits to employees if they are hurt on the job or as a result of some work-related activity. The genesis of workers' compensation benefits goes back to 2050 B.C. in Ancient Sumeria, Greece, and China when workers were paid for injuries suffered on the job (Hartford, 2020). In 1887, Prussian Chancellor Otto von Bismarck, created laws called "sickness and accident laws" which provided limited protection to those working in factories, quarries, railroads and mines. Not until 1911 did individual states within the U.S.
begin to pass workers' compensation law; it took another thirty-seven years before every state had compensation laws (Hartford, 2020). The U.S. Department of Labor (n.d.) created the Occupational Safety and Health Act (OSHA) of 1970 "to ensure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance" (para. 1). OSHA mostly covers private sector employers and workers. The U.S. Department of Labor, Office of Workers' Compensation Programs oversees federal workers and claims for work related injuries.

Some work settings and occupations are more dangerous than others. In the U.S., logging workers, fishers, aircraft pilots, and roofers have the highest rates of fatal injuries (Kiersz & Hoff, 2020). However, non-fatal injuries account for a

majority of cases. In 2019, there were 888,220 injuries or illness resulting in days off of work (Bureau of Labor Statistics (BLS), 2020). In 2019, ten occupations accounted for 33.2% of days away from work as a result of injury or exposure (BLS, 2020) (Figure 2.1). Examples of injury or exposure are employees working in manufacturing harmed as a result of machinery, toxins, or cramped settings; employees working in mining harmed from breathing in dirty air or a sudden collapse of a mine; and healthcare workers in the hospital setting being hurt physically by moving patients or by contracting diseases, such as hepatitis, HIV, or COVID-19. Injuries do not have to be permanent or life-threatening. For example, the most common causes of non-fatal workplace injuries in 2019 were overexertion, falls, slips, trips, contact with objects of equipment, violence or injuries caused by people or animals, and transportation accidents (BLS, 2020). Compensation insurance ensures funds are available to pay for medical care; rehabilitation services; lost wages; and, potentially, funeral expenses.

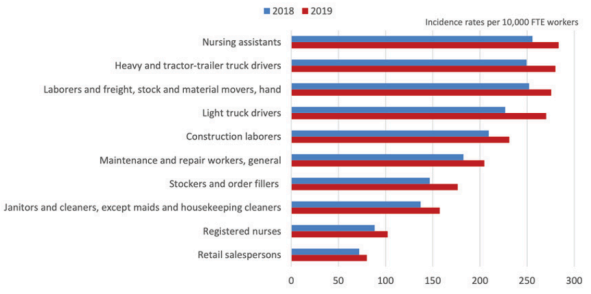

Figure 2.1: Incidence Rates Of Cases Involving Days Away From Work Selected Occupations Source: US Bureau of Labor Statistics Attribution: US Bureau of Labor Statistics License: Public Domain

In addition to state laws, many large companies whose employees are at a higher chance of injury have implemented health and safety teams who are able to respond at the time of injury. These teams also study and create policies and work procedures which protect employees on the job. These same organizations may provide employee health clinics and first

responders in the case of injury. The ultimate goals are to have healthy, injury free employees and maintain productivity.

First Person Perspective

Nurse M, RN-eNLC, CCM, has thirteen years of experience as a nurse, seven years certified in case management, and works as a Workers Compensation Nurse Case Manager for her company.

Figure 2.2: First Person Perspective
Source: Original Work
Attribution: Deanna Howe
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> As a worker's compensation Nurse Case Manager, I act as a liaison between the employee, their medical team, employers, insurance carriers, and other stakeholders involved in the management of a worker's comp claim. Work injuries can range from minor to catastrophic and often are very stressful events for the injured worker and their families. Nurse Case Managers educate and advocate for the injured worker and guide them through the entire process so they know what to expect. My involvement in a worker's compensation claim tends to benefit injured workers by streamlining the process for faster, more complete access to care, improved care quality, and better recovery outcomes. Employers, insurance carriers, and other stakeholders benefit from improved communication flow, faster returns to

work, quicker claims closure, and lower overall workers' compensation costs.

Providing worker's comp case management during the worldwide COVID-19 pandemic has brought new challenges as many physicians have moved to telemedicine formats. Case managers are now coordinating and educating injured workers on how to connect with their physicians virtually rather than in person. I am also beginning to receive cases involving injured workers who most likely contracted COVID-19 while at work, including those involved in healthcare and factory workers. While many who contract COVID-19 have mild cases with no known lasting effects following their recovery, others are not so lucky.

Although I no longer provide bedside nursing, it is my nursing foundation learned during nursing school that instilled in me that it is the nurse who upholds patient's rights and serves as liaison with

> their physicians, families, and other involved parties—because we are advocates. Worker's comp case management can be very challenging and not all nurses can be successful case managers. Collaboration, well- supported clinical judgement, and negotiation are key skills for a case manager to possess. I do not see myself leaving the field of worker's comp case management; I enjoy the challenges. Knowing my presence on the case was instrumental in the injured worker having a favorable outcome and returning to his pre-injury condition is very rewarding. First person perspective vignette collected and created by D. Howe, 2020. For your consideration: Nurse M. describes her role as a nurse advocating for the worker.

First person perspective vignette collected and created by D. Howe, 2020.

For your consideration:

Nurse M. describes her role as a nurse advocating for the worker.

- Have you ever known someone who was injured on the job?
- Did they have worker's compensation insurance available?
- If not, how does worker's compensation insurance protect the worker?
- How does this insurance protect the employer?
- If you were injured on the job, how could a nurse case manager help you through the process of seeking treatment and recovery?
- What laws should be in place to protect workers who do not have access to worker's compensation insurance?

SUMMARY

Private insurance and managed care organizations provide consumers the opportunity to receive healthcare services at a reduced cost. Many individuals have healthcare insurance from their employers. Self-employed individuals can obtain healthcare coverage from the individual's health insurance

marketplace without discrimination against preexisting conditions. A significant goal of managed care is to provide consumers with quality healthcare. With managed care, guidelines are provided to help ensure predetermined protocols are followed, which may include specific diagnostics, medications, and treatment regimens based on the diagnosis of the consumer. The four major types of managed care plans are Health Maintenance Organization, Preferred Provider Organization, Exclusive Provider Organizations, and Point of Service plans. Individuals have the option to utilize in-network providers at a reduced cost or may use out of network providers at a higher price in specific managed care plans. Some managed care plans are more flexible and do not require referrals for specialist visits, while others are less flexible and may not pay any amount if a consumer does not get a referral before receiving services from a specialist and out of network provider. Workers' compensation insurance is a benefit to pay for medical treatment and loss of wages as a result of injury on the job.

REVIEW QUESTIONS

1. What are the major types of managed care organizations?

2. What were some problems associated with Fee-for-Services plans in the U.S.?

3. What are the differences between POS, HMO, PPO, and EPO managed care organizations?

4. How does managed care impact healthcare?

5. What are three general questions to ask before deciding on a healthcare plan?

6. Describe how worker's compensation insurance benefits employees who are injured on the job.

3.

ACCESS TO CARE ISSUES

3.1 LEARNING OBJECTIVES

By the end of this chapter, the student will be able to:

1. Define access to healthcare
2. Discuss barriers to healthcare
3. Define health literacy
4. Explain initiatives to increase access to healthcare
5. Describe possible improvements in the healthcare system

3.2 KEY TERMS

1. access

2. civilian
3. equitable care
4. health-seeking behaviors
5. high deductible
6. health disparities
7. health literacy
8. usual place of healthcare

3.3 INTRODUCTION

Having good health contributes to quality of life. Knowing that healthcare resources are available and easily accessible without depleting most of one's resources in times of need provides a sense of security. In this chapter, we explore the degree to which persons in the U.S. are without access to healthcare, barriers to healthcare access, consequences of inadequate access to healthcare, and possible measures to improve healthcare in the immediate future.

3.4 ACCESS TO HEALTHCARE

What does access to healthcare mean? Where is the U.S. regarding access to healthcare for the population? In 1993, the Institute of Medicine defined access to healthcare as "the timely use of personal health services to achieve the best possible health outcomes" (IOM, 1993, p. 31). The Office of

Disease Prevention and Health Promotion (ODPHP, 2019a) uses this definition and lists three steps for obtaining access to needed healthcare services: (1) entrance into the system, usually through health insurance; (2) obtaining needed services within an accessible location; and (3) finding the right patient-provider relationship where communication, mutual trust, and respect are obtained. All three are essential in obtaining appropriate healthcare services.

Entrance into the System

Possessing health insurance may be considered as the gateway into the healthcare system. Without insurance coverage, most individuals are not willing to seek healthcare services unless faced with a life-threatening emergency—arguably, because of the expense. Hospital emergency departments are not allowed to turn anyone away because of the lack of health insurance. Conversely, physician offices can refuse to accept patients without insurance. Moreover, physician's offices may turn patients away if they have only Medicaid; some also refuse Medicare.

Public health departments provide free or reduced-priced services to community members. Low-income pregnant women are eligible for Medicaid, and children of low-income families are eligible for Medicaid or state-sponsored insurance for children. Medicare is available to individuals with disability, who are on dialysis, or those age greater than 65

years. Of importance to note is that individuals' being eligible for insurance does not mean they are automatically enrolled or obtain insurance. However, without insurance, unless paying with cash, an individual will most likely have a difficult time accessing the healthcare system.

Pause and Reflect

Should physicians be able to turn patients away who have Medicaid?

Should state or federal government require physicians to accept Medicaid patients?

What sort of incentives might state or federal government provide to physicians so they will begin to or increase acceptance of Medicaid patients?

First Person Perspective

Mr. J., M.A., is the Deputy Head for the Center for German-American Educational History

Figure 3.1: First Person Perspective Source: Original Work Attribution: Deanna Howe License: CC BY-SA 4.0

In college, I lost health insurance coverage through my parents—this was before the Obama-era mandate which allowed dependents to stay on their parent's health insurance coverage until they turned 26. Like a lot of college students, I

gambled and went without health insurance, thinking that being young and healthy, I could spare the expense. I avoided going to the doctor and dentist for checkups, fearing the costs. I also would try to tough out illnesses, which ended up causing me to go to urgent care for a bronchial infection—something I could have avoided had I been able to go to the doctor without worry.

Still thinking I could manage on my own, life had other plans and I got in a serious car accident. My car was totaled and, because it had flipped over, paramedics forced me to take an ambulance ride to the nearest hospital. After running tests, the doctors determined that I was fine. Although I was very lucky to walk away from the accident with nothing more than a sore back, my lack of health insurance coverage impacted me negatively. Although my car insurance provider covered the hospital visit, it refused to cover my ambulance ride. This ended up costing me over $1,000, and I was soon

dealing with aggressive debt collectors. The worst part about my story is knowing that this ambulance ride was relatively cheap compared to what many young people in my situation have gone through.

First person perspective vignette collected and created by D. Howe, 2020.

For your consideration:

Mr. J. describes a time when he didn't have health insurance. Like many others without health insurance coverage, Mr. J. avoided going to the doctor or seeking routine care and also tried to "tough it out" in times of illness. Access issues to medical care are common when someone doesn't have health insurance.

- Are there any services available that Mr. J. could have used in order to get the healthcare he needed during times of illness?
- What about for yearly check-ups when he isn't sick?
- Have you ever known someone without health insurance?

- Did they also have access issues to healthcare services?

According to Cohen et al. (2019), 2018 National Health Interview Survey (NHIS) data from HHS and the CDC reveal that 30.4 million civilian individuals (9.4% of the noninstitutionalized population) were without health insurance coverage at the time of the interview, and this result shows a decrease in the uninsured over the last eight years. It is important to note that statistics may vary slightly depending on which data are used. Berchick et al. (2019) provide statistics from two U.S. Census Bureau surveys—data retrieved from a nationwide survey from the U.S. Department of Commerce, the Current Population Survey Annual Social and Economic Supplement (CPS ASEC); and a state-based survey, the American Community Survey (ACS). Berchick et al. report 27.5 million persons without health insurance, 8.5% of the total noninstitutionalized population in 2018 (compared to 9.4% from Cohen et al., 2019). Berchick et al. report this as a slight increase of uninsured persons from 2017. Over two-thirds of the insured population had private health insurance, while the rest of those insured were covered by public health insurance (Medicare or Medicaid) (Cohen et al., 2019). Other

interesting and important data obtained in the NHIS 2018 survey among age groups are as follows:

- Ages 0-17 years: 5.2% were uninsured, 41.8% had Medicaid or
  Medicare, and 54.7% had private insurance
- Ages 18-64: 13.3% were uninsured; 19.4% had Medicaid or Medicare;
  and 68.9% (136.6 million) had private insurance
- Ages 25-34: the age group that lacked health insurance the most in
  2018. Only 17% of individuals had a form of health insurance (Cohen
  et al., 2019).

At first glance, the number of children uninsured is alarming, when considering most children are eligible for insurance from federal or state funds. Berchick et al. (2019) found that the children without insurance were most likely to be from families with income categories of at or above 400% of poverty income level. Although findings were nonsignificant, the data thus indicates that most uninsured children live in high-income families, families possibly without any insurance for any family member. Two statistically-significant findings by Berchick et al. were that more uninsured children lived in the South and were of Hispanic descent. This is congruent with the NHIS 2018 findings that the racial characteristics of

uninsured children reveal the least likely to be insured were Hispanic children (7.7%); followed by non-Hispanic whites (4.1%); non-Hispanic Blacks (4.0%); and non-Hispanic Asian (3.8%) children (NCHS, 2019) (Figure 3.2).

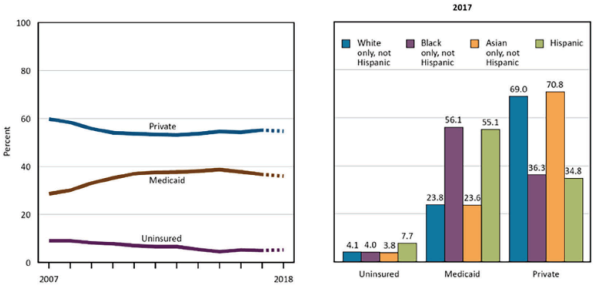


Figure 3.2: Health Insurance Coverage Among Children Under Age 18 Years, By Type of Coverage and Race and Hispanic Origin: United States, 2007–2018 (Preliminary Data). NOTES: Estimates for 2018 are preliminary and are shown with a dashed line. Health insurance categories are

mutually exclusive. A small percentage of children are covered by Medicare, military plans, or other plans. Estimates for this group are not presented. Source: Health, United States 2018 Attribution: U.S. Department of Health and Human Services License: Public Domain

Probably not surprisingly, the largest age group lacking health insurance in the U.S. is the age group 25-34 years, most of whom are no longer covered by their parent's insurance. This age group may be graduating from college and having difficulty finding full-time employment. Berchick et al. (2019) found that those working less than full-time and/or less than year-round were more likely to be uninsured. For all adults, those of Hispanic origin were the most likely to be uninsured, followed by Blacks, Whites, and then Asians (NCHS, 2019). Data was not provided concerning legal citizenship. Importantly, health-wise, the NIHS (NCHS) discovered Hispanic persons had the highest rate of diabetes. See Figure 3.3 below for health insurance coverage for adults aged 18-64 and ethnicity.

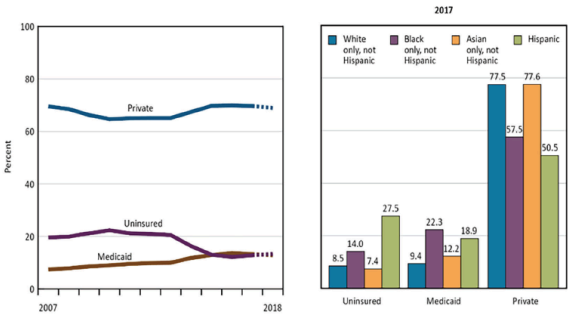


Figure 3.3: Health Insurance Coverage Among Adults Aged 18–64, By Type of Coverage and Race and Hispanic Origin: United States, 2007–2018 (Preliminary Data). NOTES: Estimates for 2018 are preliminary and are shown with a dashed line. Health insurance categories are mutually

exclusive. A small percentage of people are covered by Medicare, military plans, or other plans. Estimates for this group are not presented. Source: Health, United States 2018 Attribution: U.S. Department of Health and Human Services License: Public Domain

Obtaining Needed Services Within an Accessible Location

There is a shortage of primary care physicians throughout the U.S. Numbers of advanced practice professionals (best known as advanced practice providers, sometimes also called physician extenders)—nurse practitioners and physician assistants—are increasing throughout the nation. Yet, at the present time, primary care services may not be available in many locations. Obtaining specialty services may not be available either. Important to note is that many locations offer public health departments or community health services. Having a healthcare provider or healthcare services in close proximity is essential for individuals to receive the appropriate care when healthcare is needed and in a timely manner. Moreover, equitable care with improved health outcomes and reduced healthcare costs occurs when individuals have healthcare services provided and utilized on a regular basis (Office of Disease Prevention and Health Promotion [ODPHP], 2019a).

