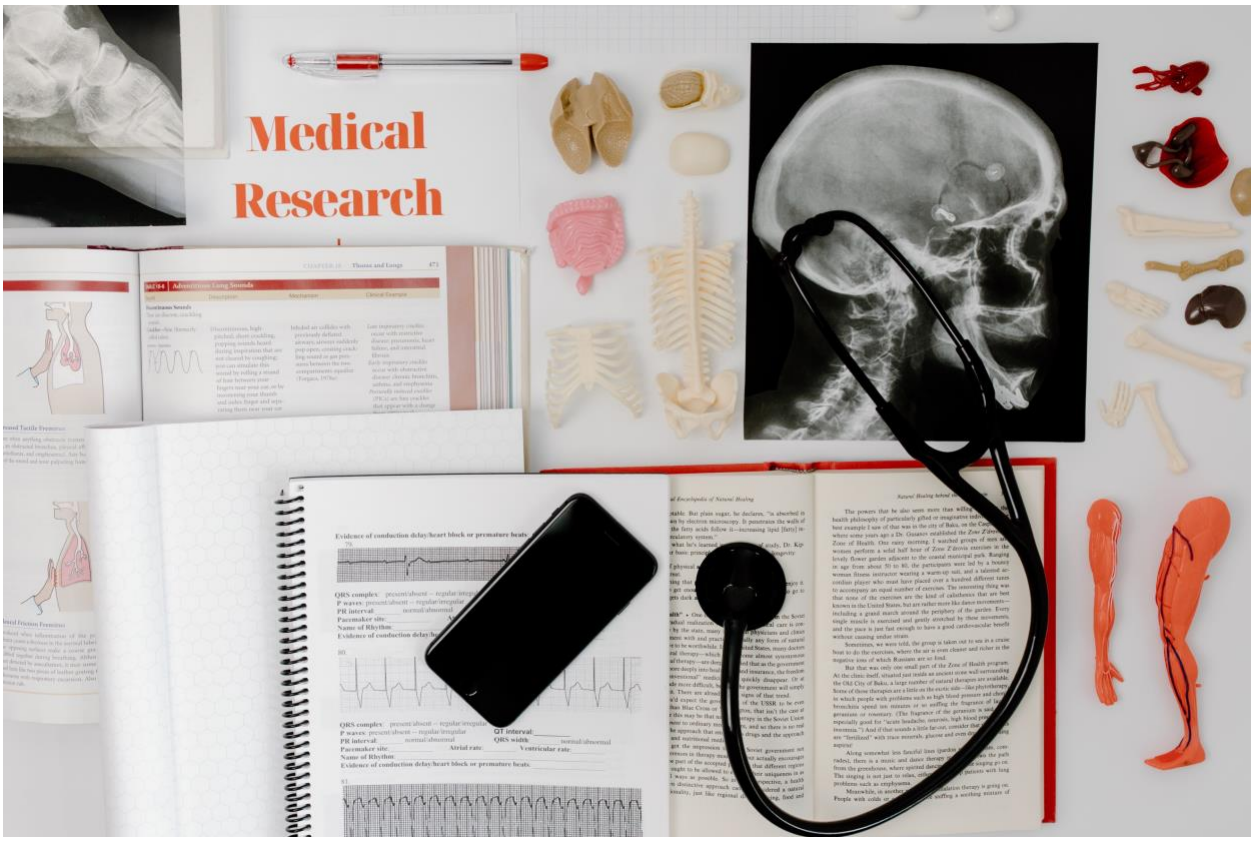

NP Student's Pocket Guide to Clinical Guidelines

By Lisa K. Diamond

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Dedication:

For my nurse practitioner students who have contributed as much to my education as I have to theirs.

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Chapter 1

Introduction

Clinical guidelines are incredibly helpful in staying current in today's fast paced information world. Having the evidence to guide patient care is paramount to good care by the nurse practitioner (NP). Most of the time, these guidelines will work for most patients. However, they do not work for all the patients all the time. What then? How does the savvy NP navigate through guidelines that either do not apply to the individual patient or the patient is unable or unwilling to follow them? Another component to utilizing clinical guidelines we often don't think about is using them on the other end of the spectrum; to help guide *NOT* using medication. As in the case of de-prescribing medications particularly as it pertains to polypharmacy. How does a clinician make decisions to stop or wean off medications that are causing side effects or when a patient is on too many medications, which often occurs in the elderly patient population. This should be a component of all providers' practices to alleviate polypharmacy (Farrell et al. 2019).

Practicing from an evidence-based frame of reference is what NPs are taught, read about, and forms the foundation of day-to-day guidance in clinical practice. However, they don't provide for the patient that doesn't fit them. Those perhaps that have multiple social determinants of health (SDoH) that get in the way of that care, whether financial, geographic, cultural, or any number of other reasons. How then, does the NP make safe and appropriate recommendations for care?

One might argue that the clinical guideline development movement in the last several decades is an attempt at cookie cutter medicine and that one size does not fit all.

In my Diagnosis and Management I and II courses for family nurse practitioners (FNP) and adult geriatric nurse practitioners (AGNP), I have found that students are often perplexed on what guidelines to follow, how to find them, and when a patient doesn't fit the guidelines, how best to proceed. Novice

students feel that guidelines must be followed exactly and aren't experienced enough to take into consideration the patient in front of them and how the guidelines will impact them.

In Chapter 1, will introduce the reader to the historical perspective of guidelines.

In Chapter 2, I will overview the background of clinical guideline development including how they are developed, researched, and published.

In Chapter 3, I will discuss the levels of evidence that guidelines are assigned and what those recommendation gradings indicate.

In Chapter 4 through 8 patient case scenarios will be presented accompanied by utilization of student critical thinking where guidelines didn't fit and how they concluded an appropriate treatment plan individualized for the patient. These will take into consideration what to do if the patient is unable to follow the recommendations for reasons like socioeconomic status, culture, disability, or lack of engagement. Sample guidelines for the case medical condition will be presented.

In Chapter 9, discussion of the advantages of guidelines to begin a treatment plan. In this final section, combining the art with science will be showcased. Modification as safely appropriate to tailor care in a patient partnership model will be explored.

In Chapter 10, Social Determinants of Health (SDoH) will be discussed to shed light on myriad ways the NP must seek to understand an individual's ability to follow a prescribed plan based on a multitude of factors that impact their ability to do so.

Chapter 2

What are Guidelines?

Clinical guidelines are designed to inform providers on best practices and influence that practice; ultimately improving patient outcomes. To include many stakeholders in these decisions to ensure diverse recommendations is a good idea however it can make coming to consensus difficult. These panels can be informal leading to further difficulty in consensus underlying the individual's characteristics, frame of reference and group dynamics. In an effort to standardized this process, The Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group began in the year 2000 https://gradeworkinggroup.org/ The GRADE criteria is increasingly being utilized in the development of guidelines (Jaeschke et al. 2008) and will be discussed in more detail in Section 2.

