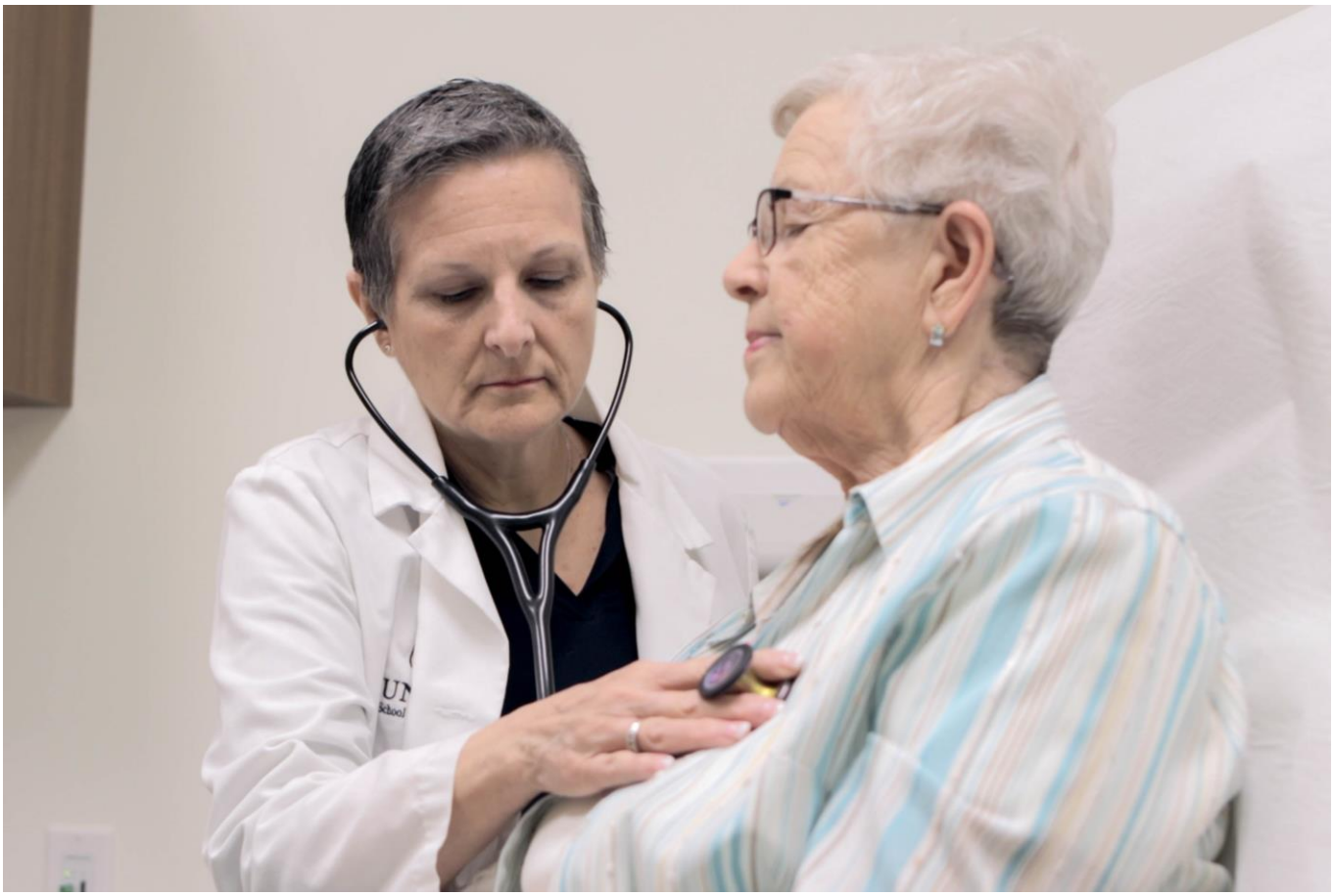
THE UNIVERSITY of NORTH CAROLINA
GREENSBORO
School of Nursing

# Faculty Guide

## A Case of Fatigue and Chest Pressure in an Older Woman



# Acknowledgements


## Program Development Team

Kathryn Lawrence DNP, ANP, AACC, *Principal Investigator, Author*
Carolyn Hoskins DNP, MSN, FNP-BC, *Lead Author*
Laurie Kennedy-Malone PhD, GNP-BC, FAANP, FGSA, *Project Director*
Jennifer Durham BSN, RN
JoAnna Gontarz, MSN, RN, CNE, NE-BC
Thomas McCoy, PhD, PStat