Finding the Right Patient-Provider Relationship Where Communication, Mutual Trust and Respect are Obtained

Having a healthcare provider who demonstrates caring behaviors and attitudes is important in a healthcare provider-patient relationship. Caring is shown when there is respect and a non-judgmental attitude towards someone regardless of the individual's culture, race, religion, ethnicity, gender, age, or disability. Caring and respect lead to trust and open communication. Trust and open communication lead to increased health-seeking behaviors and eventually lower healthcare costs due to decreased emergency room and outpatient clinic visits (ODPHP, 2019a). Improved health-seeking behaviors also lead to a decrease in chronic illness and mortality (ODPHP, 2019a).

BARRIERS TO HEALTHCARE

In addition to lack of health insurance, lack of accessible and appropriate healthcare services, and inability to find the "right" healthcare provider, there are other barriers to healthcare in the U.S. Inadequate health insurance, not having a "usual" place of obtaining healthcare, the high costs of healthcare, not obtaining an appointment in a timely manner,

having a language barrier, low health literacy, and health disparities for certain parts of the population are all barriers to receiving adequate healthcare and are discussed next. Factors that may influence these barriers are also discussed.

High Cost of Healthcare

As technology continues to evolve and improve, quicker and more reliable diagnostic tests are available, as well as more efficient medications with fewer side effects, all of which increases the costs of healthcare. Governmental health plans and many insurance plans are slow to approve and pay for new technology, including diagnostic tests, medications, and equipment. Physicians, however, order the most up-to-date diagnostic tests, medications, and equipment which they feel will help patients or improve their health. Often, patients need to take several medications to combat their disease processes. For example, it is not uncommon for persons with high blood pressure to be on three different medications to maintain a normal blood pressure. Kirzinger et al. (2019) found that individuals who have the most difficulty affording their prescription medications are taking four or more prescription medications; spending $100 or more per month on medications; are in the 50–64 year old age range; describe themselves in either fair or poor health; and have an income less than $40,000 annually. Obviously, having to pay exorbitant costs for medications may prevent individuals from

receiving the healthcare they need. These findings may indicate that individuals who are aging— but not old enough for Medicare—and who are possibly in the lower income levels may be developing chronic illnesses in their younger years of age. Examining similar information as the Kirzinger report, the federal government's latest data concerning delay or nonreceipt of healthcare are found in the 2017 National Health Interview Survey (NHIS) (NCHS, 2019, Trend Table 29) where 320,182 individuals (adults or an adult speaking for a child in the home) were interviewed concerning delay or nonreceipt of needed medical care due to cost, nonreceipt of needed prescription drugs due to cost, and nonreceipt of needed dental care due to cost. Results from the 2017 survey were compared to results from 1997, 2005, and 2010. In 2017, 7.4% of respondents stated they delayed or did not receive needed medical care due to costs. This percentage was the lowest percentage in the 10- year recorded period. Of those responding to the question about not receiving needed prescription drugs due to cost, 5.1% stated they had not received medications as needed. Only the year 1997 was lowest, with 4.8% not receiving medications due to cost. Of those responding that they didn't receive needed dental care due to cost, 9.5% agreed that they had not received dental care. Again, this was the second lowest percentage, with 8.6% responding in 1997 that this was a problem. Although these are relatively small percentages, the goal is that no one delays or doesn't receive medical care when needed.

Health Insurance Costs and the Relationship to Access

Costs associated with health insurance, such as high deductibles, copays, and out-of-pocket expenses, can be a barrier to healthcare. Many individuals have private insurance with high deductibles, some employer-based and some individually purchased. The U.S. Centers for Medicare and Medicaid Services (U.S. CMS, n.d.) define a high deductible health plan as "a plan with a higher deductible than a traditional insurance plan" (para. 1). With a high deductible plan, the monthly premiums are lower, but the beneficiary pays a large amount of the healthcare costs before the insurance company pays for any of the healthcare costs. "For 2020, the IRS defines a high deductible health plan as any plan with a deductible of at least $1400 for an individual or $2800 for a family" and limits "total yearly out-of- pocket expenses (deductibles, copayments, and coinsurance) to $6,900 for an individual or $13,800 for a family," if using in-network services only (receiving services outside of the insurance's approved providers would result in higher costs to the individual and/or family) (U.S. CMS, n.d., para 3).

The 2018 National Health Interview Survey (NHIS) indicated that the numbers of individuals with high deductible health plans increased from 43.7% in 2017 to 45.8% in 2018 for persons under the age of 65 (Cohen et al., 2019). Moreover, according to Kirzinger et al. (2019), surmising the results of

several Kaiser Family Foundation (KFF) healthcare tracking polls suggested that about one-fourth of insured workers were required to pay an increased deductible averaging 212% over the last decade, resulting in an approximate deductible of $2000 or more for a single person. Having a high deductible where out of pocket costs must be paid prior to the insurance covering prescription drugs or medical costs may deter individuals from seeking healthcare. Kirzinger et al. (2019) described one KFF 2018 poll where results indicated that 34% of insured adults found it difficult to pay health insurance deductibles, 28% found it difficult to pay monthly premiums for health insurance, and 24% found it difficult to pay the co-pays for health-related costs, such as visits to a physician's office and prescription medications. Another KFF poll, performed in 2017, (Kirzinger et al., 2019), presented a scenario to those with employee-sponsored insurance (ESI) asking them if they had to pay $500 of an unexpected healthcare bill, would they be able to pay the bill. Fifty-nine percent said they would be able to pay the bill at the time of service, whereas 34% said they would not and would need to use a credit card, borrow money, or not be able to pay it at all. The results of this 2017 poll is depicted in Figure 3.4.

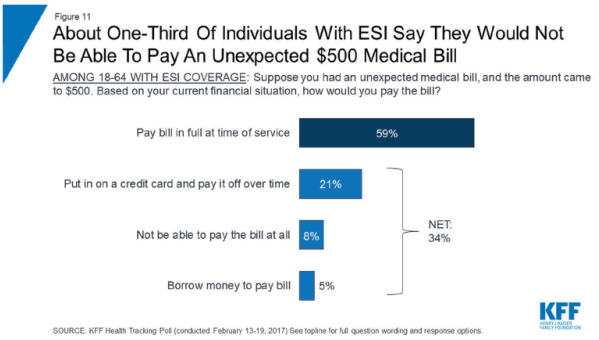


Figure 3.4: About One-Third of Individuals with ESI say They Would Not be Able to Pay an Unexpected $500 Medical Bill Source: Kaiser Family Foundation Attribution: Kaiser Family Foundation License: © Kaiser Family Foundation. Used with permission.

For those with public health insurance (Medicare or

Medicaid), Medicaid does not pay hospitals or physicians the same rate as Medicare. Medicare does not pay the same as most private health insurance plans. Original Medicare does not provide the supplemental benefits that Medicare Advantage does. Medicare Part D has cost limits for medications. Therefore, one may have insurance, but the insurance may not be enough to obtain needed services or may not pay sufficiently to prevent exorbitant costs to the individual. Moreover, healthcare providers cannot depend on third parties to reliably provide any, or even some, form of payments (Elrod & Fortenberry, 2017).

Not Having a "Usual" Place to Obtain Healthcare One of the questions on the 2018 National Health Interview Survey (NHIS) asked whether interviewees (249,456 individuals 18 years and older) had a usual place of healthcare (Cohen et al., 2019). Having a usual place of obtaining healthcare often involves having an easily accessible location with appropriate services provided and development of a rapport with caregivers. Interview results indicate that among adults aged 18 and over, 85% have a usual place of healthcare. The most often-cited place for healthcare was a doctor's office or HMO (69.7%), followed by clinic or health center (26.1%), hospital outpatient department (1.5%), hospital emergency room (1.4%), and some other place (1.3%). Specific variables that may affect having a usual place of healthcare identified in the 2018 NHIS are gender, race and ethnicity, education, employment, poverty level, and not having insurance. See

results of these variables from the 2018 NHIS (CDC, n.d.) in Table 8.1.

Table 3.1: CDC Summary Health Statistics: National Health Interview Survey, 2018, Adults 18 and Over

Do you have a usual place of obtaining healthcare: Yes or No?	
Yes	85%
No	15%
Race/ethnicity and gender combined	**Percentage having a usual place of healthcare**
White females	90.80%
Black female 8	8.80%
Hispanic or Latino female	84.90%
White male	83.60%
Black male	81.90%
Hispanic or Latino males	73.90%
Education level	**Percentage having a usual place of healthcare**
Bachelor's degree or higher	90.1%
No high school diploma	79.1%

Current Employment	**Percentage having a usual place of healthcare**
Have worked full-time; may be unemployed at this time	85.60%
Work part-time	83.80%
Poverty status	**Percentage having a usual place of healthcare**
Below poverty threshold	79.60%
Near poor (income 100% to less than 200% of poverty level)	79.70%
Not poor (incomes higher than 200% of poverty threshold or greater)	87.80%
Uninsured	**Percentage having a usual place of healthcare**
Yes	51.50%
No	48.50%
Attribution: Deanna Howe *License: CC BY-SA 4.0*	

Timeliness of Obtaining an Appointment or Treatment

Sometimes individuals cannot receive an appointment with a

healthcare provider as quickly as needed or desired. This causes a delay in treatment and possible worsening of symptoms. Many individuals end up in the emergency department or outpatient clinic, and higher costs may be incurred or poorer health outcomes may result from delays. Long waits in physician's offices or in emergency departments is another barrier to healthcare (Office of Disease Prevention and Health Promotion [IDPHP], 2019a). Patients may leave without being seen if the wait is long, thus delaying care further. Patient dissatisfaction may occur also. Often, tests are ordered and there is a delay in obtaining those services. The delay may lead to distraught feelings, development or extension of complications requiring hospitalization and possible poor health outcomes, and likely increased costs (ODPHP, 2019a).

Language Barrier

The number of individuals in the U.S. with English as a second language is increasing (Meuter et al. 2015), posing a language barrier issue between non- English speaking patients and healthcare workers. A language barrier prevents ideal communication between the patient and the healthcare provider, with possible errors in assessment of problems, services rendered, and in care instructions. A lack of culturally-competent care may also be present if the healthcare provider is not aware of, or chooses not to be aware of, cultural differences that affect the communication between patient and healthcare

provider. A lack of culturally- competent care may lead to inequitable care for those who cannot speak English fluently (Meuter et al., 2015).

Pause and Reflect

How might a language barrier affect seeking healthcare?

Consider if you were visiting a different country whose people speak a different language. What if you become ill?

How would you find healthcare?

How would you communicate the problem?

Health Literacy

The official definition of health literacy from the HHS (2020b) is "the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions" (para. 1). Navigating the healthcare system may be difficult if an individual is not aware of what steps need to be taken and where to go for assistance. Without health literacy skills, individuals do not have the knowledge of where and how to obtain healthcare services or navigate the complex U.S. healthcare system. Reading and comprehending health resources may be a challenge. The World Health Organization (WHO) (1998) characterizes health literacy as overall

encompassing of what is needed for healthcare services to be accessed and utilized by an individual: health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Thus, health literacy means more than being able to read pamphlets and make appointments. By improving people's access to health information—and their capacity to use it effectively—health literacy is critical to empowerment. Health literacy itself depends upon more general levels of literacy. Poor literacy can affect people's health directly by limiting their personal, social, and cultural development, as well as hindering the development of health literacy (p. 10). In addition, making healthcare decisions and taking responsibility for self-care are also concerns for those who have low health literacy skills (CDC, 2019j). According to Hickey et al. (2018), characteristics associated with low health literacy are those with lower income levels, limited education, chronic diseases, older age, and non-native English speakers (p. 49). Significantly, however, healthcare providers may not be able to tell from looking at a person which level health literacy they have. Therefore, it is important to assume every patient needs careful instruction and an assessment of understanding because lower health literacy levels can adversely affect healthcare-seeking behaviors, such as understanding of instructions, importance of following directions, and follow-up care.

The Agency for Healthcare Research and Quality (2015) encourages healthcare organizations to develop quality improvement measures to make information simple to comprehend and healthcare systems easy to maneuver. Hickey et al. (2018), recommend incorporating health literacy into the standard clinical care for all patients. Some easy suggestions include the following:

- Use plain language—organize the information, break up complex information, define technical or medical terms with simple language
- Use visual aids—illustrations, simple drawings, clear labels
- Use technology—patient portals, telemedicine, mobile apps
- Use effective teaching methods—open-ended questions, "teach-back" communication method, "show back" to demonstrate skills (ACP, 2019)

Pause and Reflect

A non-native English speaker is about to be discharged from the hospital following surgical removal of the appendix. The nurse comes into the room and discusses the need for proper care of the surgical wound, to continue taking all the antibiotic medications provided, and to call the primary doctor if there are any complications (excess pain, fever, draining from surgical site). The nurse asks if the patient understands the directions and they nod their head in the affirmative. The

patient is asked to sign the form, given the written discharge instructions, and discharged to home. In this scenario, how do we know the patient understood the instructions?

Health Disparities

Orgera and Artiga (2018) define health and healthcare disparities as "differences in health and healthcare between population groups" (para.1). Various factors, such socioeconomic status, race, ethnicity, gender, sexual orientation, age, disability status, and regions of the nation, may affect the care individuals receive. We have already discussed reasons an individual may not seek healthcare and/or delay care and the costs associated with health insurance. Arguably, some variables consistently indicate there are some groups who receive less healthcare. The U.S. Office of Disease Prevention and Health Promotion (ODPHP, 2019a) states that those in a lower socioeconomic status receive less healthcare. And many persons in the poor and near-poor categories, according to the research presented here, delay healthcare or have difficulty with the costs of healthcare. One should note that many poor do receive Medicaid. However, as stated previously, Medicaid may not be accepted by all physicians. Delving deeper into the unmet healthcare needs of persons based on poverty levels, the NCHS (2019) compared unmet (delayed or received) healthcare needs due to costs in persons based on national poverty levels from 2017 to results

obtained in 2007 (based on data from the 2017 NHIS previously discussed). The poverty levels compared were the same as previously discussed elsewhere (below poverty level; nearly poor: 100–199% of poverty level) except two groups of not-poor were established: the first group of not-poor lived at 200–399% of the poverty level, and the next group of not-poor lived at or above 400% of the poverty level. Results indicated that although there has been improvement in meeting the medical needs in all groups since 2007, a divide remains between the percentage of unmet medical needs of the poor and those in the not-poor groups because of costs. Thus, those in the poor groups have unmet healthcare needs, and, as greater levels of poverty were identified, the discrepancy increased incrementally. The NCHS (2019) also interviewed these same individuals in the 18–64 age group to determine if they received needed prescription medications. Again, despite the vast improvements in the last decade, there remains a difference in the poor, near-poor, and not-poor categories (Figure 3.5).

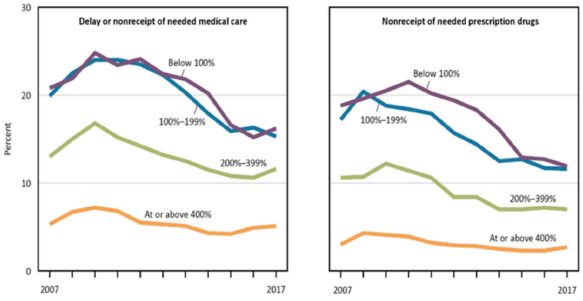


Figure 3.5: Delay or Nonreceipt of Needed Medical Care and Nonreceipt of Needed Prescription Drugs in the Past 12 Months Due to Cost Among Adults Aged 18–64, By Percent of Poverty Level: United States, 2007–2017
Source: Health, United States 2018
Attribution: U.S.

Geographic Location

Department of Health and Human Services License: Public Domain

Geographic location is another factor that may affect whether individuals receive healthcare (NCHS, 2019). Individuals in rural areas receive less healthcare access and utilization than those in urban areas. Of all children aged 19–35 months in the U.S. in 2017, 29.6% did not receive adequate vaccination coverage. Children living in rural areas received the appropriate vaccination less than their urban counterparts (66.8% compared to 71.9%, respectively) (NCHS) (Figure 3.6).