As providers working to bring to their practice an evidence-based strategy, it becomes important to be able to obtain guidelines on the fly - rapidly before, during, and even after a patient encounter. This ensures their care is the most up to date it can be given availability of research on a particular patient issue. Guidelines aren't helpful or practical however if they aren't readily available or written with the clinician in mind. In addition, the clinician must then take into consideration the individual with whom they are working to determine if the guidelines are applicable not only to their specific clinical situation but their desire to engage, as well as any barriers.

For NP students, this is often a daunting task. With so much to learn, looking to find a specific guideline to a patient problem and then following it can appear easier. However what students have found is that rarely do individual patients follow the prescribed path and they are left wondering how to proceed safely in partnership with the patient.

When a guideline is available for a specific health condition, it is important to understand its development, benefits, and limitations. When to start diabetic medications in Type 2? Which statin is best? When should my older patient have a colonoscopy? All questions most primary care NPs face daily. What about the patient

that doesn't want a mammogram even though guidelines recommend it? How best to proceed?

Historically, clinicians read journals in their specialty to stay current, many still do. However, in our ever increasing, fast paced clinic, that is often difficult and can become outdated, as in the case of textbooks, before it is published. Particularly in the primary care realm when knowledge must be on a vast number of topics, staying current on every condition is impossible with information seemingly changing daily. In our technology rich age, other avenues of obtaining current information is often found in podcasts or newsfeeds with alerts to newly published information. It remains a daunting sea of information that, if unused in a patient scenario quickly, can be lost in memory.

It can be helpful to understand how guidelines are developed; what research goes into their creation; and how are they ultimately utilized at the point of care?

How are Guidelines Developed?

Guidelines are not developed in a vacuum. A group of experts typically come together that may not only include clinicians and researchers but those from the field of economics and ethics and even patients are often involved (Jaeschke et al. 2009). Initially, the population to which the guideline will apply needs to be identified ie: patients with Type 2 Diabetes Mellitus with renal compromise or females between the ages of 40-65 requiring mammography screening, etc. Being specific enables the appropriate expert team to be assembled. However, sometimes the population is much broader such as in cardiopulmonary resuscitation (CPR) for adults. As the panel is assembled, taking into consideration any potential conflict of interest of experts chosen is important. For instance, if the guidelines are on the nutritional aspects of calcium, including a member from the US Dairy Council or from academia where a member's career depends on publishing a specific research outcome, may not be deemed free of conflict of interest.

Authors Brouwers et al. (2013) re-designed the AGREE II tool from its original development in 2003. This tool allows the panel to evaluate the quality of guidelines, variability, what should present and ultimately, reported in guidelines. The initial group that was put together ensured in their criteria for inclusion, that they lacked bias. They were made up of the intended audience, legislative policy

makers, educators, as well as clinicians. In addition, outcomes included the desire to improve the tool and ensure reliability and validity. What changed with the new tool? It had been patient focused but with the update to AGREE II, it was now specific population focused. With this change in focus, it allowed input from the perspective and desires of the population to which the guidelines would focus. Tools and advice on implementation were also offered. Anyone practicing modern medicine in the current American climate, understands that fiscal implications and resources to address those financial needs are paramount. In that vein, these foci were addressed. The authors declared that sources of the study funding haven't influenced study. To conclude, in what conditions can the AGREE II tool can be used? Any illness that applies to the targeted population studied, however the same holds true for utilization in wellness scenarios. The key takeaway is that the guidelines that went through the AGREE II development, can be utilized by clinicians as long as the target audience matches.

How are They Researched?

Not unlike formulating a hypothesis for any scientific study, the panel must decide on the question to be answered and then moving to the literature to obtain available evidence on the topic. An evidence table then can be compiled to guide the panel moving forward. Even if a randomized control trial (RCT), which is typically considered a higher level of evidence, may be downgraded in this instance if the study was conducted on another population than the one guideline is in development for and/or the outcomes being evaluated (Jaeschke at al. 2009).

How are They Published?

Once the panel agrees with their level of recommendations, it is important to disseminate the information as widely as possible to ensure clinicians have access to their use. Publishing these recommendations are vital to that dissemination.

Clinicians must make many decisions in practice, how to know which are sound, in line with current evidence. Rarely does a patient fit into nice package line by line of a guideline. Textbooks are often out of date before they are published. Clinicians must rely on current practice guidelines as they cannot maintain them all at the ready. Jaeschke and colleagues (2009) outlined nine steps in guideline

development: identifying the ultimate reason and patient population it affects, deciding who should be on the development panel, what is the main question to be answered and the outcome objective, searching literature and compiling current recommendations. They then assessed positive and potential negative outcomes of recommendations. Their intent was to determine overall recommendations based on positive outcomes of research and ultimately think about future guideline use and how to evaluate those outcomes. In their study, they utilized the GRADE tool. Initially the panel must identify intended population guidelines will affect. They identified how important it is to look at all outcomes not only physical but financial and others that could impact the patient. A beginning look at Social Determinants of Health (SDoH), which will be discussed further in Section 5. The process of evaluating the literature can take several years as there are many factors that must be taken into consideration to determine how confident the evaluators are that the recommendations are sound. Evaluating each study's design and the components that could either increase or reduce the quality of recommendations, limitations or weaknesses identified, any conclusion inconsistencies, bias, significant magnitude of results effect and whether the interventions are dose dependent. Not only are positive outcomes evaluated to make recommendations, but negative outcomes must be identified. Could be said that ROI is evaluated ie: do outcomes provide higher positive yield or impact that negatives? (Jaeschke et al. (2009).

Lessons learned from reading Jaeschke and colleagues (2009) and their process included a major change in focus on how the experts were chosen and the diversity of backgrounds and specialties from those experts. In the early days of guideline development, approximately 30 years ago, a group of experts were the ones deciding on guidelines but in current times more diverse committee members have a seat at the table including economists, ethicists, and the specific population being targeted (ie patients). Judgements are made on a variety of factors not only potential improvement but harm and fiscal implications. What is of interest are the implications on whether the study recommendations are weak or strong for patients, clinicians, and policymakers. Particularly in "Possible" recommendations of strength for patients identifies that most would want the treatment and a small amount would not. Compared to weaker recommendations most patients would want but many would not. How this was determined was not explained but is of interest in what seems subjective. In addition, I wonder what quantitative measures constitute "most" vs "many." Ultimately, guidelines are only

as good as their dissemination to providers at the point of care. Marketing becomes an important feature in getting the guidelines out so they will be used. As Jaeschke et al. (2009) mention perhaps laminated pocket cards would be helpful.

Guidelines are intended to avoid clinical care that is no longer effective or potentially harmful; care that is streamlined and consistent. Their development has escalated significantly in the past 30 yrs. There are over 6000 warehoused in "the library of the Guidelines International Network," representing 76 countries (Murad, 2017, p.423). The United States has 2017 summaries in the National Guideline Clearinghouse. They can be used to identify "high-value care, (Murad, 2017, p. 423)."