## Film Crew Team

Cinematographer & Editor: Ken Comito
Camera Operators: Melanie Comito
Ricky Nelson
Sound Mixer: Gabe Tufano
Director: Ken Comito
Brain Juice Productions

## Project Director

Laurie Kennedy-Malone PhD GNP-BC FAGHE, FAANP, FGSA, FAAN
Professor of Nursing
Eloise R. Lewis Excellence Professor
National Hartford Center of Gerontological Nursing Excellence (NHCGNE)
Distinguished Educator in Gerontological Nursing
UNC Greensboro
Greensboro NC
laurie_kennedy-malone@uncg.edu

## Nurse Practitioner Faculty AACN Essentials Experts:

Natalie R. Baker DNP, CRNP, GS-C, CNE, FAANP, FAAN | Associate Professor
National Hartford Center of Gerontological Nursing Excellence Distinguished Educator in Gerontological Nursing
President, Gerontological Advanced Practice Nursing Association (GAPNA)
School of Nursing
UAB | The University of Alabama at Birmingham
Birmingham, Alabama

Mary DiGiulio DNP, APN, FAANP
Associate Chair of Graduate Nursing
Director of DNP and NP Programs
Moravian University
Bethlehem, Pennsylvania

Evelyn G. Duffy DNP, AGPCNP-BC, FAANP
Florence Cellar Professor of Gerontological Nursing
Director of the Adult-Gerontology Nurse Practitioner Program

National Hartford Center of Gerontological Nursing Excellence Distinguished Educator in Gerontological Nursing
Associate Director of the University Center on Aging and Health
Frances Payne Bolton School of Nursing
Case Western Reserve University
Cleveland, Ohio

Candace Harrington PhD, DNP, APRN, AGPCNP-BC, CNE, FAAN
Assistant Professor
Gerontology NP Professor
National Hartford Center of Gerontological Nursing Excellence Distinguished Educator in Gerontological Nursing
University of Louisville School of Nursing
Louisville, Kentucky

Autumn Henson DNP, GNP-BC, WCC
Post-BSN-AGNP Concentration Coordinator
Assistant Clinical Professor
University of North Carolina at Greensboro
Greensboro NC

## Multimedia Development Team

Susie Boles, Ph.D. - Senior Instructional Designer
Melanie Eley, M.S. - Closed Captioning

## Contact information for questions:

Laurie Kennedy-Malone: lmkenne2@uncg.edu

## Funding

Foundation for Academic Nursing Faculty Scholars Grant 2021-2022. *Enhancing Nurse Practitioner Competency-Based Education and Assessment with Innovative Video Simulations*. $25,000.

## Creative Commons License

Year: 2022
Source: https://youtu.be/7brCRVBa9Rg

## How These Videos Were Developed

These patient videos were scripted by UNCG School of Nursing professional educators. The scenarios are fictitious but based upon real circumstances and acted out by professional actors. The videos are available on YouTube and H5p platforms. Interactive questions were inserted into the videos using the h5p.org online platform. Closed captioning is included for increased accessibility.

**The Academic Practice Partnerships Today for Competent Practitioners Tomorrow** (APPTCPT) video case simulations have been designed to enhance nurse practitioners' skills in health history, advanced physical assessment, diagnostic reasoning, and developing management plans. These video case simulations integrate the *Adult-Gerontology Primary Care Nurse Practitioner Competencies* (AACN, 2016) in the learning objectives.

## Course Use

You can link to or embed these videos for your class. H5p videos can be assigned to students to complete as homework or completed in small groups or as a whole class for discussion. H5p videos can be incorporated into a learning management system (LMS) to track student responses. The YouTube videos can be linked or embedded in your course.

# Using these Videos with an LMS for Formative Learning

**Blackboard:** Here are instructions for how to incorporate h5p videos into Blackboard.

## Canvas: Using Canvas with H5P.com

To collect students' scores, you'll need an h5p.com account. To get started with H5P in Canvas just go to H5P.com and start a 30 day free trial. You should make sure your Canvas admin is ready to set up the LTI integration. By using H5P.com, the content is inserted right away, grades are stored in the gradebook, and you can see what your users answered. Then you can download these ANEW patient videos from h5p.org and import them into your h5p.com account using these import/export instructions.