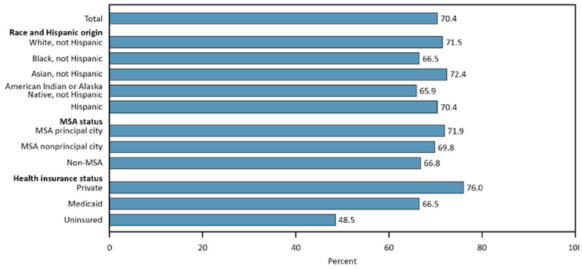


Figure 3.6: Vaccination Coverage for Combined Series Among Children Aged 19–35 Months, By Selected Characteristics: United States, 2017. NOTES: MSA is a metropolitan statistical area. Source: Health, United States 2018 Attribution: U.S. Department of Health and

Health Access for Illegal Immigrants

Human Services License: Public Domain

Many variables have already been discussed about why different persons or populations delay seeking healthcare or possibly receive inadequate healthcare. Illegal immigrants have unique health concerns as they may be mentally and physically vulnerable. Specific concerns for this population may be sex trafficking and lack of vaccinations, also. However, fear of exposing their residency status may be the primary concern of undocumented individuals and may explain why they delay or do not seek healthcare. Language or other cultural barriers may be an issue when receiving needed healthcare for this population. Only some communities have clinics to address health needs of undocumented persons seeking care and include translation services as needed. Also, some health departments are available that provide childhood vaccinations and other health education services to undocumented families. For emergency situations, individuals could seek care in emergency rooms. Regardless of the legality of citizenship, no person is turned down in the U.S. emergency departments for healthcare.

3.6 CONSEQUENCES OF INADEQUATE ACCESS TO

HEALTHCARE

Individuals without access to healthcare overall, are likely to have poorer health and quality of life (Office of Disease Prevention and Health Promotion, 2019a). Individuals without access to healthcare are more likely to encounter increased healthcare costs to self and family and to society (ODPHP, 2019a). They are less likely to participate in preventive health measures and obtain needed healthcare services in a timely manner (ODPHP, 2019a). They are more likely to seek healthcare in emergency departments and outpatient clinics and be hospitalized for avoidable illnesses (ODPHP, 2019a). And, they are more likely to live with chronic conditions and succumb to complications prematurely (ODPHP, 2019a).

3.7 EMERGING ISSUES AND POSSIBLE IMPROVEMENTS IN THE HEALTHCARE SYSTEM

Through the Office of Disease Prevention and Health Promotion, the federal government each decade develops initiatives striving for improved health for every American (ODPHP, 2020). Currently, Healthy People 2030 objectives

are being formulated, while the 2020 objectives are being analyzed. The public may attend any committee meeting. Other emerging noteworthy issues are the COVID-19 virus, illegal immigration, numbers and availability of healthcare providers and work models used, telehealth, and lack of use of evidence-based preventive services.

Healthy People 2020

The Healthy People 2020 objectives (ODPHP, 2019b) and corresponding findings are as follows:

- Increase the proportion of persons with health insurance.
    - 2020 Goal: 100% (83.2% in 2008) (90.6% in 2018 [Cohen et al., 2019])
- Increase the number of persons with a usual primary care provider.
    - 2020 Goal: 83.9% (76.3% in 2007) (85.4% in 2018 [Cohen et al., 2019])
- (Developmental) Increase the number of practicing primary care providers.
- Increase the proportion of persons who have a specific source of ongoing care.
    - 2020 Goal: 95% (86.4% in 2008)
- Reduce the proportion of persons who are unable to obtain or who delay in obtaining necessary medical care,

dental care, or prescription medicines.
    - 2020 Goal: 4.2% (4.7% in 2007) (4.4% did not receive medical care due to cost, and 6.3% delayed seeking medical care in 2018 [Cohen et al.); 11.9% did not receive their prescription medicines in 2017 (NCHS, 2019)
- (Developmental) Increase the proportion of persons who receive appropriate evidence-based clinical preventive services.
- (Developmental) Increase the proportion of persons who have access to rapidly-responding prehospital emergency medical services.
- Reduce the proportion of hospital emergency department visits in which the wait time to see an emergency department clinician exceeds the recommended time frame.

Numbers and Availability of Healthcare Providers and Work Models

Used Shortages of healthcare providers, specifically primary care providers, will continue (Institute of Medicine, 2015). New methods of scheduling patients and utilizing resources may need to be addressed. Better utilization of resources might meet the access needs and reduce delays in care. The Institute of Medicine (IOM) describes one issue with access due to a

supply-demand mismatch: scheduling and wait times. Any imbalance, or mismatch, with what is needed in terms of healthcare services and what is available in terms of those services results in delays in receiving care and may cause patients to not seek healthcare services or seek services elsewhere. Other issues may be office culture, operational inefficiencies and inadequate or underuse of resources (IOM, 2015). All healthcare providers need to switch to a patient-centered approach to care as opposed to the provider-centered method of the past (IOM, 2015). A patient-centered approach may mean having providers available for walk-in appointments—where the patients don't have to have an appointment—as done in retail clinics. Providers scheduling later office hours and weekends so that individuals might be able to see their regular healthcare provider also promotes a patient-centered approach. National benchmarks should be evaluated by practitioners to help identify factors that would more closely align their practice with patient-centered care and respect for patients' time. One benchmark offered by the IOM (2015) is evaluating wait times for all healthcare provider's office visits. The IOM also suggests evaluating driving times for patients to doctor's visits.

Telehealth Increasing Access to Care

Telehealth (communication through phone or video), also known as telemedicine, may be a useful resource in a physician

practice. According to the IOM (2015), up to 25% of patients call the physician's office on any given day, and the use of telehealth could curtail an office visit. Utilizing nurses and advanced- practice professionals to help with providing care, health teaching and preventive management, informatics managers, and coordinators of care should be evaluated. The COVID-19 outbreak may have changed telehealth forever. The Centers for

Medicare and Medicaid (CMS) have relaxed the rules for payment to healthcare providers during the COVID-19 pandemic. Telehealth waivers (for both video and phone) from CMS during this national crisis include allowing healthcare providers to perform telehealth visits in rural and non-rural areas, cross state lines, care for established and non-established patients, and bill the same as if the visit were in person (HHS, 2020). Also covered are emergency department visits, initial nursing facility and discharge visits, home visits, and therapy visits. Federally

Qualified Health Centers and Rural Health Clinics have also been added to provide telehealth sites at a distance or to arrange telehealth services for those unable to travel (HHS, 2020), thereby possibly reaching those who are disadvantaged. With the use of telehealth expansion, especially for Federally Qualified Health Centers and Rural Health Clinics during COVID-19, hopefully payment for these services can continue so that all persons can easily access a healthcare provider and in a timely manner.

3.8 SUMMARY

This chapter discussed variables and statistics related to access to healthcare, barriers of access and utilization of healthcare services, problems associated with lack of access, and possible measures going forward. Considering the statistics provided, the factors associated with increased access to healthcare, seeking care when needed, and not delaying seeking healthcare are: higher educational levels, higher family income levels, and having healthcare insurance. Whether other variables affect health and better outcomes is debatable, considering the statistics provided, and should continue to be evaluated. Perhaps healthcare providers need education and training to identify their own biases to ensure equitable care for all racial and ethnic cultures.

3.9 REVIEW QUESTIONS

1. What does access to healthcare mean?
2. Discuss three barriers to adequate healthcare.
3. What does it mean to be health literate?
4. Describe two specific ways to improve access to healthcare.

PART II
CASE STUDY PROJECT

4.

CASE STUDY: ERIN JOHNS (COPD)

Patient: Erin Johns

Erin Johns Source: Pacian commons wiki License: CC BY-SA 3.0 Unported

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.

At Home

***Day**: 0*
***Time**: 16h00*

"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	–	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
Time: 19h30	112	190/84

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**: 11h3*

***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 CO_2 and just normal PaO_2 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 CO_2 and drop in PaO_2 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 O_2 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.”

5.

CASE STUDY: ERIN JOHNS PNEUMONIA

Patient: Erin Johns

Erin Johns Source: Pacian commons wiki License: CC BY-SA 3.0 Unported

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.

At Home

***Day**: 0*
***Time**: 16h00*

"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	–	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**
Time: 19h30	92	170/90

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**: 11h3*

***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.

Day: 0	**Ph**	**O_2**	**CO_2**
Time: 23h00	7.5	80	50

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 CO_2 and just normal PaO_2 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 Saturati
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 CO_2 and drop in PaO_2 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 O_2 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. O_2 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 O_2 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 CO_2 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 SaO_2 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 SaO_2 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 SpO_2 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."

6.

CASE STUDY: HARJ SINGH UNSTABLE ANGINA

Patient: Harj Singh

Harj Singh Source: AFRINIC License: Public Domain

Patient: Harj Singh
Date of Birth: 03/03/19xx

PERSONA

Harj Sing is a 59 year old male. He lives with his wife in a small town in the interior of British Columbia. He is a short haul truck driver and owns his own vehicle. He finds the long

hours, slow business, and his truck, which constantly gives him mechanical trouble, stressful.

His wife, Priya Singh, is 56 years old; she manages the books for their trucking business. She is constantly worrying about the stress she sees in Harj despite his denial of feeling stressed or worried about their financial situation.

They have two adult children, one boy and one girl, who live locally. They have four grandchildren.

Harj smokes one pack if cigarettes per day and is trying to quit. He drinks moderately, his favorite drink being Crown Royal.

He leads a fairly sedentary lifestyle and is carrying extra weight. He loves fries and soda, and frequently gives into this weakness whenever he passes by fast food vendors.

Harj does not have a primary care physician. Instead, he uses the local walk-in clinic to manage his hypertension and other medical concerns. His surgical history includes an appendectomy as a child. He takes hydrochlorothiazide for hypertension and over-the-counter antacids to manage his heartburn.

At Home

Day: *0*
Time: *8:30pm*
Place: *At home*

Priya looks out the window to see her husband Harj working on the truck again.

"He's always out there doing something to that thing. I swear it hasn't worked well for any of the time we've owned it," she mutters.

Cleaning up the kitchen just before dinner, she glances at the half full bottle of Crown Royal. "He's drinking way too much again. I know he'll be grumpy and sad at the dinner table."

Again Priya looks out the window and sees Harj taking a smoke break from working under the hood of the truck. "He's also smoking way too much. We probably could make ends meet better if he didn't smoke and drink so much."

She moves to the stove and stirs some aloo gobi, then turns the heat off on the stove. "Ok, it's done. Now it's time to see if he will come in to eat or if he says he's too busy."

She turns around to find Harj staring at her. "You talking to yourself or are the kids here for dinner, too?"

"No, Harj. Just thinking out loud. Are you going to stop and have something to eat?"

"Yes, I think I'm almost done. It's the fuel pump this time. That's the last time I'm buying gas from your brother-in-law. The price was right, but I'm thinking the quality wasn't."

"It may not have been Gurr's fault. The truck is old, and have you ever replaced the fuel filter?"

"No." Harj steps closer to the kitchen island and, lifting his large abdomen on top of the island, reaches for the cupboard

with the small glasses. He pours himself a half glass of Crown Royal. "I remember when we only used these glasses for the kids when they were growing up. Now that they're gone, I use them for my drink. Do you want one, Priya?"

Priya shakes her head. "Maybe you should move to even smaller glasses or drink less."

"Not again and not today. I've been up before dawn, driving all over the bloody county, and now its 7:30 at night. I deserve a drink for how hard I've been working."

"Well, I just looked at the books. All that driving doesn't mean we are making money. We're going to have to cut some expenses: maybe your drinking and smoking."

Harj shakes his head. "This is the only enjoyment and stress reliever I have. I'll look for more jobs so we're not driving empty any time this week."

Harj sits at the head of the table with a view out the patio doors to his beloved truck. *Not quite a semi, but not one of those UPS vans, either,* he thinks.

"I just have to attach the electrics and I should be done for the night and ready to go tomorrow early," he tells Priya.

Priya brings dinner to the table and ladles the steamy and fragrant potatoes and vegetables into Harj's bowl. She gives him one piece of naan but watches in disgust as he reaches and takes hers. He looks at her and shrugs his shoulders. "What? I'm hungry."

"You haven't even eaten it and you are taking more. I remember when I could put my arms around your waist."

Harj looks down at his quite large abdomen and smiles at Priya. "Probably the only thing I own that is fully paid for."

Priya smiles at his joke and sits at the table.

The two share stories of their day and what the kids have been up to. "It's really different without the kids here, Priya. The last one moved out over a year ago, but it still seems strange. It's too quiet."

Priya nods. "Yes, I know what you mean. They'll be here on the weekend. You need to take some time off to visit when they come. Last time you worked the whole weekend through and never saw them. That isn't good for you or the kids."

Harj stops eating and just looks at his food. Priya hears a quiet, "I know."

Harj quickly finishes his meal, pushes himself away from the table and begins the motion to bring a cigarette out of his pocket. "No, Harj. We agreed no smoking in the house."

Harj grimaces at her and walks out the patio doors to the truck, lighting his cigarette as he goes.

Pryia cleans up the kitchen and makes Harj a lunch for tomorrow. She sees him come in. "All done?"

"Not quite. About five minutes more. Got brutal heartburn. Your cooking is killing me. Where are the antacid tablets?"

"By your bedside, like always."

Harj goes to the bedroom and takes four tablets. Then he walks quickly out to the truck.

Completing the last of the connections, he says to himself,

"Finally done. Let's start this up to double-check." Slamming the hood down, Harj moves around to the driver side of the cab and lifts himself inside, grunting numerous times. The truck starts up on the first try. Harj revs the engine a couple of times and looks at the dashboard to confirm everything is sound. Turning the key off, he steps out of the cab, locks it, and heads to the house.

After washing up, Harj plops down in the lazy boy chair and lets out a long sigh. Flicking through the channels, he finds the Punjabi Hockey Night in Canada broadcast. Smiling, he says to himself, *These guys are hilarious. Much better than the CBC version.*

About 20 minutes later, Priya comes out of her sewing room to find Harj leaning forward. "Everything ok?"

"Yeah, yeah, fine."

Priya moves closer to Harj and sees the top of his bald head glistening with sweat. She notes that he is rubbing his left shoulder and upper arm. "Did you hurt you arm working on the truck?"

"What, what? No, no. I'm fine."

"You don't look fine. In fact, you look pale for a brown guy." Priya leans closer to see if he heard her little joke.

"Ok, ok. Your dinner is killing my guts. It's just sitting right here." Harj moves his arm from his left shoulder to indicate his whole chest is sore.

"Not my dinner. You love that meal. Something else is wrong."

"No, it's your dinner."

Priya moves around to look Harj right in the eyes and get a better read on him. Looking closer, she can see he is in a lot of discomfort.

"Ok, Harj, you are not doing well. I think you're having heart problems."

"No."

"Yes. At the mosque, they told us the signs of a heart attack. You must remember that. Chest pain, arm and jaw pain, indigestion that does not go away, shortness of breath."

"I am not having a heart attack. Leave me alone."

"No, I'm not leaving you alone. I'm going to call an ambulance."

"No, you're not. We can't afford that."

"Your life is worth a small bill. Preeti's dad used an ambulance when he broke his hip. It was about $80."

"No ambulance. That's final."

"Well, then you are going in my car and going to have to put up with me driving. I will take you to the hospital."

Harj looks down at his feet. "Ok."

Now Priya knows for certain he is not feeling well. *He hates my driving. For him to be willing to go with me really means something is wrong,* she thinks.

"I'm going to grab your coat and wallet along with my purse. Meet me at the front door."

Priya gathers everything up, including her cell phone so she

can call the kids to let them know their dad is going to the hospital.

Moving to the front door, Priya notices that Harj is out of breath just getting out of his chair and walking to the front door.

Opening the door, she holds Harj's right arm and feels him lean on her, thinking, *Looks like he can barely walk now, as well. Better not slip or we are both going to have broken hips.*

Priya gets him in the front seat of the car and runs back to the house to lock the door.

Sliding into the driver's seat, she starts her small Corolla and carefully moves out of the driveway and onto the main street.

"Ok, the hospital is about 20 minutes away."

"The way you drive, woman, it's about 30 minutes."

"No, I'm going to drive a little over the speed limit. Might make it there in 15, even."

Harj leans back in his seat and shakes his head.

Emergency Room

Day: *0*
Time: *22h30*
Place: *Emergency Room*

Nurse Jackie, on the triage desk tonight, let's out a long sigh, and says to herself, "Been a quiet evening so far." Jackie has her back to the waiting room and is updating the census when

she hears, "Excuse me, can you help my husband? I think he's having a heart attack!"