Prior to the 1970's, care was provided based on what providers were taught in their professional schools. During the 1970's, organizations formed decision panels of experts like the National Institute of Health (NIH). Evidence based practice emerged in the 1980's and yet the term wasn't commonplace until 1991. At this point research began to drive guidelines instead of expert opinion. In 2000 there were a variety of guideline ratings or differentiations making comparisons difficult without any standardization. The early variations were based on the type of trial method ie: A for randomized control trials (RCT), etc. Studies within those identified methodologies could have biases despite a high rating such an RCT. This didn't allow for other factors that should be taken into consideration such as a patient's desires. In an effort to factor in other considerations, the GRADE method was published in 2003. Instead of making decisions only on methodologies, GRADE provided for benchmarking against eight criteria. Using this yardstick to discern empiric evidence, showed a higher reliability of the recommendations instead of opinion or personal judgements, (Murad, 2017). In 2011 the National Academy of Medicine (formerly IOM) published criteria that "overlapped with GRADE" (Murad, p424). Internationally, the "Guidelines International Network, NIH, Clinical Excellence in the United Kingdom and the World Health Organization (p.424)" developed comparable grading tools for guideline development. Although research shows that utilizing guidelines can improve patient outcomes, they must be easily disseminated to providers and policy makers to be utilized and therefore ultimately affect care. A systematic review is a must in decreasing biases of various studies and their recommendations as they are used to develop guidelines. In evaluating studies as

a component of guideline development, each studies' rigor must be taken into consideration to guide certainty that outcomes reported are strong enough for recommendation to a wider audience in the form of a guideline. Study design is important but so is the population studied and whether it can be generalized to a wider audience, was the same outcome seen across studies, publication bias in that was it biased to only studies with positive outcomes to be published. The development of guidelines helped providers however, the limitations were soon realized in that the patient's desires were important to take into consideration. For instance, chemotherapy could show in a specific guideline for a specific type of cancer that it was indicated but the side effects and potential lifespan may not be what the patient wants as the impact on their life may not be worth it to them. In evaluating a study to develop guidelines it is important to look at whether the benefits outweigh the risks (Murad, 2017).

Where does a busy provider start their search for guidance to a particular patient issue? The National Guideline Clearinghouse "supported by the Agency for Healthcare Research and Quality, (Murad, 2017, p.427). To have a guideline represented here it must meet criteria of being part of a systematic review and the benefits of treatment outweigh risks of both the intervention and alternatives. Guidelines can also be found documented on websites of the organization to which they refer ie: American Heart Association or American Cancer Society as two examples. When searching in PubMed, there is a search function entitled guideline. It is important for the guideline developer to be transparent in how they came to their conclusions and any biases or limitations they found that way the end-user (clinician) can understand the rationale. Another limitation with guidelines is they quickly become out of date. "I out of 5 recommendations being out of date after 3 years," (Murad, 2017, p.430). With technology it would be nice if there was a way for a dynamic guideline to be quickly updated. Although this concept would make for ease of use, it has not been developed. Although the British Medical Journal has begun an initiative in this vein. Despite the current grading of research to develop guidelines, when there is conflicting recommendations or guidelines, this provides much confusion to clinicians. Examples will be discussed further in later sections. Considerations of possible detrimental outcomes of guidelines include them being so stringent that there's no ability for a provider to tailor them to the specific patient or not taking any social determinants of health into consideration like cost, healthcare coverage, access to care, therapies, medications, education level, culture, or personal safety.

Putting providers at legal risk is another potential detriment. Despite these possible negatives, primary care providers that were surveyed, overall found them to be helpful in their practice and decision-making, (Murad, 2017).

Lessons learned from Murad, (2017) include a historical perspective on guideline development. I found it fascinating that although the term was used in 1991, we had no training in my nurse practitioner (NP) program in the mid-late 1990's. I first heard the word guidelines after I was out in practice and wondered "what guidelines?" Although the AGREE and now updated, AGREE II can be helpful to policy makers and researchers, it isn't conducive to the NP student at the bedside during a busy clinic day. A quick evaluation of whether the recommendations make sense for the particular patient in front of you, given their financial resources and desires to carry out the recommendations. Also, for the NP student, was the most rigorous evidence utilized in their development? Do they fit the specific population you are caring for? Were there any biases in reporting, which might make the level of evidence reported not as accurate? If a recommendation is very strong, the NP can feel confident in proceeding possibly without comparing other options in comprehensive manner. The opposite would be true in weaker recommendations. Looking at them with a grain of salt and much discussion with the patient on alternative options. It is therefore important to be able to appropriately take apart the recommendations and the research conducted to understand it for yourself not just taking the grading recommendations. It must make sense to the provider and the patient at hand. Utilizing joint decision-making tools shows that patients are more likely to understand their course of treatment and be more compliant, reducing conflict on plan of care between the provider and patient. This takes more time, but studies have shown it to be more effective in improving outcomes by patient compliance. Barriers should always be reviewed to ensure equitable care for all patients. This is particularly important on a larger scale if you were implementing a quality improvement project by enforcing a guideline across an organization. It would require strong evidence but also be inclusive and equitable across the patient population with potential barriers identified as well as how to work within those barriers; hopefully overcoming them if possible. Many studies have shown that when guidelines are followed, patient outcomes improve. But this does not mean that the provider just followed the guideline in prescribing but that the patient faithfully followed them as well. It has been found though that this adherence can be more difficult in patients with co-morbid conditions and older

adults. In terms of implementing quality measures in an organization, it is important to include a panel of stakeholders in deciding to implement a guideline and having a champion to oversee its implementation for success. Guidelines are often geared towards the "average patient," (Murad, 2017, p.429). Most of our patients are not average with socioeconomic considerations and multiple co-morbidities that must be taken into consideration. Currently the way guidelines are determined are focused on the masses and are not always conducive to an individual practice or patient population, but they are a place to start. That is why documentation on guidelines consulted is so important to showcase why or why not a specific guideline was followed or deviated from.

How and what the various tools used to develop a guideline are important as they do not all measure the same parameters. In this vein, being as transparent as possible is important in evaluating and developing guidelines as clinicians will be utilizing recommendations in the care of patients. The consequences of this with lack of transparency has the potential for unidentified bias that a provider needs to be aware of if utilizing guidelines to guide care. EQUATOR Network seeks to be a part of that transparency (Enhancing the QUAlity and Transparency Of health Research) equator-network.org (Yao et al. 2020). This organization's mission is an international effort to promote research transparency and ensure reliability. Currently, the AGREE and RIGHT reporting tools listed on their website, are the only ones that they promote. Each serving a different audience and purpose. This article reviews each, including the overlaps between them. The AGREE tool has 23 items, RIGHT 22. Each item then has multiple sub-items. Nearly half of the items overlap between the two tools. Both discuss that the target audience is identified but the AGREE tool requires addressing how the guidelines will be used by that population for instance to impact healthcare policy, make clinical decisions or change care standards. If an evaluator utilized the RIGHT tool only, they may not identify how the guidelines could impact the intended audience. An important component of either tool is the identification of the funding source. Both do this but RIGHT goes further to identity the role of the funding source not just who the funding source is, an important distinction. When you think about grant funding alone to study the research and then put a guideline together that indicates best practice could potentially be a different role that one where the funding source had a hand in interpretation and writing of the recommendations. There is a potential there for conflict of interest, an important distinction.