**Moodle:** See these instructions for using h5p.org with Moodle.

## Disclaimer:

As new scientific information becomes available through basic and clinical research, recommended treatments and therapies undergo changes. At the time of development, the authors have done everything possible to make this simulation case accurate with accepted standards at the time of production.

# INTRODUCTION

This simulation video case, **"**A Case of Fatigue and Chest Pressure in an Older Woman**,"** presents primary care nurse practitioner learners an opportunity to develop their diagnostic reasoning and advanced health assessment skills/knowledge to function in an APRN role. Learners can discuss and collaborate to diagnosis the patient presentation and develop an appropriate plan of care for treatment and address any preventative care needs. The learning focus of this simulation video case can be for nurse practitioner learners early in their clinical management program or be adjusted to learners at the end of their education program by adding content on laboratory testing, health screening, risk management, CHADs VASC Score & anticoagulation, and applying the current health promotion guidelines.

# LEARNING OBJECTIVES

**This video case simulation prepares learners to:**

1. Apply knowledge in advanced health assessment to form differential diagnoses based upon scientific knowledge between normal and abnormal findings in physiological, psychological, and sociological development in an elderly patient with Atrial Fibrillation.
2. Determine CHADs VASC Score with competing risks for anticoagulation and utilize the results in planning care.
3. Develop and implement and appropriate plan of care for an elderly patient with Atrial Fibrillation, including SDOH and ethical considerations.
4. Provide education on management of Atrial Fibrillation based on appropriate teaching learning theory considering the patient's developmental stage, readiness to learn, health literacy, and resources.
5. Recommend strategies to improve patient's overall health (managing diabetes, nutrition, return to physical activity, social interaction.

The charts below were developed through a consensus process by the five nurse practitioner faculty experts who independently reviewed the videos and the faculty guides to determine the relevance of the content of the video and assignments with each of the domains, advanced level nursing education competencies, essentials level 2 sub-competencies and the concepts. The competencies, sub competencies and concepts listed here have an 80% consensus on the item (Polit & Beck, 2006).

| Concepts for Nursing Practice |
|---|
| Clinical Judgment |
| Communication |
| Compassionate Care |
| Diversity, Equity, Inclusion |
| Ethics |
| Evidence-Based Practice |
| Social Determinants of Health |

**Learners of Advanced Practice Health Professions:**

- Family Nurse Practitioner (FNP)
- Adult-Gerontology Primary Care Nurse Practitioner (AGPCNP)
- Adult-Gerontology Acute Care Nurse Practitioner (AGACNP)

| Domain, Competencies, and Sub-competencies for Advanced-level Professional Nursing Education |
|---|
|  Knowledge for Nursing Practice |
| **1.1 - Demonstrate an understanding of the discipline of nursing's distinct perspective** |
| 1.1e Translate evidence from nursing science as well as other sciences into practice. |
| 1.1f Demonstrate the application of nursing science to practice. |
| 1.1g Integrate an understanding of nursing history in advancing nursing's influence in health care. |
| **1.2 - Apply theory and research-based knowledge from nursing, the arts, humanities,** |
| 1.2f Synthesize knowledge from nursing and other disciplines to inform education, practice, and research. |
| 1.2g Apply a systematic and defendable approach to nursing practice decisions. |
| 1.2h Employ ethical decision making to assess, intervene, and evaluate nursing care. |
| 1.2i Demonstrate socially responsible leadership. |
| 1.2j Translate theories from nursing and other disciplines to practice. |
| **1.3 Demonstrate clinical judgment founded on a broad knowledge base.** |
| 1.3d Integrate foundational and advanced specialty knowledge into clinical reasoning. |
| 1.3e Synthesize current and emerging evidence to Influence practice. |
| 1.3f Analyze decision models from nursing and other knowledge domains to improve clinical judgment. |
|  Person-Centered Care |
| **2.1 - Engage with the individual in establishing a caring relationship.** |
| 2.1d Promote caring relationships to effect positive outcomes. |
| 2.1e Foster caring relationships. |
| **2.2 Communicate effectively with individuals.** |
| 2.2g Demonstrate advanced communication skills and techniques using a variety of modalities with diverse audiences. |
| 2.2h Design evidence-based, person-centered engagement materials. |
| 2.2i Apply individualized information, such as genetic/genomic, pharmacogenetic, and environmental exposure information in the delivery of personalized health care. |
| 2.2j Facilitate difficult conversations and disclosure of sensitive information. |
| **2.3 - Integrate assessment skills in practice.** |
| 2.3h Demonstrate that one's practice is informed by a comprehensive assessment appropriate to the |
| **2.4 - Diagnose actual or potential health problems and needs.** |
| 2.4f Employ context driven, advanced reasoning to the diagnostic and decision-making process. |
| 2.4g Integrate advanced scientific knowledge to guide decision making. |
| **2.5 - Develop a plan of care.** |
| 2.5h Lead and collaborate with an interprofessional team to develop a comprehensive plan of care. |
| 2.5i Prioritize risk mitigation strategies to prevent or reduce adverse outcomes. |
| 2.5j Develop evidence-based interventions to improve outcomes and safety. |
| **2.6 - Demonstrate accountability for care delivery.** |
| 2.6f Monitor aggregate metrics to assure accountability for care outcomes. |
| 2.6g Promote delivery of care that supports practice at the full scope of education. |
| 2.6j Ensure accountability throughout transitions of care across the health continuum. |