Jackie immediately turns around and looks at the two people standing at the triage desk. She sees two middle-aged East Asian individuals: one, a woman who looks about to burst into tears and a man, quite overweight, hair a bit messed up, and rubbing his left shoulder.

"Can you say that again? Your husband is having chest pain?"

Priya, looking a bit exasperated and tired at the same time, says, "Yes, he thinks it's nothing but indigestion, but since dinner he has been rubbing his shoulder and complaining of not feeling well. He took some Tums but that didn't help. He blames my cooking, but we've been married for over 25 years. If my cooking was a problem, he would be slimmer."

Jackie looks at both of them again and nods. She quickly comes out from the triage desk and grabs a nearby wheelchair. "Mr...?"

"My name is Harj Singh and I don't need a wheelchair."

"Please have a seat, Mr. Singh, and let's humour your wife and me. It looks to me like you're having some difficulty breathing. You are rubbing your arm and upper chest, and you look a bit paler than I would expect."

Harj plops down into the wheelchair with a huff, looking quite unhappy with the whole situation. Priya reaches down and squeezes his hand.

Jackie squats down to talk directly to Harj and Priya. "We

take chest pain very seriously, so a lot of things are going to happen real quick. I am going to take you back in behind my desk to a special room. We're going to take your blood pressure and other vitals and have a doctor look quickly at you. We'll probably give you some medications to see if we can relieve the pain in your arm and chest. Your wife can stay with you, as we'll need to understand more of how this started. But then I'll ask her to step away to the admitting desk to give them some information. Are you ready?"

Harj and Priya now both look quite scared, but nod affirmative.

Jackie moves behind the wheelchair, rapidly pushes it to the acute side of the Emergency Room, and enters Trauma Room 1. As she enters the trauma room, she nods to two other emergency nurses who come over. "Hey, Jackie, anything we can do to help?"

"Yes, can you let Dr. Smythe know that we have a patient with chest pain in Trauma 1. Can you also get me ASA and some nitrospray. I'll also need someone to start an IV on Mr. Singh."

One of the nurses moves quickly over to the unit coordinator to page Dr. Smythe and the other nurse, Carrie, assists Jackie to get Mr. Singh onto the trauma room stretcher.

"Ok, Mr. Singh. Carrie here is going to help you remove your shirt. She is also going to start an IV in your left arm, in case we need to give you some fluids. I am going to take your vital signs."

Jackie wraps the blood pressure cuff around Harj's right arm, places an SpO_2 probe on his left forefinger, and puts a temperature probe under his tongue. Carrie grabs the monitor leads and places five leads on Harj's chest. She turns the monitor on.

Looking at the vital sign machine, Jackie records the vital signs onto the Emergency Record.

Day: 0	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O2 Saturation**
Time: 22:00	96	180/90	28	36.5°C	95%

Looking up at the monitor, she notes that Harj is in normal sinus tachy with some ST depression noted on leads II and III.

"Now that is done, are you having pain in your chest?"

Harj nods 'yes'.

"Have you had this type of pain before?"

Priya looks anxiously at her husband. Harj, looking down at his belly, says, "Yes, but only for a short time. When I sat down it went away."

Priya looks horrified. "You never told me! What am I to do with you?"

"It's ok, Mrs. Singh. This is quite usual. Denial is quite common. Mr. Singh, if you were to rate your pain on a scale of 1 to 10, with 1 being barely able to feel any discomfort and 10 being the worse pain you have ever felt, what would you say your pain is right now?"

"It's about 5 out of 10."

"Right, I am going to give you an aspirin and spray some medication under your tongue. It tastes terrible and may give you a bit of a headache as well. Do you have any drug allergies? What medications are you currently taking?"

Priya looks at Jackie. "He is on HCTZ. Sorry, I can't say the whole name. One tablet in the morning for high blood pressure."

Jackie looks at them both. "Do you take any Viagra or Cialis?"

Both Harj and Priya look at each other and shake their heads 'no'.

"The reason I asked is that those drugs can cause a very low blood pressure with the medication I am going to spray under your tongue."

Jackie hands Harj a small med cup with a tiny blue 81 mg ASA in the bottom of the cup.

"I want you to chew this aspirin. It will taste awful, so here is a cup of water to rinse and swallow after."

Harj takes the ASA and chews the medication, making a sour looking face, and drinks all the water from the cup in one swallow.

"Ok, I am going to now spray some medication under your tongue. Please open your mouth and put the tip of your tongue on the roof of your mouth."

Harj does as he is told and Jackie sprays nitro twice under

his tongue. "Let's give that a couple of minutes to see if that helps your chest pain."

"Jackie, the IV is in Mr. Singh's left ACF. I have NS running at 25 cc/hour on the pump right now. Are you ok?"

"Thanks, Carrie. I should be fine. Mr. Singh doesn't look critical right now. I will call if we need help. Can you cover the triage desk for a little bit while we get Mr. Singh settled?"

"Yes, no problem. I've done that before. I'll call you if I need help. Then maybe we can switch?"

"Sure thing. Thanks." Jackie reaches over and pushes the NIBP button again to see how Harj's blood pressure is after the nitro sprays. She then enters the number in the emergency record.

"Good evening, I'm Dr. Smythe. Can you give me an update here, Jackie?"

Jackie looks up at the doctor who has entered the trauma room. "Hello, Dr. Smythe. This is Mr. and Mrs. Singh. Mr. Singh came in with a complaint of chest pain radiating to left arm and jaw. We have given him two sprays of nitro, 81 mg of ASA, and oxygen saturations are above 93%, so I have not given him oxygen. I was just about to inquire as to his chest pain and call you about additional orders."

"Thank you, Jackie. Mr. Singh, how do you feel right now?"

Harj looks up and sees a well-dressed, bow-tied traditional looking doctor in a short, white coat. "I am doing ok right now. I think everyone is making a bigger deal about this than

is necessary. I need to get to work in the morning or I don't get paid."

"Let's deal with one issue at a time here. Can you tell me about your chest pain?"

Harj rolls his eyes, then begins to explain that he had this type of chest pain a couple of weeks ago, but it went away when he rested in the cab of his truck. Today, after dinner, it came back. He took some antacids, but it did not go away.

"It felt like dull heavy pressure, with some numbness to my left arm."

Priya adds, "He complained of feeling tired, and I had to help him walk to the car, as he was so short of breath and tired. He also looks pale."

"Do you smoke, Mr. Singh?"

Pryia says, "Way too much. At least a pack a day."

"Oh, come on! I don't smoke that much."

"Yes, you do. I see the empty packs in the recycling box."

"Do you drink alcohol?"

"Yes, I have a drink after work."

"More like two or three drinks after work. Harj, they are trying to help you, not criticize you. Tell them the truth!"

"Ok, I have two to three drinks per evening of Crown Royal."

Dr. Smythe and Jackie write the information down. "Thank you, Mr. Singh. What about your work? Is it stressful?"

"Not really. I run a small trucking delivery company. Things have been tight, but not especially so."

Priya rolls her eyes. "We are barely making ends meet. Everyday Harj is out fixing the truck. He is up at 5am and doesn't usually come home till after 6pm."

"That sounds a bit stressful. Do you have any activities other than work, Mr. Singh?"

"If you are asking, do I exercise, no."

"Right, how would you describe your chest pain now?"

"A bit less than when I came in. Oh, right, you want a number. Three out of 10. The sprays helped, but it has really made my head ache."

Dr. Symth looks at Jackie. "How long since the last spray of nitro?"

Jackie consults the emergency record. "A little over five minutes."

"Ok, give him two more sprays of nitro, and if the chest pain doesn't go away, try morphine, 1-2 mg IV, till the pain is gone. I'll write that down for you. Plus, let's get some lab work, including CBC, lytes, BUN, creatinine, Trops, 12 lead, and a portable chest X-ray."

Jackie nods her head and makes note of what Dr. Smythe has stated.

Dr. Smythe moves over to the same side of bed that Priya is on. "I'm not positive that your husband is having a heart attack. We need to do some tests, then we will know more. I'm going to keep him here until we have those results."

"Aww, Doc," Harj says, "You are going to cost me money to do this."

Pryia grabs his hand. "Better a day's pay than a dead husband."

Harj rolls his eyes and leans back into his pillow with a sigh of exasperation.

"Mrs. Singh, why don't you follow me out to the admitting desk so we can get all of your contact information, and then you can call any other family. Jackie will take good care of your husband."

Dr. Smythe leads Priya out to the admitting desk and introduces her to the clerk there. "You can give your contact information to the clerk. When you're done, just go to the desk where you came in and ask to see your husband. They will guide you to him."

Priya thanks Dr. Smythe.

Dr. Smythe returns to the unit clerk's desk and asks her to have the lab and X-ray come to see Mr. Singh in Trauma 1.

She looks up at him. "Jackie already called me to let me know that she put the order into the computer as stat. They should be coming shortly. Do you want to add anything?"

"No, that's a good start. Let's see what the results are and go from there. He may not need to be admitted if it's just angina."

Time: **21h55**

Jackie confirms with Mr. Singh that his chest pain is still three out of 10 and sprays two more doses of nitro under his tongue.

Place: *Medical Laboratory*

Alexa, just about to leave the Emergency Department and

head to the lab to drop off some specimens and restock her cart, looks down at her buzzing pager, and thinks, *Stat lab work in Trauma 1. That takes precedence over going to the lab. Looks like my break will be a bit later than usual*.

Turning around her white cart, Alexa walks quickly to Trauma 1.

Entering Trauma 1, Alexa sees an overweight middle-aged East Asian male and Jackie, the nurse that is usually at the triage desk.

"Hi, Jackie. I'm here from the lab. You requested some stat blood work?"

Jackie turns around and smiles. "Hi, Alexa. Thank you for coming so quick. Yes, this is Mr. Harj Singh. We are investigating him for unstable angina, possible MI."

"Ok, do you have the labels?"

"Yes, they're over there on the printer."

Alexa walks over to the label printer and pulls off three labels for Mr. Harj Singh.

Walking back to Harj's bedside, Alexa begins the routine of checking identity. "Hi, Mr. Singh. My name is Alexa and I'm going to draw some blood for testing. I need to ask you some questions to confirm that you are the right person and that the labels all match up."

"Really, here is my ID band. Is that not good enough?"

"No, we really want to make sure we are taking blood from the right patient, as many treatments are based on the results, and you would not want to receive the wrong treatment."

"Ah, yes, you guessed right. I want no mistakes. Ask your questions."

Alexa goes through the process of confirming name, date of birth, and Mr Singh's ID number.

Once satisfied, she efficiently draws the blood from Harj's right antecubital fossa.

"All done, Mr. Singh. Please hold pressure here for another couple of minutes. Jackie, I will take the blood back to the lab and you should have the results for the troponin very quickly."

"Thanks, Alexa."

"Ok, Mr. Singh, can you tell me how your chest pain is right now?

Harj looks up at her. "I think it's gone."

"That's excellent. We'll do all of these tests and make sure nothing else is happening, but this is a good sign."

Time: *22h10*

Gurpreet checks the list of patient requests and sees that the top request is a portable chest X-ray in Trauma 1. Pulling up the patient data she sees that the patient was admitted with potential MI. "Ok," she says to herself. "I can understand them not wanting to transport to the department. Looks like I will do this with the portable machine."

Gurpreet pulls the requisition off the printer and heads straight out the department doors and down the stairs that lead directly to the Emergency Department. At the bottom of the stairs she pulls an imaging plate out of the rack and places it in the rear door of the portable X-ray machine. Unplugging

the machine, she pushes the portable down the hallway and navigates it through the chaos of people moving around in the Emergency Department into Trauma 1.

"Hi, I'm Gurpreet from Medrad here to do a chest X-ray on Mr. Singh."

"Hi, Gurpreet. I'm Jackie and this is Mr. Harj Singh."

"Hello, Mr. Singh. Do you think you can sit straight up and have a very hard board behind you?"

"I think so. Depends on how straight." Harj points at his belly as he says this.

"We can work around it. Let's see."

Both Jackie and Gurpreet help Harj to sit up in bed, and they place the hard cassette behind his back.

Gurpreet moves to the end of the bed and looks at Mr. Singh. "Can you move a little to your right, that's it. Hold right there."

Gurpreet moves the machine into position. She pulls the tape measure out of the camera and confirms that it is the appropriate distance away. Looking at Mr. Singh she adjusts the technique settings for exposure. *That should work on someone his size*, she thinks to herself. Pushing a button to bring up the positioning lighting, Gurpreet makes adjustments to capture the chest correctly.

"Ok, ready to shoot."

Jackie steps quickly out of the room as Gurpreet grabs the lead shield to cover her neck and chest and pulls the exposure button out as far as the cord goes. "Ok, Mr. Singh, take a deep

breath and let it out. Ok, ready to shoot. Take a deep breath and hold it … X-ray! Trauma 1."

Gurpreet presses the exposure button and the portable machine whines up and makes a clicking noise.

"Ok, all clear, Mr. Singh. Great job. Let's get that hard cassette out."

Both Jackie and Gurpreet remove the cassette and reposition Harj. "How is that?"

"I am good, thank you."

"Thanks, Gurpreet. How long till I can see the results?"

"I'll run it through now and should have it on the system in less than 10 minutes."

"Excellent."

Gurpreet pushes the machine out and places it back in its special niche. Grabbing the exposed cassette she heads back to the department to process the chest X-ray of Mr. Singh.

Just as Gurpreet is leaving, Dennis from Cardiology pushes his cart in. "I have a req for a 12 lead for one Mr. H. Singh with complaint of chest pain. Am I in the right place?"

"Yes, you are. I'm Jackie, taking care of Mr. Harj Singh. Please do the 12 lead."

"Awesome. Hey, Mr. Singh. Can I ask you a couple of questions?"

Harj looks at Dennis and nods 'yes'.

Dennis goes through the same routine as Alexa of confirming Harj's identity.

"Ok, you are you. I am going to place 10 little sticky patches

on you, Mr. Singh. One for each leg and arm and six on your chest. This test won't hurt, but I will need you to stay very still. Have you had one of these before?"

"Yes, about four years ago when they determined I had high blood pressure. I've no idea if it showed anything."

"Well, if we do find anything today, Dr. Smythe will discuss that with you."

Dennis proceeds to place all the leads on Harj, and after a few minutes is ready to take the test.

"Ok, this is where you need to stay still. Ready. Excellent." Dennis presses the record button and, a few seconds later, a pink 8 x 11 paper with multiple black lines is printed out. Dennis hits the print button a second time and gives the copy to Jackie. "Here is the preliminary result for you to discuss with Dr. Smythe. I'll take the original with me for analysis by the cardiologist-on-call. If you have any questions, please call them."

"Thanks, Dennis."

"Ok, Mr. Singh. Looks like you've had all your tests done. We will need to wait for some of the results, and then Dr. Smythe will come and talk to you and your wife. I'm going to step out for a minute and get your wife to come in. Is that ok?"

Harj nods 'yes'.

Time: *22h30*

Jackie approaches Dr. Smythe at the nursing station. "Have you got a minute to look up the results of Mr. Singh in Trauma 1?"

"Yes, I was just about to check to see what's back."

Both Jackie and Dr. Smythe step closer to the computer screen. Dr. Smythe pulls up the X-ray first.

"The chest X-ray looks clear, so does not look like he has ventricle dysfunction or a low LVEF. Heart is a bit enlarged. He may be developing heart failure or is on the cusp of doing so."

Next Dr. Smythe pulls up the lab work. "The WBC are normal. Not really helpful, but at least we know there is no inflammation. HGB is normal. BUN and creatinine are higher than I would expect but within normal range. Ah, here is what I am looking for. The troponin is normal, so no MI for Mr. Singh. All good news. You have his 12 lead, Jackie?"

"Yes, I don't see any depression or elevation in any of his leads, so, looking at the 12 lead with the trops, he appears to have unstable angina, not an MI." Jackie hands the 12 lead to Dr. Smythe.

"Completely agree. UA not MI. Ok. Let's repeat and keep him until morning. But if everything stays the same and he has no chest pain, he can be discharged. I see he has no doctor on file. Is there a way we can have him followed?"

"I will talk with social work in the morning. Maybe they can arrange a GP for him so he can be followed."

"Thanks, I'll go talk to him and his wife."

7.

CASE STUDY: MERYL SMITH HEART FAILURE

Patient: Meryl Smith

Meryl Smith Source: Marie Lucie License: public domain.

Patient: Meryl Smith

Date of Birth: 06/06/19xx

PERSONA

Meryl Smith is 44 years old and she lives in a small two bedroom home with her partner, Dorothy. They co-parent

two children with Meryl's ex-husband. Her marriage to him ended four years ago. Meryl is a police officer with the Royal Canadian Mounted Police (RCMP). Meryl drinks occasionally, she has never smoked, and she is physically active. Meryl and Dorothy also have two cats at home with them.