What specific population is the subject of the study? Both tools cite whether any subgroups were looked at, only the RIGHT tool identifies those. Both tools identify who the panelist evaluators were but RIGHT goes further to explain how they were selected. Both tools discuss guideline recommendations but AGREE can be unclear how the strength of those recommendations were taken into consideration in the final endorsement. With the RIGHT tool, it is a bit unclear what the specific components of the evidence and level of recommendations were. The AGREE tool is clearer on how the guidelines will be kept current. Barriers to utilizing the guidelines for the end user are clearer with the AGREE tool. This could come into play if the guidelines were intended for policy makers however when the user is a bedside clinician, they can be lost in translation. The RIGHT tool mandates that any epidemiological data that was utilized to determine the implementation of care be identified; adds to their goal of transparency. To clearly identify the patient outcomes, the RIGHT tool requires these to be clearly stated. If there were any inequities identified in the development, the RIGHT tool requires these be discussed as well. This can be important when guidelines showcase a different algorithm between races for instance. The scientific evidence must be sound from a physiological perspective vs race and possibly social determinants of health alone, which could itself lead to inequities.

If any quality assurance measures were implemented in the development, the RIGHT tool requires they be identified. If research gaps were found, RIGHT requires they be illuminated to make it clear further research is needed. All limitations of any studies used in the development need to be identified by the RIGHT tool. The AGREE panel emphasizes that a plan for guideline updating is crucial in avoiding potential patient harm in the future as new evidence becomes available (Yao et al, 2020). Systematic reviews are the recommended literature to evaluate in guideline development to ensure a wide range of robust research is represented.
Yao and team (2020) stressed the point that the original AGREE tool is a checklist for reporting how guidelines were evaluated whereas AGREE II is more of an assessment tool to evaluate the quality of a current guideline. The original AGREE tool was intended to guide future developers on how to disseminate the guideline findings. Although the AGREE II tool utilizes a scoring structure for each of the individual items, a cumulative score is not part of this scoring. This seems to make for difficulty in use as a quick tool for the busy clinician. The intention is

not for evaluators or future developers to use scores from each comparatively since they are designed to evaluate guidelines differently. The authors conclude that one or the other tools should be utilized, and future research recommends that those tool developers collaborate to define one tool.

Weeding through this article by Yao et al (2020) to have a deeper understanding was a difficult read however it was helpful as background to how guidelines magically appear as gospel in guiding how we practice. As a component of this knowledge acquisition, I didn't know there were only two tools universally utilized to determine whether a guideline was sound. It would seem that a guideline that utilized both AGREE and RIGHT would prove the most accurate. If not, something to keep in mind when utilizing a specific guideline and how it applies to the particular patient you are designing a plan for. If not, would consider talking with the patient on potential guideline limitations and whether the recommendations fit their specific situation, taking into consideration their wishes, values, beliefs as well as the health issue at hand. Utilizing a guideline with only one tool used should not be the only consideration at the bedside, however. Science is critical but patient preferences should take highest priority. Getting their buy in will be the only method to compliance success. Regardless of what the validated tools imply, a partner centered relationship should always play center stage particularly in the outpatient arena where the patient is in the driver seat.

Chapter 3

What Do Levels of Evidence and Recommendations Indicate?

The AGREE (Appraisal of Guidelines for Research and Evaluation) tool was originally developed in 2003 to primarily evaluate the variability in published guidelines for their level of quality (Brouwers et al. 2010). It has been updated to the AGREE II tool ten years later to evaluate the methodological strategy used in evaluating a guideline's development (Brouwers et al. 2010). The authors looked at whether biases were assessed, and the scientific rigor of the studies utilized in the guidelines' development. This ensures accuracy that providers could depend on the information presented as safe and accurate in making clinical decisions. With the original tool, twenty-three items were identified among six domains. Although patients as stakeholders were included in the original tool, in the AGREE II, patients from the specific population were added. This is an important distinction as the specific patient population that recommendations were aimed at were included in the studies not just patients at random (Brouwers et al. 2010).

Where to Find Guidelines?

During a busy clinic day, how does the NP student quickly locate practice guidelines on the fly that relate to the patient at hand? Sadly, the Agency for Healthcare Research and Quality (AHRQ) used to host all available guidelines as a free service on its website but that ended in July 2018.

PubMed and DynaMed host all scientific medical articles however sifting through them can be onerous and certainly not within the confines of a busy clinic. Professional organizations and governmental agency websites also have guidelines that are often specific to their population such as the American Diabetic Association or American Cancer Society.

It can be difficult to remain up to date on a seemingly unending array of prevention guidelines. Yet so important not to miss as you may only have a single opportunity annually at a patient's physical or wellness exam. However, the best site I have found that is quick and relatively easy to access specifically geared to screening and prevention is United States Preventative Task Force (USPTF) website. They also have a free app you can use on the fly on your smartphone - https://apps.apple.com/us/app/uspstf-prevention-taskforce/id311852560 or https://play.google.com/store/apps/details?id=gov.ahrq.epss&hl=en_US&gl=US. The USPTF makes "evidence-based recommendations about clinical preventive services such as screenings, counseling services, and preventive medications." For a "wide spectrum of clinical and health services topics" see the USPTF's An Evidence-Based Prevention Resource for NP's