| |
|---|
| **2.8 - Promote self-care management.** |
| 2.8f Develop strategies that promote self-care management. |
| 2.8g Incorporate the use of current and emerging technologies to support self-care management. |
| 2.8h Employ counseling techniques, including motivational interviewing, to advance wellness and self-care management. |
| 2.8i Foster partnerships with community organizations to support self-care management. |
| **2.9 - Provide care coordination.** |
| 2.9f Evaluate communication pathways among providers and others across settings, systems, and communities. |
| 2.9g Develop strategies to optimize care coordination and transitions of care. |
| 2.9h Guide the coordination of care across health systems. |
|  Scholarship for the Nursing Discipline |
| **4.1 - Advance the scholarship of nursing.** |
| 4.1h Apply and critically evaluate advanced knowledge in a defined area of nursing practice. |
| **4.2 - Integrate best evidence into nursing practice.** |
| 4.2f Use diverse sources of evidence to inform practice. |
| 4.2g Lead the translation of evidence into practice. |
|  Professionalism |
| **9.1 - Demonstrate an ethical comportment in one's practice reflective of nursing's mission to society.** |
| 9.1h Analyze current policies and practices in the context of an ethical framework. |
| 9.1i Model ethical behaviors in practice and leadership roles. |
| **9.2 - Employ participatory approach to nursing care.** |
| 9.2h Foster opportunities for intentional presence in practice. |
| 9.2i Identify innovative and evidence-based practices that promote person-centered care. |
| 9.2j Advocate for practices that advance diversity, equity, and inclusion. |
| 9.2k Model professional expectations for therapeutic relationships. |
| 9.2l Facilitate communication that promotes a participatory approach. |
| **9.5 - Demonstrate the professional identity of nursing.** |
| 9.5f Articulate nursing's unique professional identity to other interprofessional team members and the public. |
| 9.5h Identify opportunities to lead with moral courage to influence team decision-making. |
| **9.3 - Demonstrate accountability to the individual, society, and the profession.** |
| 9.3i Advocate for nursing's professional responsibility for ensuring optimal care outcomes. |
| 9.3l Foster a practice environment that promotes accountability for care outcomes. |

Adapted with permission from American Association of Colleges of Nursing.

American Association of Colleges of Nursing. (2021). *The essentials: Core competencies for professional nursing education*. https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf

# CASE OVERVIEW

**Case**: Laura is a 78-year-old Caucasian female that you have been following for 10 years. You have a great provider/patient relationship with her. When you ask how she has been since you saw each other last, she reports complaints of dyspnea on exertion, chest pressure, and some fatigue over the last 2 months. She notices this most when she is exerting herself by cleaning her house, walking in the park, or playing with her grandchildren outside. They like to play hide and seek, and she often tires easily when running to find them. Sometimes feels symptoms at rest with associated lightheadedness. She thinks that this is due to getting older. However, she used to garden, and play more actively with her grandchildren, walk her dog in the park, and enjoy senior aerobics without getting overly exhausted.

**Case Setting**: This is a 6-month exam in a primary care practice.

**PMH**: Hypertension, Type II Diabetes, Hyperlipidemia, GERD, Arthritis uses a cane for ambulation sometimes. No history of falls. Hx: cervical cancer.

**PSH:** Partial hysterectomy, (no oophorectomy), appendectomy and tonsillectomy as a child, laparoscopic cholecystectomy.