Past medical history includes a heart murmur developed after her second pregnancy. She had a cholecystectomy three years ago and a laminectomy 14 years ago. She has recently been recovering from a severe flu.

***Day**: 0*

***Time:** 09h30*

***Place:** Supermarket*

Dorothy looked over her shoulder at Meryl, who seemed to be trailing with the shopping cart . *This is a bit unusual. Meryl hates food shopping and tries to complete it as quickly as possible*, she thought.

"Meryl, you doing ok dear? I think we are out of mayo. Can you grab the low fat, small jar as you walk past?"

Meryl looks up at Dorothy and smiles weakly. "I am feeling a bit tired, but I'm ok. Yes, I'll grab the mayo, but I'm getting the one that is on sale."

Meryl reaches up and grabs a small plastic jar of mayo and places it in the top part of the cart. *What the heck is going on? I really don't feel so well and Dorothy is walking so fast today. She usually likes to shop*, she thought.

Dorothy waits for Meryl at the end of the condiment row and rubs her back and gives her a quick peck on the cheek

before moving off again down the next row. Meryl, taking a deep breath and leaning heavily on the cart, plods slowly forward.

***Time**: 10h00*

"Meryl, where are you?" Dorothy does a 360 degree turn in the row and does not see her spouse anywhere. She quickly checks the next row only to see it empty. Feeling a bit panicked, like losing a child, Dorothy retraces her steps to the previous row to find Meryl, sitting on the floor with the partially full cart a few feet down the row.

Rushing up to Meryl, Dorothy quickly looks around and then bends down. "Did you fall? Are you ok?"

Meryl looks up slowly and Dorothy immediately recognizes that something is not right.

"Oh my, Meryl, you do not look good. You are pale and quite dusky looking. I'm not quite sure you are over the flu."

"Dorothy. I am not. Feeling good. Not the flu. Very dizzy." Meryl whispers breathlessly. "I think it's....My heart."

Dorothy goes into full panic mode on hearing 'heart'. She helps Meryl stand; Meryl wobbles a little bit before seeming to settle on her feet. Together they walk out like a coach guiding an injured player from the field.

"Dorothy... our cart!"

"Meryl, the least of my concerns is the cart. Someone can put the stuff back on the shelves. I am more concerned about you. We are going to the Emergency."

Meryl places both hands on the roof of their small sports

car and waits for Dorothy to open the door. "What if I. Don't want to. Go to the Emergency?"

"Sorry, hon. Laying in the middle of Safeway examining the floor tiles closely, gets you one free express ticket to the Emergency. Don't gripe. You are going to suck it up."

Meryl allows Dorothy to help her into the passenger seat. Dorothy hears a bit of quiet grumbling from Meryl but chooses to ignore it.

Dorothy starts the car and backs out quickly. Driving faster than usual, Dorothy navigates the two of them through the back roads and into the parkade of the hospital.

***Time**: 10h30*

"See, Meryl? This was meant to be. Someone left us a wheelchair to use."

"You can't be serious."

"Try me, hon, you are riding until they tell me what is wrong with you."

Dorothy guides Meryl out of the sports car and into the wheelchair. Pushing the wheelchair by the parking meter, Dorothy stops and pays for four hours of parking.

Emergency Room

***Day**: 0*
***Time**: 11h15*
***Place**: Emergency Triage*

Nurse Jackie thinks to herself, *Wow, I finally get to sit for a*

minute. This flu season has been brutal. Fifteen patients before 10:30 in the morning. She completes a number of stats forms behind the triage desk and adds some names to the whiteboard to keep track of where patients and staff are located.

Turning back to the desk, Jackie looks up to see two well-dressed, middle-aged women approaching, one in a wheelchair.

"I bet this is another flu case," Jackie says to herself.

"Good morning, can I help you?"

Dorothy pulls the wheelchair up to the triage desk. "That is why we are here, for you to help us or more specifically help Meryl!!"

Jackie looks at both women and attempts a smile. *Ok, this could be challenging*, she thinks.

"What seems to be the problem or what can I help with?"

"My name is Dorothy and this is my wife, Meryl, who happened to pass out at Safeway this morning while we were shopping."

"My name is Jackie and I am the triage nurse or the nurse that looks at you first to consider how serious your problem is. Ok, so you passed out? Did you lose conscious or did you become dizzy and just sink to the floor?"

Meryl looks over at both of them. "I think a little of both. I just remember coming to, sitting cross legged on the floor."

"Ok, seems you are a bit short of breath?"

Meryl tries to take a deep breath that only results in a weak cough. "Yes, getting over the flu. Thought I was over it."

Jackie steps out from behind the triage desk and brings the vital sign machine with her.

Hooking Meryl up to the blood pressure cuff and the pulse and temperature, she presses a button to initiate the machine to take Meryl's vital signs.

Day: 0	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturatio**
Time: 11h20	106	95/60	20	36.5°C	95%

Nurse Jackie looks over the results and sees the temperature is not elevated, but the blood pressure (BP) is down and the heart rate (HR) is up. "Doesn't look like it's the flu for you, but maybe something else. Ok, let's get you to wait over there and I will see if we can get someone to see you shortly. It's not too busy so it should not be long."

Dorothy shakes her head. "Wonderful — our health system at work. Ok Meryl, we get to sit and wait."

Meryl looks up at Dorothy. "I am ok to wait."

"You might be but I am not." Dorothy directs the chair over to where Jackie indicated.

***Time**: 11h30*

Nurse Jackie approaches Meryl and Dorothy. "I need to take some more information and then we can get you seen by the doctor."

Jackie takes a full health history from Meryl asking her

about past history, medication, allergies, and contact information.

"So you have a heart murmur that didn't go away after your last pregnancy?"

"Yes, they told me not to worry too much about it."

"Did they tell you anything more?"

"No, I haven't worried about it till now. Today my chest just feels different and I am short of breath."

"Ok, thank you. I am going to talk with Dr. Smythe and we will move you to another area here so we can explore more fully what is going on."

Jackie walks away to find Dr. Smythe.

Time: *12h15*

Just as Jackie is finishing recording her findings, Dr. Smythe approaches the bedside.

"Hello, my name is Dr. Edward Smythe. I am one of the Emergency physicians and Jackie asked me to take a look at you."

Both Meryl and Dorothy look up and smile at Dr. Smythe and nod their heads together.

Dr. Smythe begins to assess Meryl, turning her head back and forth looking at her neck. He then checks her fingers and then looks at her ankles and gives them a bit of a squeeze. "I need to listen to your heart and lungs."

Meryl adjusts her blouse to allow Dr. Smthye to access her chest. Dr. Smythe listens carefully to heart and breath sounds.

After completing his assessment, he steps back and looks at

both Meryl and Dorothy. "I don't think it's the flu. Your heart murmur is quite loud, much louder than I expected, and you have quite coarse breath sounds. I believe I am also hearing an extra heart sound. Now this could be nothing or it could be serious so I would like to do some blood work, and a chest X-ray. I am also going to ask for a pregnancy test since the heart murmur appeared with your last pregnancy."

Dorothy laughs. "Doctor Smythe, I don't think she is pregnant!"

"Still it did happen and we need to rule it out."

Dr. Smythe turns to Jill. "Please place her on the monitor and take vital signs q 15 minutes for the next hour then q1h. I will order a CBC, lytes, BUN, creatinine, trops, 12 Lead, and a portable chest X-ray." Also, glucose, urinalysis, and a pregnancy screen. For the time being you're on bed rest, and I will ask Cardiology to come see you."

Jill records all this to make sure nothing gets missed.

Dr. Smythe turns back to the two women. "Meryl, you are going to be spending the better part of the day with us, so I am going to admit you to the Emergency and after we have all the tests results back, I will come and discuss these with you and what our next steps are."

"Thank you, Dr. Smythe."

***Time**: 12h45*

The phone rings beside Jill as she is charting another episode of atrial fib, "Hello, this is Jill."

"Hi Jill. This is Gurpreet in Radiology. I have a requisition

for a chest X-ray on a Mrs. Meryl Smith. Can she come to the department?"

"I am thinking not as I have her on the monitor, and she was admitted with a complaint of loss of consciousness. I am a bit concerned that if she goes out, something may happen. I or another nurse will need to go with her."

"Ok Jill, I thought that might be the case but I thought I would ask. I'll be down in a couple of minutes and will do her X-ray with the portable in Emergency."

"Thanks." Jill hangs up the phone, finishes scotch taping the rhythm change to the patient's chart and moves to Meryl's bedside.

"Hi, Mrs. Smith. They're coming down to do a chest X-ray so I would like to help get you setup so you're ready for it when Gurpreet arrives with the machine."

Jill then helps Meryl sit up straight, moves the ECG leads off her chest, and explains the X-ray to both Dorothy and Meryl.

Just as she is finishing, Gurpreet comes around the corner pushing the portable x-ray.

"Man, these things never get any lighter! Even with the power drive they're a challenge to move around without running on toes. Is this Mrs. Meryl Smith?"

Jill smiles and looks at Gurpreet, "Yes it is, and that was quick. Do I need to check the wheels for any toes?"

"No, heard a couple of screams but nothing else as I drove here. Thank you for getting everything setup for me."

"No problem."

Gurpreet moves to the bedside, and checks Meryl's position. "My name is Gurpreet. I just need to double check who you are and then I'm going to place a very hard board behind your back and take a picture of your chest."

Meryl nods her consent.

Gurpreet looks at the requisition, and compares the information to the ID band on Meryl's left wrist. "Can you tell me your birth date?"

"Yes it is June 6, 19xx."

"Ok, we are good to go."

Gurpreet returns to the portable X-ray and withdraws from the rear hidden compartment, a large board. Slipping the board into a special plastic bag, she returns to the bedside. With Jill's assistance they both lean Meryl forward and place the X-ray board behind her back.

"Oh, that is so uncomfortable."

"Its only for a couple of minutes. Relax against the board and try not to move."

Gurpreet maneuvers the X-ray machine into position at the end of the stretcher. She turns on a light on the camera head and adjusts the aperture for Meryl's chest size. Using the built-in tape measure, Gurpreet checks to make sure the X-ray is the proper distance away. Satisfied that everything is correct, Gurpreet nods to Jill and grabs a lead apron from the stanchion of the X-ray machine.

"X-ray ready in Bed 4.

"Stand clear, X-ray exposing Bed 4!" Gurpreet then presses a button which starts a whirring sound, ending with a dull click.

"Ok, all done Mrs. Smith." Gurpreet hangs up the lead apron on the stanchion and moves to the bedside to help Jill remove the board and reposition Meryl into a more comfortable position.

Gurpreet backs the portable X-ray machine out.

Dorothy returns at the same time from grabbing coffees for her and Meryl. "Hey, what did I miss?"

Jill turns and says "First of many tests we have to complete. That was the X-ray and I'm hoping the lab person will be by shortly as well for the other tests."

***Time**: 12h59*

Alexa looks at the list of requisitions that have come into the lab. "Alright, there is a bunch from Emergency and two from the Family Birthing Unit. I can do the Emergency ones quickly. I should see if someone can do the FBU ones."

Looking up, she sees Harry at the desk. "Hey Harry, can you do me a favour? I am a bit swamped with reqs from Emergency and there are two from the FBU that I can't do as quickly as they would like. Do you mind?"

Harry smiles, "For you Alexa, anything, but it will cost you a coffee."

"A coffee I can handle, thank you."

Alexa grabs her lab cart and heads out the door to the Emergency Department. While waiting in the elevator she, looks over the reqs for Emergency. *Ok*, she thinks. *Nothing*

special. Appears to be more routine with no stats. Let's start with the oldest time stamp and work my way to the recents.

***Time**: 13h14*

Alexa: "Good day, are you Mrs. Meryl Smith?"

"Yes, why do you ask?"

"My name is Alexa and the Emergency physician ordered some lab work for you."

"Ok."

Alexa looks at the requisition, compares this to the labels and then attaches the labels to the appropriate tubes. That done, she approaches Meryl's bedside. "I need to ask you some questions to ensure that I have the right patient and the right lab work ordered." Alexa sees Meryl nod. "Ok, can you tell me your full legal name?"

"Meryl May Smith. My birth date is June 6, 19xx."

"Oh, you have been practicing."

"Not really, everyone seems to ask me the same questions."

"True, we need to make sure we have the right patient and the right tests. We try to avoid making an error as much as possible."

Alexa, prepares for the venipuncture by gathering all the correct equipment. She then wraps a tourniquet around Meryl's left arm. Carefully examining her ACF she finds a large prominent vein. "You may feel a bit of a pinch."

Alexa then slips the vacu-container needle quickly into the vein and seeing a flashback of blood pushes the first tube down

into the vacu-container. She repeats this three more times to fill all four collection tubes.

"Ok, Mrs. Smith, please hold here." Meryl does as requested. Alexa rechecks the labels against the requisition and then places the tubes in their racks for processing .

"Now, lets put a bit of a band-aid on that and then I will leave you be. I hope everything turns out ok for you, Mrs. Smith." Alexa then pushes her cart out into the main part of the Emergency Department. *Ok, that's all the patients*, she notes. *I'll take these samples back for processing and then see if anyone needs help.*

***Time**: 13h20*

Jill approaches Meryl's bedside just as the ECG technician arrives. "Is this Mrs. Meryl Smith?"

Jill looks up and sees the 12 lead cart. "Yes it is."

"Ok, thanks, it has been a bit hectic. Sorry, I'm running a bit late."

Jill shrugs and checks the monitor and writes down the vital signs.

Day: 0	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturati**
Time: 13h20	104	98/60	22	36.5°C	95%

"Hi Mrs. Smith, I'm Denis and I am going to place some wires on your chest, legs and arms. This will then give us a better view of your heart electrical function."

"Ok, I guess."

Denis pulls the curtains closed to give Meryl some privacy and then requests she lift her shirt up a bit so that he can place the wires on the left side of her chest. Efficiently he quickly places the leads on Meryl's chest, legs, and arms. About a minute later the machines is printing out a 12 lead ECG.

"Now that you have all those squiggly lines on pink paper, who looks at it and what does it all mean?" asks Meryl.

Denis smiles, "Well I give one copy here to Jill for your chart and another copy goes with me for the heart doctor to look at. Whoever the heart doctor is, will then dictate a report that goes on your chart."

"When will I know what it says?"

"I would guess pretty soon, but that is up to Jill and the Emergency doctor."

Meryl sighs and lays back.

Denis pulls the curtains back and passes the 12 lead to Jill.

"Ok, Jill, here you go. I'll let you discuss it with the Emergency doctors. I need to get up to the fifth floor for a stat."

"Thanks Denis."

***Time**: 14h30*

Jill finds Dr. Smythe reviewing the chest X-ray, labs, and 12 lead of Meryl.

"What do you think, Dr. Smythe?"

"Well, it's not great. Mrs. Smith has some congestion in her

lungs, but has no fever, a little rise in WBC, and no signs of infection so I think the congestion is cardiac in nature. When I look at her 12 lead, I see some left ventricle enlargement. Her lab work is interesting as she has decreased kidney function according to her GFR and creatinine, plus, she has an elevated BNP. All other cardiac markers are normal. So, it appears she has exacerbation of heart failure."

"Wow, she is very young to have HF."

"Yes, but the valve issues she had when she was pregnant have not gotten better and it appears may have worsened over time. Is her wife here? I would like both of them to hear this."

"Yes, Dorothy is with Meryl now."

Jill leads Dr. Smythe to Meryl's bedside.

Dr. Smythe looks at both women. *It just never gets easy to give bad news; I so wish there was another way,* he thinks.

"Ok, Mrs. Smith, I believe I know what is wrong with you and why you are not feeling well. I have reviewed all your lab tests and it points to a diagnosis of heart failure."

"What, what is that, am I going to die?"

"Heart failure is a broad diagnosis indicating that your heart is not pumping as well as it should. For you, it is related to the valve issues you had when you were pregnant. The valve is not closing as well as it should and this is putting strain on your heart to meet your body's need. No, you are not going to die right now. This is a serious diagnosis and needs to be managed well by you and a cardiologist."

Dorothy begins to cry quietly at the bedside. Meryl reaches over and holds her hand. "Ok, Doctor, what happens now?"

"I am going to contact the cardiology team. I would like to admit you under their care so that they can get you on the right meds, provide some teaching for you and your spouse, and get you involved with some support groups to help you cope with this. I know it's a lot to take in, but with proper management you should be ok."