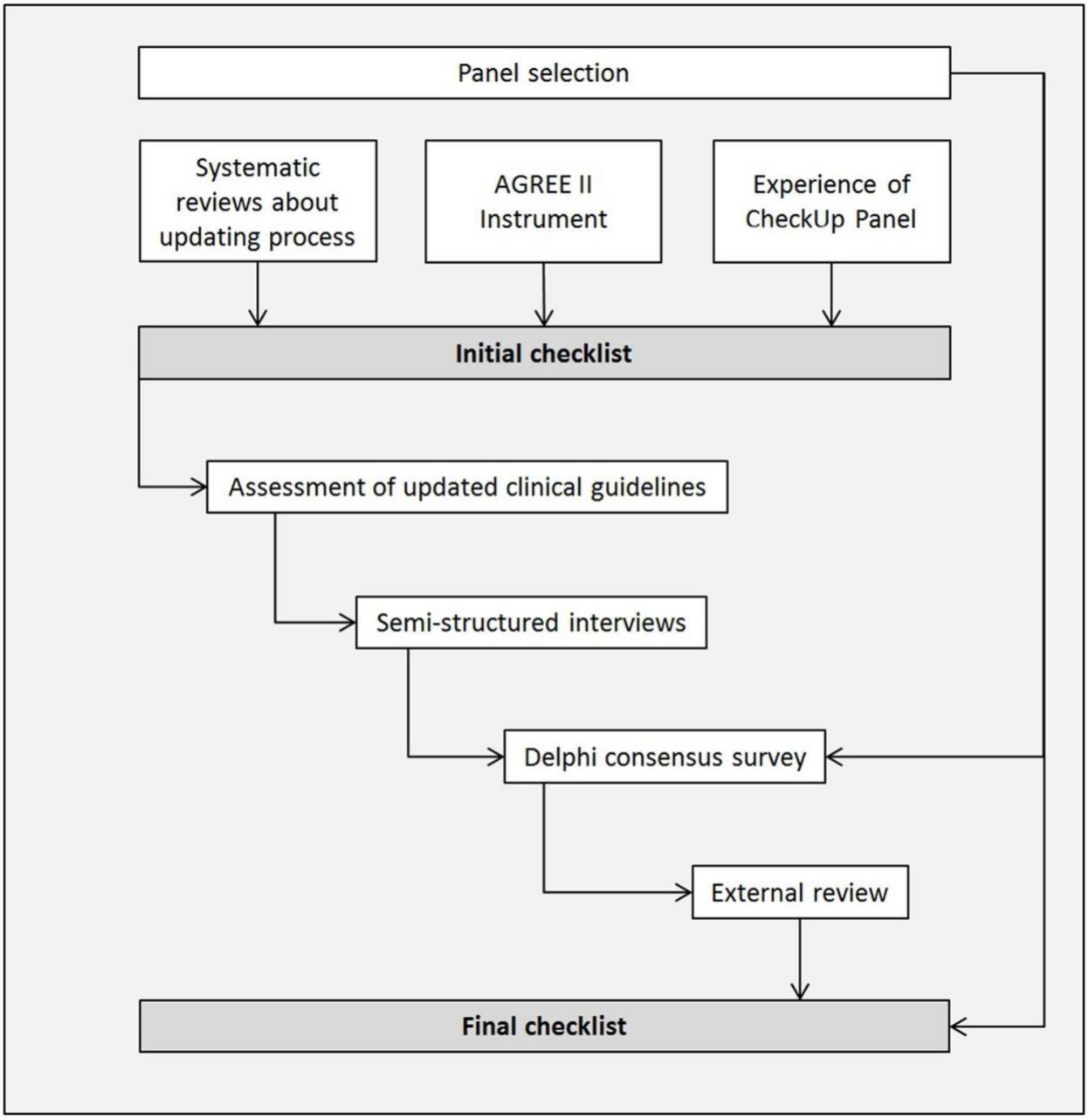
Guidelines can be issued by professional organizations or governmental agencies like AHRQ and promote best practices around screening, diagnosing, and treating disease. They can be very similar to systematic reviews or in fact be based on a systematic review of the literature, however, they can also incorporate a consensus building process among experts. This process is an attempt to incorporate the needs of all stakeholders in an unanimous agreement (The President and Fellows of Harvard CollegeHarvard Law School,2021). https://www.pon.harvard.edu/tag/consensus-building.

Bias can be introduced into guidelines via conflict of interest both among the experts and from the professional society developing the guideline. Multiple guidelines can either converge or diverge based on the amount of data available. Lack of robust data on treatment outcomes or similar outcomes among varying treatments can lead to convergent/divergent guideline recommendations. This can make utilization of them all the more confusing.

Another limitation of guidelines is the issue of co-morbidities. A guideline on the management of type II diabetes may not apply to a patient who is also simultaneously obese with hypertension and hyperlipidemia. Utilizing one that covers all diseases, particularly when they are inter-related like diabetes often is with obesity, hypertension, and hyperlipidemia can help bridge the gap.

Scientific information changes frequently, making a method for updating guidelines important. The process involves many steps including: compiling those

that are of highest priority, new scientific evidence that would impact guidelines, judging the need; the updating process with new recommendations and dissemination of the results. There is currently no systematized way that this is done. Although there are tools and recommendations from professional organizations on development, updating is unique in its methodology and how best to share such updates. A partnership between Iberoamerican Cochrane Center, the AGREE Collaboration, and the G-I-N Updating Guidelines Working Group came together and designed a Checklist for the Reporting of Updated Guidelines (CheckUp) as seen in the algorithm below.



Checklist development process. Abbreviation: AGREE, Appraisal of Guidelines for Research and Evaluation. Vernooij et al (2017) p.3
doi:10.1371/journal.pmed.1002207.g001

As Vernooij and colleagues (2017) describe in their article on checklist development, structured interviews were conducted with experts that had been involved in clinical guideline development at least once and spoke English. The purpose was to pilot the updating tool to see how helpful it was to participants. Usability, completeness, and whether the quality of the guideline under review would be influenced with reporting on the updates.

Guideline users can assess reports of updates. CheckUp (Vernooij et al, 2017) provides an overview on how thorough guideline updating has been done but it isn't a tool to evaluate the strength of the evidence in studies initially utilized to design the recommendations in the first place. It does not profess to be the Gold Standard to guideline updating nor are there any instruments with this identifier. As evaluation tools, AGREE II and GRADE don't transfer to guideline whether the guideline should be updated or what priority a guideline should have. CheckUp can bridge this gap somewhat as an additional resource with other evidence-based tools.

To help NPs at the bedside make clinical decisions, yet not finding anything in the literature about guideline development tools and their validity, Khodambashi, S. and Nytrø, Ø. (2017) set out to do this. They set four goals to evaluate them 1) identifying all the development tools currently available, 2) look at a group that would represent the overall group of tools and their intended functions, 3) identify overall themes and 4) compare those tools against the themes identified. Since guideline development and warehousing along with disseminating data and having ability to easily revise and update was a daunting task, particularly getting the information out to providers had proven difficult in the past. Content Management Systems (CMS) were adopted by the organizations responsible for the guideline. But Khodambashi and Nytrø found these repositories either weren't helping the authors when it comes to ease of updating or revising but also it didn't have a consistent way to disseminate information directly to the clinicians it was intended to help in care delivery. This article focused on the tools used in writing the guidelines only not how they are utilized or carried out in clinical practice. In their literature review, studies that utilized CMS tools that were only geared toward guideline development were analyzed. Features of the CMS were put together in thematic ways along with their specific functionality. Eight common themes were identified by these authors: 1) group contribution and how it is managed, 2) how the project was managed, 3) how the evidence was handled, 4) development of the guideline, 5) handling of documentation, 6) how was the content improved or changed, 7) import, export and dissemination, of content and, 8) improving the clinician experience. Four of five tools evaluated were shown to have common functions: working together, control of who has access to change, as a repository, how are guidelines controlled, capability of virtual dissemination. Other functions the authors identified that can assist in

future development had features that included easier methods of publication and literature searches as well as the capability to integrate into an organization's electronic health record (EHR). Recommendations to improve these tools were found to include supporting the provider's workflow namely integration into an EHR. With a system the provider could customize to their own workflow was identified as being most beneficial.