**Social**: Retired history professor. Married 50 years, recently widowed this year, 2 children, 5 grandchildren. One of her children lives in town, the other lives 2 hours away. Goes to senior center 3 times a week until recent symptoms. Does not drink or smoke. Medically complaint. Doesn't check FSBG often at home.

**SDOH**: Has PhD in History. Has social security and pension from university. Lives alone in 2 story home. No mortgage. She thinks it's too big for her now. Especially with stairs. Has social contacts through senior center but stopped going due to symptoms. Her children call her twice a week. Drives but doesn't like to because she gets dizziness when the chest pressure comes on. Lost about 15 lbs. usually eats 2 meals a day. Feels down sometimes because she misses her husband and current health status, believing they are symptoms of getting older.

**Current Medications:**

Metformin 500 mg BID
Lipitor 40 mg daily
Doxazosin 1 mg daily
Amlodipine 5 mg daily

**Physical Exam:**

Vital Signs: BP 160/98; (nurse said it was hard to get BP reading) HR 110, R: 22; T: 97.9 Ht: 5'10". Wt.: 125lbs. BMI 21.2.

**Physical Exam:**

General: AAO, NAD Healthy appearing
HEENT: Normal cephalic, atraumatic, PERRLA, senilus arcus noted.
CV: Irregular rate and rhythm, tachycardic, 1/6 systolic murmur, pulses are difficult to palpate DP, PT.

Respirations: Essentially clear, non-labored, no wheezes or rhonchi
Abdomen: Soft, non-tender, Normal BS. No organomegaly.
Musculoskeletal: Some stiffening in elbows and knees, but able to walk and doing normal ROM.
Neuro: HOH, wears hearing aids.
Psych: Normal affect but does appear sad when talking about losing husband. Responds appropriately.

**Case Simulation:** A Case of Fatigue and Chest Pressure in an Older Woman**: (11:43 minutes)**

- Interactive video h5p link: https://h5p.org/node/1293347
- YouTube link:https://youtu.be/7brCRVBa9Rg

# INTERACTIVE H5P CASE QUESTIONS*

1. Why did the NP ask about family support? Select all that apply.
   a. **Medication compliance improves with family involvement**
   b. **Checking in with loved one concerning symptoms of bleeding or falls**
   c. **Emotional support for anxiety, fears, or concerns about new diagnosis.**
   d. Help to pay medical and medication bills so provider gets paid.

**Rationale:**

**Getting paid for services should never be a goal of treatment for patients or families. Assistance with medication costs should be provided if this is a concern.**

2. After placing the stethoscope to her chest, you hear these heart sounds what heart rhythm do you suspect the patient is in?
   a. Atrial Flutter (This is a regular rhythm when auscultated)
   b. Sinus arrythmia (This can only be seen on an EKG even though heart rate is irregular)
   c. **Atrial Fibrillation**
   d. Normal Sinus Rhythm (Heart rate is irregular, and therefore cannot be normal sinus rhythm)

3. To confirm the heart rhythm that you suspect, what is the appropriate diagnostic step in the office?
   a. Order an ECHO
   b. Order a cardiac catheterization
   c. **Order an EKG**
   d. Order a CBC, CMP, BNP, and Troponin

**Rationale:**

**The purpose of the echocardiogram is to assess how heart chambers and valves are functioning. Although heart rhythms are also seen with echocardiograms, this is not commonly the first test done in the office to**

**evaluate an irregular rhythm. Cardiac catheterizations are diagnostic tests for abnormal preliminary testing for coronary artery disease and acute coronary syndrome, such as ST elevation MI, positive troponin, associated with CVRF and chest pain. Lab work is not necessary to diagnose atrial fibrillation as this is an abnormal rhythm seen on EKG. Labs are important for medication management but do not diagnose arrhythmias.**

4. What other treatment should you be considering? Select all that apply.
   **a. Rate control**
   b. **Anti-coagulation**
   c. Immediate rhythm conversion
   **d. CHADs VASC Score calculation**

**Rationale:**

**Immediate rhythm conversion is only done when patient is hemodynamically unstable. This patient is not unstable, and able to converse with the NP about her symptoms.**

5. You have the labs from last week in preparation for this visit. BMET reveals *Creatinine of 1.0. GFR > 30. Hgb 12.4 Hct: 39.1, Platelets 326***.** What labs are most important to review before starting anticoagulation? Select all that apply.
   a. **CBC**
   b. **BMET**
   c. TSH
   d. Hgb A1c