Meryl, looking overwhelmed, looks back at Dorothy then at Dr. Smythe and Jill. "I'll do what ever you ask."

Dr. Smythe backs away from the bedside and walks toward the main nursing station to call the cardiology team. Jill approaches both Meryl and Dorothy. "Do you have any questions?"

"No. Can you leaves us alone for a little bit?"

"I certainly can. I'll draw the curtains to give you a bit of privacy. I'll come back in 15 minutes and get you ready to go upstairs to the fifth floor."

***Time**: 15h30*

Jill looks up at Meryl's monitor and sees that her oxygen saturation is decreasing, now reading 88% on room air.

Day: 0	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturatio**
Time: 15:30	106	96/60	22	36.5°C	88%

"Hi Meryl, are you feeling ok?" she asks.

"No, I feel short of breath, can't catch my breath. Feels like I have been running."

Jill notes that Meryl's heart rate is also increasing but still sinus.

"Ok, I think I am going to have to put some oxygen on you." Jill frees a set of nasal prongs from their plastic bag and plugs one end into the oxygen flowmeter. She wraps the other end around Meryl's ears and places the prongs gently in her nose. Jill adjusts the oxygen flow to 4 LPM.

"Ok, Mrs. Smith. Take some deep breaths through your nose and blow out through your mouth."

Meryl takes a half dozen breaths as instructed and Jill notes the sats improve to 93% and the heart rate beginning to decrease to 95 to 100 beats per minute.

"Thank you, I feel a bit better but not normal. Am I getting worse?"

"Maybe, but it is too early to tell. Let's just say you need a bit of oxygen, but nothing else has changed."

"All right."

Jill leaves Meryl alone and goes to find Dr. Smythe

She finds Dr. Smythe coming out of the dictation room with a cup of tea in his hand.

"Dr. Smythe, Mrs Meryl Smith is now requiring oxygen and she is stating she is not feeling quite right and is short of breath."

"I thought this might happen. Ok, I am going to order a transthoracic echo and I will call Cardiology to take her as

soon as a bed is available. They said they are discharging eight patients today so there should be space for her."

Jill watches Dr. Smythe fill out the stat requisition for a cardiac ultrasound.

***Time**: 16h00*

Charlie reviews the requisitions on the computer screen. *What is this: stat echo in Emergency?* he wonders.

Reading the information on the echo requisition, he notes that a consult to Cardiology has also been requested.

Grabbing the phone, Charlie calls Emergency and asks for the nurse caring for Mrs. Meryl Smith.

"Hello this is Jill."

"Hi Jill this is Charlie in Echo. I have a stat req for Mrs. Smith. Can she come to the department?"

"I am not comfortable sending her to you. She is on oxygen and is monitored. She is now experiencing shortness of breath and is not feeling quite right. This is her first experience with heart failure and we're not sure how she is responding right now."

"Ok, I will bring a portable machine down. It won't be ideal, but I can help add to the information on the patient. Most likely she will need a second echo in the department to get better pictures, but I will leave that up to Cardiology. I will be there in about 10 minutes."

"Thanks Charlie."

***Time:** 16h10*

Charlie, true to his word, arrives pushing a large ultrasound

machine in front of him. Slightly out of breath from having to push the machine and avoid all the activity in the Emergency Department, he maneuvers the machine close to Meryl's stretcher.

"Hi Mrs. Smith, my name is Charlie and I am an echo cardiology technician. I'm going to take some moving pictures of your heart. It won't hurt, but may be a little cold as I have to use some gel."

"I remember having one of these when I was pregnant."

"Meryl, I'm going to step out and update the family while Charlie does his test thingy. There's not much room for me and his machine. I will come back." Dorothy moves around the echo machine and heads to the waiting area to make some phone calls.

Charlie pulls the curtains around Meryl's bedside and turns off the lights by the bed so it's a bit darker and easier to see the echo machine's screen.

"Ok, Mrs. Smith. You are going to need to pull your gown up a bit so I can see the left side of your chest."

Meryl exposes the left side of her chest and Charlie adjusts the gown to cover most of Meryl's breast.

"The gel is warm, but not really warm so it may feel a bit cold to you. I'm going to squirt some on your chest and on the probe. This helps us get a better picture."

Meryl shudders a bit as the gel is placed on her chest and then relaxes as Charlie places the probe over her tricuspid area.

"Ok, Mrs. Smith, I am done with the echo."

Charlie takes a towel and carefully removes as much of the gel as possible and then helps Meryl readjust her gown.

"What did you see? It looks like it was all shadows to me."

"I can tell that your heart is not pumping as well as it should and that you have a problem with one of your valves on the left side of your heart. Anything more will be up to the doctors as I cannot tell anymore than that."

"Not sure I needed this test as you just said the same thing as Dr. Smythe."

Charlie smiles, "Yeah? Well it confirms what he told you then."

Pulling back the curtains, Charlie navigates the ultrasound machine out of the space and waves goodbye to both Jill and Meryl.

***Time**: 16h30*

Jill sees that Dr. Smythe is talking with Charlie and walks closer to hear what they are saying.

"Ok, Charlie tell me again what you saw on the ultrasound?"

"Right. The ejection fraction is estimated at about 30%. Her LV looks a bit dilated. The mitral valve is graded a moderate regurg. On the plus side, I did not see any vegetation."

Dr. Smythe looks over at Jill. "This is much worse than I expected. I am quite surprised she was managing so well in the community and this is her first time admitted with HF."

Jill nods, "There's a bed available for her on the fifth floor. They told me I could move her after 4pm."

"Well, given everything we know, that is the best place for her. Thanks Charlie. Say hello to your dad for me and tell him, when he wants another bowling lesson, I'm available."

"Thanks Dr. Smythe. I'm pretty sure my dad is still recovering from that perfect game you threw the last time you were out together. He may not want a lesson for awhile."

Charlie smiles at both Dr. Smythe and Jill and with a wave moves off to grab his ultrasound machine.

"Ok, Jill, I don't think I need to speak to Mrs. Smith again. Let's get her upstairs and let Cardiology manage her. That would be best. I'll finish writing the progress note and her orders to date. Cardiology will need to add their specific treatment."

"Right. I will phone up report to the fifth floor and then take her up after 4pm. Thanks, Dr. Smythe."

***Time**: 17h15*

"Ok, Mrs. Smith," Jill says, "They are ready for you on the fifth floor and they have a real bed in an actual room for you. Dorothy can come with us. I'm going to attach your leads to a portable system and have Glen the porter help me with your stretcher."

Both Dorothy and Meryl look relieved that there is a real bed ready.

Jill grabs the portable monitor system and places it at the end of the bed. She then pulls out of the main monitor the cartridge with all of Meryl's leads and information, and slides it into the portable system. Looking at the smaller screen, Jill

makes some adjustments and nods satisfactorily that everything looks good.

Jill calls the front desk and asks for Glen the porter to help her with Mrs. Smith.

Glen arrives a few minutes later and together, with Dorothy's help, they get Meryl up to her room on the fifth floor.

Day 0: Medical Ward

***Day**: 0*
***Time**: 17h30*
***Place**: Medical Ward*

"Hi Jill, how are you doing? Is this Mrs. Smith?" asks Simone.

"Hi Simone, yes this is Mrs. Smith. Did someone pass on my phone report to you?"

"Yeah, I got the message. Do you have the transfer note and orders?"

"Here is the transfer note summarizing the care thus far and here is Dr. Smythe's transfer note and his orders," Jill says as she hands over the information. "He knows you will change them to support Mrs. Smith better."

Simone carefully reads through Jill's transfer note. "So she has had all her diagnostics but no cardiac meds?"

"That is correct."

"Ok, I'll get the team to see her as soon as we have her settled."

Simone, Jill, and Glen maneuver the stretcher into a semi-private room and help Meryl transfer to the bed near the window. Jill takes the cartridge out of the portable monitor and slips it into the monitor above the bed. Watching carefully, she sees the monitor boot-up and display Meryl's vital signs.

Day: 0	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturati**
Time: 17h30	110	90/60	22	36.5°C	95% with 4 LPM

"Is this more comfortable than the stretcher?" Jill asks Meryl.

"Most definitely. Thank you."

"Glen, can you hook up the nasal prongs to oxygen at 4 LPM please? Great, thank you." Jill then turns to Dorothy and Meryl, "Mrs. Smith, it was a pleasure to meet you and I hope everything turns out well for you."

In unison both Dorothy and Meryl thank Jill for her assistance.

Glen and Jill reverse the stretcher and head out the door. Jill checks in with Simone before she leaves. "Simone, do you need any more information or are you good?"

"Family aware?" asks Simone.

"Yes, Dorothy is the wife and she has been updating siblings. I have had no contact with any other family. Dorothy was stressed on admission, but seems to have settled right now.

They seem to be good people with what appears to be bad luck."

"Ok Jill, thanks. If anything crops up before the end of the shift, I'll call you."

"Sounds good."

Both Glen and Jill wave and head to the elevators to get back to the Emergency Room.

Time: *17h45*

Simone approaches the nursing station and sees the Cardiology team sitting at the small conference table in the middle of the nursing station.

"Hi Dr. Grant, Meryl Smith has just arrived from Emergency. She is the newly diagnosed heart failure patient."

"Yes, I was talking with Dr. Smythe about her. Have they started any cardiac meds?"

"No. They have left that to you and the team to start. Essentially she has had all her diagnostics done, but no interventions. She is stable right now. On 4 LPM nasal prongs. Sinus rhythm. I haven't done an assessment yet and wonder if we should all go in and talk with her and her wife."

"I think that's a great idea. We will be there in a couple of minutes. Simone, please go in and let her know she will have the team come and see her shortly."

"Excellent. Will do."

Simone heads to Meryl's room to let her know the plan.

"Hi Mrs. Smith, my name is Simone and I'm one of the cardiology nurses that will be caring for you while on the unit.

In a few minutes, the cardiology team will be in to assess you and ask you a few questions. We are going to do our assessments together and this way we coordinate our care and plan the best approach for you, and you get to ask any questions you have. Does this sound ok?"

"It's a bit overwhelming."

"I understand that. It is a lot to take in. Remember we are here to help you get better."

"I realize that. It's just so new."

Dr. Grant then enters the room with the cardiology team.

"Good afternoon Mrs. Smith! My name is Dr. Neal Grant and these people behind me compose the cardiology team."

"I'm Dennis, a senior resident."

"I am Haley, the cardiology pharmacist."

"I'm Harjinder, the junior resident."

"I am Addy, the dietician for cardiology."

"Ok, now that is a lot of names right now. We would like to get to know you a bit better, have a listen to your heart and lungs, and then plan out the interventions that will make you feel better than you do right now. How does that sound?"

Both Meryl and Dorothy nod but look a bit shy with six people standing around the bedside.

Dorothy asks, "Do you need me here?"

Dr. Grant nods. "I would like you to stay here so you can get the same information and it helps us learn about your wife. You are integral to her care especially when we send her home which I hope is a couple of days from now."

Dorothy smiles at that but stands up and moves away from the bedside to give the cardiology team more room.

Dr Grant begins by asking general health questions, about activity levels, and then steps forward to listen to Meryl's chest. Haley asks about medications at home, both prescribed and over-the-counter. Addy inquires about diet and activity. The two residents follow Dr. Grant's lead and perform a physical assessment.

After 30 minutes of questions and assessment, Dr. Grant steps to the end of the bed "Ok, I think that is all for now. What I would like to do is start you on some medications. A beta blocker to slow your heart beat a bit so that the heart can fill better, an ace-inhibitor to decrease your blood pressure and then a drug to make you urinate a bit more to get rid of the extra fluid you are carrying around. These are common medications for patients that have your type of disease. They are also powerful medications and can cause you to be dizzy or not feel like yourself which is why we are going to keep you here to monitor you and make sure you are stable on the meds before going home. You will know they are working when you do not need oxygen any more. Do you have any questions?"

"No, but it's a bit much to take in right now. Dorothy?"

Dorothy nods. "I agree with Meryl. Let's just sit with what you have told us and maybe we'll have questions later."

"That sounds good. I am on call all this week so you will see me each morning during rounds. Please ask any questions then

or ask Simone here or another member of the team. We are all here to make sure you get better"

Dr. Grant then turns and leaves the room followed by the team and Simone.

In the nursing station, Dr. Grant facilitates a debrief of everyone, which leads to each making their own notes in Meryl's chart and Dennis writing the orders for the medications that Dr. Grant talked about.

Day 1: Medical Ward

***Day**: 1*
***Time**: 08h00*
***Place**: Medical Ward*

"Good morning, Mrs. Smith. Do you remember me from yesterday. I'm Simone?"

"Yes, Simone, I remember you from yesterday. I see you're back. This your second day shift?"

"Yes, this is my second. I am doing three days and a night shift this week so we will probably have one more day together. I have your meds here: a beta blocker, ace-inhibitor, and diuretic. But before you take these, I need to check your morning weight and your blood pressure. This is something you're going to have to do each day on your own."

"Ok, do you need me to do anything?"

"Nope, just lie back and relax while I take your BP and weight."

Simone then presses a button on the bed to get Meryl's weight and then presses the NIBP button on the monitor.

Day: 1	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O2 Saturation
Time: 08h00	65	90/55	18	36.5°C	95% 3 LPM

"Your blood pressure is down to 90/55, which is what we expect. Your heart rate is around 65, which is also what we expected. You have lost 1 kg of fluid since we started the diuretic, which is a bit less than we expected. How are you feeling when you stand at the bedside or use the commode?"

"I feel a bit lightheaded but nothing really serious, I don't think."

"Your oxygen has been dialed back to 3 LPM, but is not really changed. I would like to listen to your chest, then I will give you your meds and morning tray."

Meryl adjusts her gown so that Simone can listen to her heart and lungs. Simone methodically moves through a head to toe assessment and records her findings.

"All done, Mrs. Smith. Here are your pills as we discussed and your breakfast."

"This is it for breakfast? Some cereal, skim milk, and a couple pieces of fruit?"

"Yes, Addy the dietician you met yesterday has ordered for you the cardiac diet low in sugar and salt. She will be coming by later this AM to discuss diet with you and hopefully

Dorothy. Diet is very important in heart failure and knowing more about how food affects your condition will help keep you out of the hospital."

"Ok, this will take some getting use to. I really like my sausage and eggs for breakfast."

"I can honestly say me too, but for you the rare sausage or eggs will be ok, just not every day. But Addy would be best to ask."

Simone heads out of the room to check on her other patients. Meanwhile, Meryl picks up her spoon and moves the cereal around but really does not eat anything other than the half apple and tea on her tray.

***Time**: 10h30*

"Hello, Mrs. Smith. My name is Addy and I am the dietician for Cardiology. We met yesterday with the rest of the team. You are Dorothy right? Mrs. Smith's wife?"

Dorothy smiles. "Good memory, yes I am."

Meryl looks up, "You're probably here to discuss what I can or cannot eat?"

"That is correct. For you, diet and activity are going to be very important to maintaining good health and keeping you out of the hospital."

Dorothy looking unhappy and says: "I suppose I'm here to learn as well so that I keep her on the straight and narrow path."

"Yes, in my experience and in the research: when families are closely involved in the care of a loved one, the care is much

more effective. The diet is not all bad, and you and Mrs. Smith will learn how to adapt it to your likes, but there are some things to consider."

Addy sits at the bedside and hands both Meryl and Dorothy a sheet of do's and don'ts for heart failure patients along with some sample menus and some links to recipes.

"It is really important that you consider low sodium foods and not adding any additional salt when cooking. Adding salt can lead to further water retention, which can stress your heart and make it not pump as well as it should."

"Look, Meryl, many of the menu items we already eat. I just need to not add salt."

"That is correct, Dorothy. Many patients find they are already cooking similar diets. I recommend that you not have a salt shaker on the counter or on the table. That way you're not tempted to add salt. Look for fresh herbs and spices to add that kick of flavor we all desire. Things like garlic, cilantro, or sage can add some additional flavor to something like a broiled chicken breast."

"Oh Meryl, we have always said we wanted a herb garden. I guess this will be the encouragement we need to start." Dorothy's eyes light up a bit more. "I can go shopping for the stuff we need and when you come home we can start planting."

"Dorothy, this is not an excuse to go shopping. You always get so excited about things. We need to take this slowly. A garden is a good idea, but let's start buying and cooking first."

Dorothy's eyes shine a bit less brightly, but she nods.

"Ok, you both look like you understand what I am asking you to do," says Addy. "I would like you to look through the information I have given you. If you have any questions, write them on the sheets and I will come back tomorrow to see how you're doing. The meal trays you get will be example meals that you should consider making at home. Dorothy, I need you not to bring anything extra in from home until Mrs. Smith is stabilized. Do you think you can do that?"