From this paper by Khodambashi and Nytrø (2017), MAGICapp and GRADEpro are applications that could be integrated into an EHR for ease of use and workflow for the clinician on the fly. Other guideline development tools (GDT) evaluated in this study were BRIDGE-Wiz, Internet Portal, and Handboka. Connectivity and cost would be of concern as well as HIPPA compliance on whether an organization would purchase and install such a program or tool to make clinical practice easier for the provider and potentially safer for the patient. To make a clinical decision based on an integrated guideline within the individual patient's chart would be most helpful and I would think significantly reduce potential errors. The thought is there and makes good sense however software development is not in place and that was not addressed in this paper. This could pose significant challenges for interface between clinical management systems given all the various EHR's in use across the country. It would also make the clinician's life easier but then I remember a nursing director once told me "We're not in the business of making the doctor's lives easier." That was 25 years ago, my how times have changed. Perhaps an outcome of making providers' lives easier would end in better patient care outcomes, perhaps less malpractice as providers would have the most current guidelines at their fingertips that specifically pertain to that individual patient. This would streamline the process and help keep providers current. Perhaps repositories like UpToDate or Medscape, continuing education credits could be tracked and awarded as well. An organization would need to implement such software and then trial it to see where bugs lie and how to best utilize or integrate it into a provider's workflow. Not all that helpful in that it seems this identified more potential problems than it solved. Clinical guideline developers have their electronic format that they use to share information with other authors as they go through the development process; review literature and body of knowledge that fits the guidelines they are trying to develop or update. Historically, it has been a problem getting guidelines published timely and disseminated at the grassroots level – practicing provider at the bedside. Khodambashi and Nytrø (2017) identified a new set of needs in that

having software that could be integrated into the EHR, perhaps as a pop up or drop-down menu, would help the daily workflow. Many obstacles I see are financial, would it be utilized, ability to customize it to provider preferences or patient situation, would social determinants of health be represented? What would the ease of integration into the EHR be or HIPPA capabilities? What about consequences for a provider of not using it? It does appear to be quick and easy to read during busy clinic day. It could be jumping off point for documentation in medical decision-making to support use or not of a specific guideline. Another advance I see would be to keep providers current in evidence-based, best practice framework. It could also be used as a discussion starting point with patient and families on recommendations and then shared decision-making based on that individual's situation, lifestyle, wishes, and values. Like many studies, Khodambashi and Nytrø brought up more questions than it answered. Another obstacle I see as a potential detriment is often a disconnect between software developers and providers. Neither seem to understand where the other is coming from or what they deal with or how they think. Having people from each discipline at the table to talk through workflow would make for a better relationship and deeper working relationship. Each side needs to be open-minded and seek to understand how the other thinks and then be openly willing to share their workflow. With neither party coming to the table with a chip on their shoulder but an open stance on the other's thoughts, would make for an extremely collegial working relationship in guideline development and utilization. As the provider comes to a patient encounter from typically a head to toe thought process whereas the engineer software developer not understanding how a provider thinks or what a patient encounter is really like behind the closed door of the exam room, this understanding of each other can make for an incredible output of an app that actually works. This was identified early in the development of EHR's and how non-end user friendly they were. With the field of healthcare informatics becoming so prominent and needed, many providers now are part of these development teams.

Chapter 4

Student Case Studies

A Case of Stage Fright: An Approach to Essential Hypertension and Performance Anxiety

Samantha Lange, RN, MSN, FNP, CDCES

Essential, or primary hypertension, affects nearly half of adults in the United States and has the potential to lead to numerous health complications including heart disease and stroke (Centers for Disease Control and Prevention [CDC], 2020). Unfortunately, the majority of adults with elevated blood pressure are considered to have uncontrolled stage 1 hypertension, defined as a systolic blood pressure ≥130mmHg and/or diastolic ≥80mmHg (Whelton et al., 2017). Many adults are not aware they have hypertension, as individuals are typically asymptomatic, while others may be aware of their elevated blood pressure but unwilling to take medications. Through shared decision making, healthcare providers have the opportunity to discuss the risks associated with primary hypertension and integrate both pharmacologic and nonpharmacologic interventions.

This case presents a 47-year-old Hispanic female patient who presents to a primary care clinic after experiencing elevated blood pressure (BP) readings on her home sphygmomanometer. After reviewing her chart, it was noted that she had been seen numerous times in the previous year for essential hypertension she was attempting to control through lifestyle modifications. From previous encounters, it appeared she was reluctant to use medication for the majority of her chronic illnesses, and instead preferred a holistic approach such as following a primarily vegetarian diet, increasing exercise to 4x/week, and meditation. Upon further interview, it was elicited that the patient did not trust medication management based on her personal beliefs and was further concerned for the

stigma surrounding blood pressure medication. According to her home log, her BP readings range from 160-190mmHg systolic, and 90-110mmHg diastolic. Furthermore, she reports her measurements are taken approximately 3x/week (Sunday in the morning, Wednesday in the afternoon, and Friday in the evening). Although her BP was found to be elevated upon vital sign obtainment, her chief complaint at the visit today was regarding recent onset of stage fright or performance anxiety. Due to COVID-19 restrictions, her company was forced to move each employee remotely, furlough other staff, and alter job obligations. This in turn increased the patient's workload and integrated the additional burden of daily presentations to clients (a task that was extremely stressful for this patient). Moreover, she reports elevated blood pressure readings on days she has a presentation (some with systolic blood pressure >180mmHg and diastolic >100mmHg), and heart rate readings from her smartwatch >100 beats per minute (bpm). Prior to her presentation, she reports experiencing palpitations, diaphoresis, and nausea. She denies relieving factors such as meditation or deep breathing. At this visit she is concerned about her blood pressure, but her primary concern is her performance at work due to new onset performance anxiety or stage fright. At this time the patient is requesting a medication to alleviate her performance anxiety symptoms but would like to continue with lifestyle modifications for her hypertension.

Based on clinical guidelines from the American College of Cardiology/American Heart Association presented by Whelton and colleagues (2017), there is strong evidence supporting the use of low-dose thiazides as first line treatment of primary hypertension to reduce all-cause mortality from adverse cardiovascular events including stroke, heart attack, and coronary heart disease. Other medications such as ACE inhibitors and calcium channel blockers may also reduce mortality, but the quality of evidence is not as robust. Agents such as beta blockers and high-dose thiazides are inferior to thiazides (Whelton et al., 2017). However, beta blockers have been shown to improve symptoms of performance anxiety in musicians such as palpitations, dry mouth, and flushing (Matei & Ginsborg, 2017). Because this patient was still hesitant to start medication for her hypertension, and she was more apt to begin pharmacologic therapy for her stage fright; at this visit my recommendation was to start the use of propranolol daily. Although, per the ACC/AHA guidelines beta blockers are not considered first-line therapy for essential hypertension, as her provider my concern was in her continued elevated blood pressure readings regardless of lifestyle

modifications. Because tachycardia was a symptom she experienced with her performance anxiety, the use of a beta blocker causing an adverse effect such as bradycardia was less of a concern. Additionally, building the patient's confidence in the use of medications, in addition to holistic medicine may allow for a conversation in the future to allow her to try a thiazide for hypertension management. The choice of selecting propranolol as a daily medication rather than as needed (PRN) was determined based on the near daily presentation requirements for her work (Monday-Friday) and need for a routine antihypertensive medication. Due to the patient's previous attempts of holistic care and discussing the medical decision making for propranolol daily, she was more apt to start the medication therapy.