**Rationale:**

**Checking for anemia, a risk factor for Atrial fib, is important before starting any anticoagulation. Anticoagulants mechanism of action is to interrupt the clotting of blood through prevention of thrombin mediated action of coagulation factors, which can precipitate bleeding. Kidney function should also be checked concerning creatine and GFR as anticoagulation with DOAC's can cause acute kidney injury in preexisting kidney disease, as they are renally cleared. This is especially important in older adults whose kidney function can decline with age, especially if they are taking multiple medications. Checking the thyroid function, although good to evaluate possible etiology of atrial fib, does not affect dosing of anticoagulation.**

6. Which medication combination would you likely start her on prior to leaving the office today?
   **a. Eliquis 5 mg BID and metoprolol 12.5 mg BID**
   b. ASA 325 mg and Metoprolol 50 mg BID (Aspirin alone is not indicated if her CHADS VASC Score is >1. Metoprolol dose is too high in this setting as heart rate is under 100 bpm, which can cause significant bradycardia and hypotension. With elderly patients, start low and leave room to titrate, while waiting on referral appointment.)
   c. Nothing, wait for cardiology to manage

**Rationale:**

**CHADS VASC Score should be completed prior to starting Eliquis for stroke risk. Starting Eliquis ASAP decreases the risk of CVA. Primary care providers provide a crucial role in the institution of anticoagulation and patient education prior to referral to cardiology.**

***bolded responses** are correct answers *rationale in parenthesis, unless indicated

# POSSIBLE DISCUSSION QUESTIONS

1. **What information would you give Laura about atrial fibrillation at her age?**
   - Both age and atrial fibrillation are independent stroke risks, need for anticoagulation, and signs of bleeding as advancing age is also a contributing factor for bleeding, risks, and benefits of anticoagulation therapy. You also explain to her that atrial fibrillation is often seen in aging patients. The prevalence of in the general population increases steadily with advancing age, 3.7-4.2% in those aged 60 to 70 years, and beyond the age of 80 years prevalence can be as high as 10-17%.

*Cardiology sees her one week later. They are considering a Direct Current Cardioversion (DCCV) as the echocardiogram does not show atrial enlargement.

2. **Why would there be atrial enlargement in an elderly patient with atrial fib?**
   - Normal aging is associated with altered myocardial structure, impaired left ventricular relaxation, and mild enlargement of atrium. Passive emptying of the atrium decreases with aging and are influenced by LV relaxation. Atrial fibrillation can exert changes in atrial size even more altering atrial function.

3. **How long after starting Eliquis could Laura have the DCCV?**
   - 3 weeks of uninterrupted anticoagulation.

4. **What is the minimum amount of time Laura will take Eliquis after DCCV**?
   - 4 weeks- with risk factors she will need to be monitored for recurrence, if this happens, she will need to stay on anticoagulation.

5. **At what age does anticoagulation need to be stopped as the benefits decline?**

- The clinical benefit of anticoagulation decreases with age for the typical patient. It provides minimal benefit after the **age of 87** with warfarin and **92** years with DOAC such as apixaban. NPs should consider competing clinical risks when they discuss the benefits of anticoagulants with the elderly patients with atrial fib.

6. **What are the competing clinical risks that the NP should consider?**

- Frailty, Cognitive Impairment, fall risk, Polypharmacy, Living situation. SDOH.

7. **What education should be provided to an older adult starting anticoagulant therapy?**

- There are two types of anticoagulants to choose from. Coumadin which requires blood test monitoring to keep the bleeding time in range, and Eliquis or Xarelto. Both have risks of bleeding. **Should not miss any doses** when you begin taking this medication. Report any bleeding to include nose bleeds, coughing up blood, seeing blood in your urine or stool. You may notice that it takes a little longer for your blood to clot when you cut yourself. Report any bleeding that does not stop. You may notice more noticeable bruising. Report any falls. Avoid sharp objects. You do not have to stop this medication for dental work, cleanings, extractions, or fillings.

8. **What are some warning signs regarding atrial fib which require immediate attention?**

- Chest pain or pressure, shortness of breath, rapid heart rate, dizziness, syncope.