"I was just thinking of picking her up a milkshake, but I guess that's out of the question?"

"Yes, until we have things more stabilized and the medications working well, that is for the best."

Both women nod. Addy gets up and waves good bye to both Dorothy and Meryl, and heads out of the room to see the next patient on her list.

***Time**: 11h00*

Simone stops Addy a couple of doors down from Meryl's room. "How did your talk go?"

"Pretty well. They are both intelligent and are ready to learn. They seem less overwhelmed than yesterday. Meryl seems to be feeling better, but is still on oxygen. Dorothy was very excited about making a herb garden. All good signs."

"Awesome, thanks. If they have any questions are you coming back today?"

"No, I think they will need to digest what I gave them. I said I would be back tomorrow to see how they are doing and to answer any questions."

"Sounds good."

***Time**: 11h15*

"Mrs. Smith, how are you doing? I am back to do another ECG heart tracing on you."

"Ok, and you are?"

"I'm Denis. I performed the test yesterday. Do you remember?"

"Oh, there was so much happening, I'm so sorry ,I can't remember everyone's name that is helping me."

"That is quite all right. Ok, this test involves me placing some sticky tape on your arms, legs, and chest."

"That I remember." Meryl re-adjusts her gown so Denis can place the leads on her chest and arms. Denis pulls the covers up, leaving Meryl's feet exposed so he can place the leads on each foot. "All done with that. I now need you to stay very still while we do the test."

Denis pushes the button and the pink coloured paper is slowly pushed out of the machine with the squiggly lines from each of the 10 leads.

"All done."

"Is there any change?"

"Mrs. Smith, I see lots of patients every day and my apologies. I cannot remember your test from yesterday. All I can say from looking at the ECG is that there is nothing to be done right away and you are not in danger right now."

"I guess that's a good thing, thanks."

Denis prints out a second copy as an interim report for the

chart, then removes the leads and stickies from Meryl's body. "I'll see you tomorrow."

Meryl waves him goodbye.

As Denis is exiting the room, Simone pulls him aside. "You have the latest 12 lead?"

"Yes, I was going to place it in the chart."

"Excellent, let's do that and compare it to yesterday."

Both go to the nursing station where Simone pulls up **y**esterday's 12 lead and looks back and forth from today's ECG to yesterdays.

"Do you see any differences Denis?"

"Nope, although it is quite a bit slower than yesterday's. Did you start her on something?"

"Yes, we started her on a beta blocker to slow her rate down and to prevent any remodeling."

"Well, it seems to be working. Heart rate is about 65, but other than that everything looks the same as yesterday."

"Ok. Thanks Denis. See you tomorrow?"

"Yes, I'll be here about the same time." Denis then grabs his ECG cart and heads down the hallway to another patient.

***Time**: 14h00*

"Good afternoon, Mrs. Smith."

"Hello."

Dorothy looks up to see a slightly stooped women enter the room and pull a chair up to the bedside. "Who are you?" she asks.

"My name is Stella and I am a social worker for the hospital.

I come and see all the cardiac patients to make sure things are going well and to see if I can help at all."

"Oh, not sure what you can offer."

"Me neither, but lets have a conversation. Then I might have something a bit more definitive."

Dorothy looks Stella over a bit more. "I guess that's ok. Meryl has psych coverage as part of the RCMP so not sure what you can help with?"

"That's good to know. If there's something that needs to be shared, I can share it with the RCMP. It benefits people to ensure there is good coverage. I have a few set questions to ask, but please feel free to interrupt at any time. I do this to see if there are any gaps and where a social worker can assist you in your new journey to better health."

Both Meryl and Dorothy nod.

"Ok, how long have you two been together?"

"We have been living together four years, but have dated for about eight years before moving in. I met Dorothy while I was having a coffee break and stretching my legs after being in the patrol car for 10 hours on a stake out. She was sitting in a booth by herself and the restaurant was completely jammed. I asked if she wouldn't mind sharing her booth and she told me that it was ok and that I looked to be a safe person. We started talking and here we are 10 years later. She was the right person at the right time after my previous relationship dissolved due to him cheating with the teaching assistant."

"You were previously married?"

"Yes, before Dorothy, I had a traditional family with a male husband. We were together for about six years. I never really felt comfortable in the relationship, but thought that that was what a woman should be when being a wife to a male. Anyway, he started cheating after I had our second child and then I just left."

"How many kids?"

"Two. A boy, Roger, and a girl Jennie. Very lovely kids, but they're growing up so quick. Roger is 16 and Jennie is 14. We share custody. Although Matt, my ex-husband, gets weird with me living with Dorothy."

"Any issues with the coparenting or the kids?"

"No, the kids have adjusted nicely to having two moms and have really bonded with Dorothy."

"How long have you been with the RCMP?"

"Twenty-four years—looking at retirement in about five or six, I think. Got a promotion three years ago that took me out of the patrol car and more desk duty. Been a little less active since that time, riding a desk."

"Yes, physical activity is important. I think that is Addy's day two talk after she gives you the news about your diet."

All three women laugh.

"Oh, I am still active, just not the same level as when I was in a car. I like to walk, run a little, and really enjoy hiking on some of the trails we have around here when the weather is nice."

"Sounds lovely. Good way to relieve stress in your type of job."

"Yes, I guess so."

"Do you smoke?"

Both women shake their heads no. "We both quit years ago. Never felt the need to take it up again."

"How about alcohol?"

"Dorothy and I enjoy a glass of wine after work and the occasional martini when we go out, but I don't think it's excessive. What do you think, Dot?

Dorothy ponders this and a few seconds later answers. "Not sure we do drink every day, but only a glass, so I don't feel it's excessive."

"Sounds quite normal to me. Ok, thank you for answering my questions. You are very normal people and look like you have the coping skills and support needed to make the adjustment that heart failure requires. I don't think I need to be involved. With your permission, I would like to send a note to your HR benefits person in the RCMP to give them an update, and maybe they can follow up with any necessary assistance. "

"That would be fine." Meryl then gives Stella her division number and the contact information for benefits in her division.

"Thank you both. Have a great day."

Stella heads out of the room and to the nursing station to update her notes.

Simone comes by just as Stella is finishing up. "Anything I need to know?"

Stella looks up and smiles. "No, I think she is doing pretty good. I don't believe the diagnosis has really hit her or her partner yet. Right now they're still processing. On the plus side, good supportive family, and she has great support from the RCMP so things are setup well for her to be successful in this transition. The real question is: will she be allowed to continue to work or will the RCMP push for retirement? But that's not my decision and could add quite a bit of stress to Meryl and Dorothy."

"Thanks Stella. I have a good feeling about them. Will you check in with them again?"

"No. I'll see them in the healthy heart clinic, but I don't think I need to follow up beyond that."

Simone nods and moves over to complete her charting on the other patients she is caring for.

***Time**: 16h00*

"Hello Mrs. Smith, how are you doing?" Simone asks as she looks over the monitor and does a primary sweep of her patient.

Meryl looks up with reddened eyes, "It's going ok I guess."

"Have you been crying, Mrs. Smith?"

"Just a little. I just. Why me?"

"I don't know why this has happened to you, but I can explain things a bit more to you if you would like?"

"That might help. I think it's suddenly hitting me that my body is changing and not for the better and I may have to retire

and make so many changes. I, oh gawd. I just don't know what to do."

"This is perfectly normal. Let me pull up a chair and I can explain what is happening in your heart ,and what the plan is for you. Does that sound ok?"

"Yes, thank you."

Simone sits down beside Meryl's bed and explains how heart failure develops when a valve is not working, how valves become diseased, and the various treatments. She also carefully discusses some of the complications that can develop if Meryl does not follow doctor's orders.

"Oh, thank you. I think I understand a bit better now. It looks like I'm not going to die."

"Yes, Mrs. Smith, with the correct treatment, and you watching your diet and exercise you can live a very enjoyable life—maybe not the one you envisioned, but still quite enjoyable."

"Yes, I think it's all the changes I am facing that is overwhelming me. "

"Could very well be. Often facing one's mortality can be a bit daunting. You need to give yourself time to grieve and recognize that this has happened to you and that it is not a punishment, but something that you need to deal with. Remember, there are many people here to help you and Dorothy make the best of this situation and diagnosis. You need to allow us to help you."

"Thank you again. Yes, I will be asking for help now. What is the plan for tomorrow?"

"Much the same as today. You will have another chest X-ray, ECG, and lab work. I hope that I'll be able to take you off oxygen, and then, if that happens we can introduce you to the heart failure clinic, which will begin an exercise routine with you to help strengthen your heart and your coping skills."

"It would be nice to begin moving around again."

"Let's plan to do that tomorrow, shall we? I can hear the dinner trays being moved about in the hallway, so I'm going to get your meds and check on my other patients."

Meryl smiles and pats Simone's hand.

Simone moves the chair back to the corner and heads off to gather meds and check her other patients.

Day 2: Medical Ward

***Day**: 2*
***Time**: 08h00*
***Place**: Medical Ward*

Simone looks over the MAR and double checks the meds she is pulling for Meryl Smith. *That all looks right,* she thinks to herself. *Beta blocker, ACE-I, and Lasix. Along with some vitamins and a proton pump inhibitor. Let's go see how she is doing this morning.*

Walking into the room, Simone can immediately see that

things are not right. Looking up at the monitor she sees that Meryl's heart rate is 50 and that she looks a bit pale.

"Good morning, Mrs. Smith. How are you doing?"

"I don't feel quite right. I am not sure what is going on?"

"Ok, I am going to listen to your chest and take your blood pressure."

Simone carefully listens to Meryl's chest and hears a few less crackles than yesterday. Nodding to herself she thinks, *A bit better but let's check the BP.*

Pressing the NIBP button on the monitor, Simone waits a few seconds and sees the result displayed on the screen: 84/48. Placing her forefinger on Meryl's wrist, Simone double checks that the pulse is accurate when compared to the monitor.

Day: 2	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturati**
Time: 08h00	50	84/48	18	36.5°C	95% on 3lpm

"Well, your heart rate is a bit slower than it was yesterday and your BP is a bit lower. All this can be caused by your medications, so before I give out your meds, I'm going to have Dr. Grant take a look."

"Sure sure." Meryl leans back against her pillow and closes her eyes.

Hmmm, a bit tired as well. Ok let's find Dr. Grant, thinks Simone.

Simone steps out of the room and sees Dr. Grant at the nurses' station.

"Dr. Grant, before you start rounds, can you quickly see Meryl Smith? Her heart rate is 50, BP 84/48, and she is a bit drowsy."

"Good morning, Simone. That sounds like she is having some issues with her meds. You know me by now: if they can keep their eyes open, I'm ok with whatever BP they have."

"True enough, but it's more the heart rate that is concerning me and her drowsiness."

"Ok, let's do a quick drive by and see how things are going."

Dr. Grant and Simone head to Meryl's room. They find her propped up in bed staring forlornly at her breakfast tray.

"Hello Mrs. Smith. How are you doing?" asks the doctor.

"Would be better with some sausages and pancakes, not the cardboard and watery milk that you're feeding me here."

"Ok. Do you mind if I have a listen to your chest and check you out before you dig into breakfast?"

Meryl pushes the bedside table away and adjusts her gown for Dr. Grant to listen to her heart and lungs.

After Dr. Grant finishes checking Meryl out, he steps back. "Ok, Simone, I am good with the BP, as that is not affecting her too much, so the ACE-I is good. She is down another ¾ of a kilo in weight. The heart rate is down a bit more than I would like. Let's cut her dose of beta blockers in half and then go a bit more slowly up than we have been. Give her body a bit more time to adjust to the new drugs. How does that sound?"

"Great, thank you. Will you write that out as an order?"

"Yes. In the meantime cut the beta blocker pill in half. She needs to get on these drugs to get better."

"I will do that and give her the half dose with breakfast along with the rest of the meds. Thanks again."

Both professionals leave Meryl alone with her breakfast tray.

A few minutes later Simone comes in with the medications and explains everything to Meryl and the reason behind the changes. Meryl seems to understand but is still unhappy about her breakfast.

***Time**: 19h30*

Dorothy peeks around the corner. "Up for a visitor?"

"Oh yes. Someone not dressed in those awful blue pajamas and who will talk to me about something other than my heart. What is that I smell, french fries?"

"Shhh the pajama police will hear!"

Both women share a laugh.

"You shouldn't. It's not on my diet!"

"You are doing so well, I thought we could celebrate. I brought a milkshake as well. I looked up on the web to see who had the healthiest French fries and I went there to pick some up to share."

"Healthy fries? You are looking out for me, eh, or trying to get my life insurance payout?"

"Nothing of the sort. Just celebrating."

The two women sit close and share what happened over the course of the day. For Meryl, it was a normal hospital day

with another ECG, chest X-ray, and lab work. But she did share that she was able to go for a walk with the physio, up and down the hallway. Dorothy shared about the kids' parent teacher interview and laughed at how awkward her ex-husband felt when he had to explain that Dorothy was not his wife but his wife's wife.

An hour later with visiting hours almost over, Dorothy cleans up the evidence of the celebration, kisses Meryl, and waves good bye. "Till tomorrow hon."

***Time**: 22h30*

"Hello Mrs. Smith. Let's get you tucked in and taking your final meds of the evening."

"Ok Siri. Has Dr. Grant changed any meds again?"

"No, everything is the same as it was this morning. We are going a bit lighter on the beta blockers and allowing you to adjust a bit slower to them."

Siri then helps Meryl to the bedside commode and gives her the PM medications. Checking again with her that everything is fine, she turns the lights off in the room, leaving each patient with control of their own bedside lighting.

Day 3: Medical Ward

***Day**: 3*
***Time**: 03h00*
***Place**: Medical Ward*

Meryl wakes up suddenly. *Something's not right*, she thinks

to herself. *Oh my heart is beating so quick. I can't catch my breath. What the hell is going on? Where is that damn call bell?* Looking around her bedside in the dark, she finds the call bell and pushes it. A few minutes later she sees a flashlight waving around on the floor as it approaches her bedside.

Siri peeks around the corner of the curtain to find Mrs. Smith sitting upright in bed breathing rapidly and looking quite panicked.

"Well, Mrs. Smith, things don't look right. How are you feeling?"

"I don't feel good at all. Not sure why. I feel short of breath and I feel like my heart is just pounding."

"Ok, let me turn the lights on here and give you a good once over."

Siri turns the lights on over the bed, considers the monitor, and sees Meryl's heart rate at 100. Saturations are less than 88% on room air. *Something isn't right*, she says to herself. *I wonder what's going on?*

"I'm going to take your blood pressure and listen to your heart and lungs."

Siri listens to Meryl's chest and hears substantially more crackles than at the beginning of the night shift. The BP cuff beeps and the monitor shows 90/50.

Day: 3	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturati**
Time: 03h00	100	90/50	24	36.5° C	88% RA

"Ok, something is not quite right Mrs. Smith. Let's put you on a bit of oxygen. I'm going to ask the RT to see you, along with Dennis the senior resident. I expect we are going to do a chest X-ray and another ECG and some labs to see what's going on."

"If you say so. Oh, why is this happening?"

Siri grabs the nasal prongs hanging on the flowmeter and places them on Meryl's nose. She turns the flowmeter on to 3 LPM. Not waiting to see what happens, Siri rushes out to the nursing station.

"Can you page the RT for me and find Dennis? I'd like both of them to see Meryl Smith in Room 23."

"Dennis is just seeing the patient that came in last night at 22:00. I think he's almost done, but I will let him know you need him. Jackson is the RT covering the floors and I'll page him now."

"Thanks."

***Time**: 03h20*

"Hi, I'm Jackson the RT. You paged?"

Siri turns to see a very tall, smiling male dressed in bright blue scrubs. "Yes we did. Wow, are those the new RT scrubs?"

"Yeah, a bit bright, eh? They tell us they will fade with washing. Same colour as my grad suit was during the high school prom. Not a great colour then and less so today."

Siri laughs. "Ok. Mrs. Meryl Smith is a 44 year old woman who developed heart failure due to a heart murmur that occurred 16 years ago during her last pregnancy. She was doing fine and came off oxygen 24 hours ago. Just a few minutes ago,

she rang and complained of distress and shortness of breath, and her sats were down. I put her on 3 LPM nasal prongs and have not had a chance to double check to see if that worked."

"Ok. Well, let's look now."

Day: 3	Pulse Rate	Blood Pressure	Respiratory Rate	Temperature	O_2 Saturati
Time: 03h20	102	92/55	26	36.5° C	90% 3 LPM

Both Jackson and Siri head into Meryl's room to find not much of a change with saturation around 90% and HR around 100. Latest NIBP is 92/55.