Overall, although beta blockers are not considered first-line agents for hypertension, addressing the patient's primary concern of performance anxiety assisted to reduce her symptoms of performance anxiety allowing her to perform more optimally at work, reduce her stress from the added work requirement which has the potential to also lower her blood pressure, and allow her to see the benefit of taking a medication when lifestyle modifications alone are insufficient.

Chapter 5

Student Case Studies

Metformin: To Treat or Not to Treat in Patients with Prediabetes

Laura R. Archambeau, RN, MSN, FNP

A female adult patient aged 38 years old (referred to as A.B.) presented to a general family practice clinic via telehealth to review prior blood work obtained during her recent annual physical. The patient's height is 5'6, weight 220 lbs., hemoglobin A1c (HbA1c) 6.3%, and fasting blood glucose of 117 mg/dL. Her BMI was calculated to be 35.5 kg/m^2. All other labs including her lipid panel and TSH were within normal limits. She is a nonsmoker with a pertinent familial history of type II diabetes mellitus (T2DM). Based on her A1C of 6.3% and fasting glucose of 117, this patient meets requirements to be categorized as prediabetic. Her family history of T2DM and her BMI of 35.5 places her at greater risk for developing T2DM in the future. Upon interviewing, the patient was motivated to lose weight and begin lifestyle interventions.

Diabetes mellitus (DM) is a significant public health problem, placing individuals at increased risk for developing heart disease, stroke, renal disease, retinopathy, neuropathy, and impaired wound healing. Improperly managed T2DM has the potential to lead to numerous medical expenses and can place a tremendous financial burden on society, but also largely impacts a patient's quality of life. Primary risk factors associated with the development of T2DM include being overweight and having an inactive lifestyle. This lifestyle is often learned within families, where physical activity and healthy eating are not always a top priority. This makes treating the individual difficult, as much of the time the whole family would benefit from an intervention.

More than 34 million American adults have diabetes, with approximately 90-95% of them having T2DM (Centers for Disease Control and Prevention [CDC], 2019). In addition, there are 88 million American adults who are classified as prediabetic. Prediabetes is defined as having a HbA1c between 5.7-6.4%, fasting

plasma glucose ranging from 100mg/dL to 125 mg/dL, or an oral glucose tolerance test as 140mg/dL to 199 mg/dL (CDC, 2020). This prompted me to wonder what the best course of action was in treating adults in the primary care setting that fell into the category of being prediabetic to decrease their chances of progressing to T2DM.

The American Diabetes Association (ADA) "Standards of Medical Care in Diabetes" includes the ADA's clinical practice recommendations on the prevention or delay of T2DM. These recommendations include annual monitoring of HbA1c in those with prediabetes, referring patients to an intensive behavioral lifestyle intervention program, implementing technology-assisted prevention interventions, initiation of metformin therapy for those with a BMI greater than 35 kg/m^2, less than 60 years of age or have a history of gestational diabetes, as well as yearly screening for and treatment of modifiable risk factors for cardiovascular disease (ADA, 2020).

While the ADA suggests beginning metformin for those who were clinically found to have prediabetes with a BMI of greater than or equal to 35 kg/m^2, A.B. was not started on the medication. Prediabetes is a risk factor for the development of DM, not in and of itself a diagnosis. A recent systematic review and meta-analysis of screening tests and interventions showed that patients with borderline glucose values have a significant decreased risk of crossing the threshold for a DM diagnosis with lifestyle interventions alone (Barry et al., 2017). Although metformin is inexpensive, many patients suffer from gastrointestinal symptoms (i.e., diarrhea, flatulence, nausea, vomiting) and are put at an increased risk for the development of vitamin B_{12} deficiency after long-term use (Brown, 2019).

Since A.B. was highly motivated to begin a healthy lifestyle intervention and lose weight, she was referred to an intensive healthy lifestyles clinic modeled after the CDC's National Diabetes Prevention Program. This program includes working with trained providers including a psychologist to make realistic lifestyle changes, discover how to eat healthy and implement daily physical activity, and provide stress reduction techniques and social support. Much of the ADA's recommendations were implemented in this patient's care; however, individualized treatment plans are always a priority. A.B. was very resistant to begin any medication, as becoming dependent on them for her lifetime was a real fear for her. She also stated that beginning a medication would be a "cop out" and wanted to see if she could prove to herself that she could obtain a healthy lifestyle. As providers, it is important for us to provide education for reducing her risk factors

of progressing to T2DM but is also equally as important to support our patients and to give them the responsibility to own their own health outcomes.

Chapter 6

Student Case Studies

Adapting Unfit Clinical Guidelines into Care Plan of a Patient with Acute Diverticulitis in Primary Care

Ferdinand U. Moungoue, RN, MSN, FNP

This clinical encounter took place in a primary care setting where acute diverticulitis is a commonly seen condition. The patient is an 80-year-old Caucasian gentleman who presented with a chief complaint of left quadrant abdominal pain. He reported having this symptom for the past seven days. He was evaluated for diverticulitis based on his known history of diverticular disease and clinical presentation. A CT scan with contrast revealed two inflamed colonic diverticular lesions without evidence of abscess or perforation. Despite his abdominal pain and slightly elevated white blood cell (WBC) count, this patient was hemodynamically stable. His significant medical history includes type 2 diabetes mellitus, hypertension, osteoarthritis, gastroesophageal reflux disease, Clostridium difficile infection, and diverticular disease. Current medications include Lisinopril 20 mg daily, Metformin 500 mg twice daily, Omeprazole 20 mg daily, and Diclofenac topical four times per day as needed. He has no known allergies.

For uncomplicated acute diverticulitis, this patient was treated with antibiotics and other interventions as follows: Amoxicillin-clavulanate 875/125 mg tablet by mouth or per os (PO) twice daily for 10 days, clear liquid diet for three days followed by low fiber diet (Strate & Morris, 2019), and oral probiotic for 3 weeks, patient was advised to stay physically active as tolerated (Gilbert et al., 2020; Strate & Morris, 2019).

Management of Acute Diverticulitis in Primary care

The management of acute diverticulitis is based on patient presentation and illness severity. For instance, mild cases are often treated in an outpatient setting, while moderate to severe cases may require inpatient care. Both

pharmacological and nonpharmacological modalities are valid options on a case-by-case basis.