# REFERENCES


American Association of Colleges of Nursing. (2021). *The essentials: Core competencies for professional nursing education.* https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf

Andrade, J. G., Deyell, M. W., Lee, A. Y., & Macle, L. (2018). Sex differences in atrial fibrillation. *Canadian Journal of Cardiology*, *34*(4), 429–436. https://doi.org/10.1016/j.cjca.2017.11.022

Burns, E. (2018, July 31). *Atrial fibrillation*. Life in the Fast Lane • LITFL. https://litfl.com/atrial-fibrillation-ecg-library/

El-Am, E. A., Dispenzieri, A., Melduni, R. M., Ammash, N. M., White, R. D., Hodge, D. O., Noseworthy, P. A., Lin, G., Pislaru, S. V., Egbe, A. C., Grogan, M., & Nkomo, V. T. (2019). Direct current cardioversion of atrial arrhythmias in adults with cardiac amyloidosis. *Journal of the American College of Cardiology*, *73*(5), 589–597. https://doi.org/10.1016/j.jacc.2018.10.079

Essien, U. R., Kornej, J., Johnson, A. E., Schulson, L. B., Benjamin, E. J., & Magnani, J. W. (2021). Social determinants of atrial fibrillation. *Nature Reviews Cardiology*, *18*(11), 763–773. https://doi.org/10.1038/s41569-021-00561-0

Forslund, T., Komen, J. J., Andersen, M., Wettermark, B., von Euler, M., Mantel-Teeuwisse, A. K., Braunschweig, F., & Hjemdahl, P. (2018). Improved stroke prevention in atrial fibrillation after the introduction of non–vitamin k antagonist oral anticoagulants. *Stroke*, *49*(9), 2122–2128. https://doi.org/10.1161/strokeaha.118.021990

Friberg, L., Andersson, T., & Rosenqvist, M. (2019). Less dementia and stroke in low-risk patients with atrial fibrillation taking oral anticoagulation. *European Heart Journal*, *40*(28), 2327–2335. https://doi.org/10.1093/eurheartj/ehz304

*Guidelines & clinical documents - American College of Cardiology*. (2019). American College of Cardiology. https://www.acc.org/Guidelines#/results/CHADS%20VASC

Loungani, R. S., Rehorn, M. R., Geurink, K. R., Coniglio, A. C., Black-Maier, E., Pokorney, S. D., & Khouri, M. G. (2020). Outcomes following cardioversion for patients with cardiac amyloidosis and atrial fibrillation or atrial flutter. *American Heart Journal*, *222*, 26–29. https://doi.org/10.1016/j.ahj.2020.01.002

Middeldorp, M. E., Ariyaratnam, J., Lau, D., & Sanders, P. (2019). Lifestyle modifications for treatment of atrial fibrillation. *Heart*, *106*(5), 325–332. https://doi.org/10.1136/heartjnl-2019-315327

Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, *29*(5), 489–497.

Ribeiro, A., & Otto, C. M. (2021). Heartbeat: The global burden of atrial fibrillation and ensuring anticoagulation persistence. *Heart*, *107*(7), 513–515. https://doi.org/10.1136/heartjnl-2021-319245

Salmasi, S., Kwan, L., MacGillivray, J., Bansback, N., De Vera, M. A., Barry, A. R., Harrison, M. J., Andrade, J., Lynd, L. D., & Loewen, P. (2019). Assessment of atrial fibrillation patients' education needs from patient and clinician perspectives: A qualitative descriptive study. *Thrombosis Research*, *173*, 109–116. https://doi.org/10.1016/j.thromres.2018.11.015

Shah, S. J., Singer, D. E., Fang, M. C., Reynolds, K., Go, A. S., & Eckman, M. H. (2019). Net clinical benefit of oral anticoagulation among older adults with atrial fibrillation. *Circulation: Cardiovascular Quality and Outcomes*, *12*(11). https://doi.org/10.1161/circoutcomes.119.006212

Zathar, Z., Karunatilleke, A., Fawzy, A. M., & Lip, G. H. (2019). Atrial fibrillation in older people: Concepts and controversies. *Frontiers in Medicine*, *6*. https://doi.org/10.3389/fmed.2019.00175

**Resources/Apps:**

- AnticoagEvaluator: anticoagulant app from the American College of Cardiology
- Choosing Wisely: specialty society lists of things clinicians should question
- Geriatrics at Your Fingertips: American Geriatric Society
- CliniCalc: Medical Calculator (includes the CHADS2 score)