"Hi Mrs. Smith, my name is Jackson and I am a respiratory therapist. I manage oxygen for patients and it seems you might need a bit more. I need to listen to your lungs. Is that ok?"

Meryl just nods.

Jackson listens quickly. "Wow, she is crackly everywhere. I'm going to get a mask and a water bottle. I'm probably going to put her on .5Fi02 and see how she does. Is the doc going to see her?"

"I've asked Dennis to come in and review, which I hope is soon."

Just then Dennis walks in. "How is this for soon?"

Siri smiles "Pretty good. Jackson is going to place her on oxygen. She woke up in distress about 15 minutes ago. HR is up, BP is up, and saturations are down. She is complaining of SOB and not feeling quite right."

"Ok. Jackson, what did you hear chest-wise?"

"She is crackly in all fields. I'm going to place her on .5 mask and see how she does. Resps are about 26 per minute right now."

"Thanks, I'll order a CXR and 12 Lead, with CBC, lytes, BUN, creatinine along with a troponin to see if this is an MI. After I look at the CXR, I may order some Lasix as she may be having an exacerbation of heart failure."

Siri stays with Meryl while Jackson gets the oxygen mask and Dennis writes the stat orders.

Over the course of the next hour, Meryl's saturations improve to 93% on .5 Fi02. A chest X-ray is complete, a 12 lead is done, and all morning lab work is completed.

Siri and Dennis are both looking at the CXR and the 12 Lead. "Ok, Siri what do you see on the CXR?" Dennis asks.

"Well, comparing it to yesterday, she seems to have a lot more infiltrates generally. There doesn't seem to be a pattern nor does she have a temperature or cough so I think, for some reason, she is retaining more fluid or her heart is not pumping very well."

"Excellent. I agree as well. Let's look at her 12 lead."

Both professionals compare the last two days' 12 leads with the one taken a few minutes ago.

"Same question, Siri. What do you see?"

"Well, comparing all three ECGs, they all look the same. If we are looking for an MI, I don't see any ST elevation nor

Q waves on tonight's ECG. She could be having a NSTEMI I guess."

"That could be happening, but I'm suspecting it's something else. I wonder if the trop is back yet."

Dennis pulls up the computer and looks under Meryl Smith's lab work. "Awesome. Look here: no troponin detected. So, no MI. Let's give her 40 mg IV Lasix now and if she responds really well, just follow up with her normal AM dose. If she has a limited response, say less than 1500 cc urine in the next three hours, let's double the dose. But talk to me first before doing so. I'll write the order for the 40 mg direct IV."

"Ok, something happened here. I'll go see how she's doing and talk with her."

***Time**: 04h30*

"How are you feeling now Mrs. Smith? I am going to give you some Lasix that will make you want to pee quite a bit for the next little while."

"Ok, is the commode close?"

"Yes it is, but I want you to call if you need to get up. Just want to make sure nothing happens or you slip. Ok, here goes the medication. Has to go in quite slowly."

Siri very slowly pushes the 40 mg IV over the next 5 minutes into Meryl's IV.

"So all those tests we did show you did not have a heart attack, but show that your heart is not pumping as well as it was yesterday. Anything different happen?"

Meryl sighs and looks sheepishly at Siri. "Dorothy and I celebrated just a little after dinner before you came on shift."

"What do you mean?"

"Well, Dorothy brought me fries and a large milkshake, you know one of the big ones."

"Oh my. Ok, I think I know what happened. Addy talked to you about salt and water, did she not?"

"Yes. I am not supposed to have too much of either."

"Yes, no extra salt and we're watching your fluids very carefully. So the extra salt from the fries caused your body to hold onto fluid, then the extra big milkshake gave you more fluid than your heart could handle, causing your heart to be overstretched and not pump well. The Lasix that I'm giving you will help, but you can't do things like this."

"Yes, I know that now. Thank you. Are you going to talk with Dorothy?"

"Not tonight. But I think you both need to meet with Addy and Stella."

"Ok."

Time: *06h30*

Siri helps Meryl back to bed for the eighth time since the Lasix has been given.

"Oh, I feel so thirsty."

"Yes, here is some water. Just take a sip and rinse it around your mouth before swallowing. That will help with some of the dryness." Siri removes the pan from the commode and

measures the urine. *That gives us a total of 2200 cc since 0430. Not bad*, she says to herself.

"Ok, about two liters out. How are you feeling?" Siri checks the monitor and sees the heart rate below 90 and saturations sitting at 99% on the .5 $Fi0_2$.

Day: 4	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturati**
Time: 06h30	88	110/75	20	36.5° C	99% .5 FIO_2

"Much better," Meryl says. "Feels like I'm back to where I was yesterday."

A few minutes later Jackson comes in to check on Meryl.

"How you doing now? Wow — 99%. Let's see if we can get you off the mask and onto something more comfortable or maybe even off oxygen." Jackson removes the mask and replaces it with nasal prongs at 3 LPM.

"I'll be back in 10 minutes to see how you are doing."

Time: *06h45*

"Ok, Mrs. Smith, your sats are 96% on 3 LPM. Let's take you off the oxygen. I'll ask my day shift counterpart to check on you when they come in, but I think you don't need the oxygen anymore now that you got rid of all that fluid."

"Thank you. I feel so guilty. I did this to myself and I thought I knew better."

"Hey, now you know. Have a good morning Mrs. Smith."

Time: 07h30

"Hi Simone, back again?"

"Yeah, Philippa wanted to trade her day shift for a night. Something to do with a school outing, I think."

"Very happy to see you. Should be an easy report."

"Thanks Siri."

"Ok, everyone had a good night except Meryl Smith, but will get to her in a minute. Beds 2 to 6 are ready for discharge as soon as the morning labs are back. Discharge orders are written. If labs are normal, they are good to go. I have phoned all the family and they are aware to come and pick them up. I have updated my charting and everything should be a go for them."

"Thank you very much. Now what happened with Meryl?" Simone asks.

"The evening started out well. HS meds and care, she was doing fine. Did not need any assistance to commode. Then at 03:00 she wakes up not feeling right, SOB, sats down, chest sounding quite crackly throughout, and did not look exactly right. RT up, placed on FM at .5 Fi02, stat blood work, CXR, and the resident in to see her. Appeared to be having either an MI or acute exacerbation of HF. Labs came back with trop negative, 12 lead unchanged but CXR showed increased infiltrates. Had a bit of a discussion with her and it seems her and her partner celebrated how well she was doing with fries and an extra large milkshake. Looks like this tipped her over the edge. She received 40 mg IV Lasix. Diuresis of 1.5 L out

and this morning is off oxygen with sats of about 93%. She feels pretty guilty. I think social work and Addy from dietary need to come and talk with both her and Dorothy to do some teaching."

"I agree," nods Simone. "When they were talking yesterday the conversation seemed a bit too easy. More teaching is definitely needed."

"Ok, Simone, that's it for me. This is my last night shift so maybe see you next week. Have a great shift."

"Thanks Siri, I hope you get some sleep."

Time: *08h10*

The discharge patients are all up and dressed, Simone says to herself. *Breakfast trays delivered. So they should be good. Right. Let's go see Meryl and see how she is doing.*

Simone double checks that she has the right meds, remembering yesterday that the beta blocker was adjusted.

Entering the room, she finds Meryl sitting up in bed looking much better than yesterday morning, despite the events of the night shift.

"How are you feeling Mrs Smith?"

"Much better thank you. I imagine you know what happened last night."

"Yes I do. How do you feel about that?"

"Very embarrassed and a little scared."

"I can believe that. Here are your meds for the morning. It looks like your heart rate is good at 65. Let's do your blood pressure and then afterwards let's talk about last night."

"Ok. You aren't mad, right?" says Meryl.

"Definitely not. I just want to help you develop a better understanding of your disease and see what we can put in place to prevent these sorts of things happening again."

"Thank you."

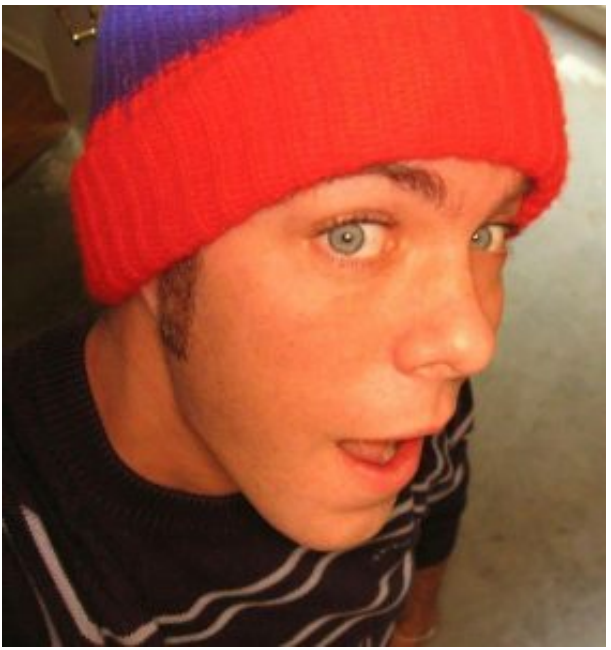
Over the course of the morning, Meryl discusses her feelings with Simone and seems to show a deeper understanding of heart failure and the implications. When Dorothy comes in, Addy and Stella meet with the two women and provide counseling and coping strategies.

The next three days show great improvement with Meryl. On the fourth day, she is discharged home, with appointments for follow up to the health heart clinic.

8.

CASE STUDY: AARON KNOLL MOTOR VEHICLE ACCIDENT

Patient: Aaron Knoll



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Patient: Aaron Knoll
Date of Birth: 09/14/19xx

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://mhcc.pressbooks.pub/mo141/?p=135#oembed-1

PERSONA

Aaron Knoll is a 24 year old student in his final year of studying Environmental Science. He lives with his mother (his father died 10 years ago). He has no siblings.

Aaron works part-time as a waiter at a local restaurant. He enjoys bowling, hiking, and snowboarding. He recently met his girlfriend, Melissa, at a party and they have been enjoying spending time together.

Aaron has no allergies, no medical conditions, and no surgical history. He does not smoke and he drinks alcohol occasionally.

***Day**: 0*
***Time**: 22h30*
***Place**: FireHall #6*

"Attention, attention," blares the announcement. "Motor

vehicle crash, Hemlock and Willow, two casualties reported. Respond, code 3."

Six fire personnel jump up from their table and rush to the small ladder truck.

Jack, the driver, hits the big red button to open the large garage door before hopping into the truck.

"Dispatch, this is Truck 6, responding code 3 to Hemlock and Willow," Jack responds. "ETA three minutes."

"Roger, Truck 6. ETA three minutes."

The ladder truck moves quickly out of the station with lights and sirens on. Maneuvering the truck through the neighbourhood, they arrive in three minutes at the scene.

Quickly surveying the scene from the truck, Jack says, "Captain, this looks pretty bad. Car looks significantly damaged. Looks to be gas leaking."

"Agreed. Ok, Smith and Sidhu, you have traffic," directs the captain. "Manage the scene and direct cars and bystanders to the other side of the street. Johns and Roche, you guys grab the foam and check out that gas leak. Jack, you're with me. Let's take a look inside the car to see what we have."

The captain and Jack make their way to the car and see two people, a young male in the driver's seat bleeding profusely from the head, and a female passenger with no apparent wounds.

"Ok, check the pulse on the passenger."

"Captain, she has a pulse," Jack reports. "It's weak but present."

"Dispatch, this is Truck 6 at Hemlock and Willow. What is the ETA on the ambulance?"

"ETA on ALS crew is five minutes."

"Roger that, Dispatch. The sooner the better."

"Ok, Jack, there is no way we can extract them without removing the doors and maybe the roof. Roche, how's that gas leak?"

"Cap, the leak is pretty small. Laid some foam down. Should be ok."

"Great. Go grab the saw and a couple of long bars, and tell Johns to bring the oxygen and some blankets."

The crew works quickly to apply oxygen to the two victims in the car. Johns carefully drapes a blanket around them.

"Ok, I want you, Roche, to cut those two forward pillars and then we're going to pull the roof back."

Roche quickly cuts through the two pillars holding the windshield and the roof. Using the bars, the captain and Johns lever the roof back like a tuna can, exposing both the driver and the passenger.

The captain checks the pulse on the driver. "Ok, still doing all right. Let's lever the doors open on both sides. I hear the ambulance. They should be here in less than a minute."

The crew, grunting with effort, manage to open both doors and Roche cuts the hinges off, dropping the doors to the ground.

The white and blue ambulance, its lights still flashing, pulls

up. Two paramedics hop out, each with a tackle box in hand and make their way over to what is left of the car.

"Hey, Captain, not often seeing you out on a call."

"I like to keep practicing. Can't sit at a desk all the time. We were short a man tonight, so here I am. We have two victims, a male driver and a female passenger. Airbags deployed and seat belts were on. Both have weak pulses and rapid respiratory rates. We've given them oxygen and started dismantling the car for you to extract them. We haven't moved them. The female passenger's legs look like they are stuffed under the dash and we may need the jaws to move the dash off her."

"Ok. Thanks, Cap."

The two paramedics move to the driver's side. Checking ABCs, they find the driver is breathing but his pulse is thready. "James, you take the passenger. I'll get Cap to help me here and have him assign someone to you. Looks like IVs to start, then let's immobilize and extract onto backboards."

"Sounds good," James says.

Both paramedics get to work, establishing large bore IVs in the ACF of each victim. After each has secured a cervical collar, they both stand up and take a look around at the car, trying to see how to move the occupants out of the automobile.

"Dispatch, this is Truck 6. Can you send another ambulance? We have two victims here. Both unconscious and will need transport to Memorial."

"Roger, Truck 6. Is this a code 3?"

"Dispatch, negative on code 3. Code 2 for transport only."

"Roger, Truck 6."

"Ok, Captain. James and I will slide the backboard behind the driver here and secure it, and then if you and the guys can help us move him out of the car?

"No problem."

Working as a team, the fire crew and the two paramedics quickly get the backboard behind the driver and, keeping the driver's back straight, slowly move him out of the car and onto the pavement.

"James, you stay with the driver here. Looks like he might need some more fluid. He's looking a bit shocky."

Repeating the same process for the female passenger, the fire crew and the paramedics are able to extract her after pushing the seat as far back as possible from the dashboard.

Checking her vital signs again, the paramedic finds them to be stable but she is unresponsive.

"Captain, if you can have a couple of your guys hold her IV bag and keep an eye on pulse and respirations, I'll help James with the driver. When that other crew arrives, they can take her directly to Memorial."

"Will do. Sidhu and Roche, check pulse and resps on the passenger and keep that IV going. Smith, check the gas leak and see if we need to do anything more. Let's throw down some absorbent to soak it up."

Both Sidhu and Roche move to the passenger and begin their checks. The second ambulance arrives. Two paramedics pull a stretcher out and move towards the scene.

James waves them over to the female passenger. "She appears more stable than the driver. Check her vitals and, if things are good, transport to Memorial."

"You got it, James."

"James," says the second paramedic and pointing to the driver. "How is he doing?"

"Resp rate is 28, pulse 130, BP 90/70. He's had one liter so far and I have another liter hanging. He looks a bit shocky. Other than his scalp lacerations, everything seems ok. His belly is a bit firm and he moans when touched there. Still not waking up. Here's his wallet and phone."

Day: 0	**Pulse Rate**	**Blood Pressure**	**Respiratory Rate**	**Temperature**	**O_2 Saturati**
Time: 22h45	130	90/70	28	–	–

The lead paramedic looks at the wallet. "Name is Aaron Knoll, age 23. Appears he is a student at the college down the road. Maybe the passenger is his girlfriend?"

"Not sure, but let's get him in the ambulance and to Emergency. He looks stable, doesn't need intubation right now, and all vital signs are reasonable given the situation."

"Hey, Cap, can we have a hand to lift and place the driver on the stretcher?"

"You bet. Hey, Sidu, Smith, and Roche, give a hand here for a lift."

The fire crew and the paramedics work together to move

Aaron to the stretcher and then into the back of the ambulance.

"Thanks, Cap. That was really helpful. Tell your team they did really well and made a difference tonight."

"Thanks, James. I'll pass that on to my crew. I appreciate it. We still have some clean up here to complete, and the RCMP will want to do their investigation. Might be a longer night than I expected." James smiles and shakes hands with the captain and hops into the back of the ambulance. His partner moves to the driver seat.

A hard thump on the back of the door and the ambulance moves out with lights on, no siren.

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