Pharmacological management of Acute diverticulitis:

Uncomplicated infection does not automatically require antibiotic therapy, and standard nonpharmacological interventions are often sufficient (Shah et al., 2017; Stollman et al., 2015). An outpatient primary regimen for a mild illness is Amoxicillin-clavulanate 875/125 mg PO twice daily (Gilbert et al., 2020). TMP-SMX-DS PO twice daily or Ciprofloxacin 750 mg PO twice daily, or Levofloxacin 750 mg PO daily combined with Metronidazole 500 mg every 6 hours are the next options in case of intolerance or allergy to beta-lactam (Gilbert et al., 2020). Alternatively, Moxifloxacin 400 mg PO daily dose can be considered (Gilbert et al., 2020). The treatment duration is 7-10 days (Gilbert et al., 2020). The course of therapy should be personalized, and therapeutic response evaluated using a serum procalcitonin (PCT). A PCT level below 0.5 ng/ml is an indicator that antibiotic treatment is no longer needed (Shah et al., 2017). A severe infection or complicated acute infection requires antibiotics and hospitalization.

Nonpharmacological interventions and recurrent infection prevention:

-Diet: three days of clear liquid followed by a low fiber diet is recommended practice (Stollman et al., 2015). This dietary regime is beneficial because it promotes bowel rest and healing. Then it is acceptable for patients to return to their regular diet. For preventive purposes of diverticular infection, high fiber diet is recommended (Stollman et al., 2015).

-Surgery: hospitalization and surgical consult are advised, especially if an abscess or perforation in the bowels is present (Shah et al., 2017). It is crucial for primary care providers to defer any suspected complicated case to an acute care setting.

-Physical activity: vigorous physical exercise is beneficial for patients with diverticulitis (Stollman et al., 2015).

Brief Guidelines Recommendations Summary

According to the American Gastroenterological Association Institute Guideline on the Management of Acute Diverticulitis, routine treatment of acute uncomplicated diverticulitis with antibiotics is not recommended due to low-level evidence that antibiotic utilization does not improve recovery time (Stollman et al., 2015). Additionally, this clinical guide recommends against using probiotics in patients with acute uncomplicated diverticulitis. Still, it supports a high fiber diet, vigorous physical activity, and 6-8 weeks follow-up colposcopy post-infection resolution (Stollman et al., 2015).

Unfitness or Inapplicability of the Clinical Guidelines to this Case and Palliative Approach

Most recommendations from the above guideline did not fit the patient's unique situation; hence, this gentleman's personalized plan of care conflicted with the current recommendations. The choice to treat him with an oral antibiotic was justified by the potential complications based on his risks and comorbidities. In fact, the patient's advanced age and history of diabetes placed him at higher risk for complications due to his likely immunocompromised status. A probiotic was ordered not as a treatment for acute diverticulitis but rather for c. difficile prevention because of antibiotic use and prior history of c. difficile (Denleyci & Vandenplas, 2019).

The guideline recommends vigorous physical exercise. According to the recent 2018 Physical Activity Guidelines for Americians, vigorous activity is defined as the highest intensity level of any physical activity with a Metabolic Equivalent of Task (MET) scale of 6 or higher (Piercy et al., 2018). In contrast, a range of 3-5.9 METs is considered moderate intensity while 1 MET describes a resting state (Piercy et al., 2018). For instance, aerobic exercises such as jogging, running, and heavy lifting are considered vigorous; depending on the effort, bike riding, cycling, or swimming can be classified as vigorous intensity (Piercy et al., 2018). Vigorous physical activity could not be realistically ordered for our patient in this case. Indeed, light-intensity or at best moderate-intensity physical activities that include a combination of muscle strengthening, balance, and aerobic exercises based on fitness and ability levels are appropriate for older adults (Piercy et al., 2018). We discussed the importance of staying with activities such as walking, for instance (as able) and not extreme physical activities that could exacerbate his osteoarthritis while putting him at risk for injury.

After completion of the antibiotic regimen, he was back to his baseline and the abdominal pain resolved. After evaluating colonoscopy risk and patient preference through shared decision making, we decided not to carry out a 6–8-week post-infection colonoscopy as advised by current guidelines. It would be reasonable to consider a follow-up CT scan with contrast as a less invasive diagnostic test if indicated.

Conclusion

In brief, this 80-year-old patient with acute uncomplicated diverticulitis was treated with oral antibiotics and short-term diet modification. However, we went

against the standard recommendations by prescribing a probiotic to align with this patient's unique situation. Additionally, physical activity recommendations and post-infection follow-up plan were adjusted to match this patient's clinical profile. Through this case, we observed both the value and limitations of current guidelines in the management of acute diverticulitis in primary care. In fact, the clinical recommendations do not always fit the patient's specific situation and therefore opens room for gray areas in practice. It is imperative to adapt the clinical practice guidelines to patients' variance and unique situation using critical thinking, clinical judgment, and shared decision-making.

Chapter 7

Student Case Studies

Heart Failure and Diuretic Use

Heather Farmer-Bailey, RN, BSN

In the United States, 6.2 million adults had a diagnosis of heart failure between 2013 and 2016 (Virani et al., 2020). The estimated prevalence from 2012 to 2030 is expected to increase by 46% affecting more than 8 million Americans (Virani et al., 2020). In 2012, the cost for heart failure was approximately $30.7 billion dollars and this is expected to increase by 127% costing close to $69.8 billion in 2030 (Virani et al., 2020). Given the prevalence and financial implications of heart failure in the United States, integrating guidelines and best practice is essential to adequately care for patients and reduce economic burden.

S.G., a 53-year-old Caucasian, non-Hispanic male, presents to an outpatient renal clinic for a follow-up visit with stage 3 chronic kidney disease (CKD) with a likely etiology of hypertensive nephropathy. S.G.'s past medical history includes hypertension (HTN), hyperlipidemia (HLD), type 2 diabetes mellitus (T2DM), heart failure with reduced ejection fraction (HFrEF), and coronary artery disease (CAD). Upon review of the patient's medical record, he was admitted for inpatient hospitalization for a hypertensive emergency, 5 months ago, and acute kidney injury (AKI), 2 months ago, secondary to hypovolemia. Current symptoms today include worsening dyspnea, orthopnea, paroxysmal nocturnal dyspnea (PND), resting and exertional shortness of breath (SOB), lightheadedness, fatigue, and palpitations over the last two months. S.G. denies exertional chest pain (CP) or CP at rest, difficulty urinating, urinary incontinence, hematuria, dysuria, foamy urine, or flank pain. The physical exam was remarkable for bilateral rales and a positive fluid wave test. S.G. had a 10 lb. weight gain over the last month. Most recent laboratory results showed a stable creatinine.

When reviewing S.G.'s current presentation, history, physical exam, and laboratory values, some pertinent differentials include hepato-renal failure and myocardial infarction (MI). Further questioning and data collection helped

determine the possibility of these differentials. Hepato-renal failure is of concern due to the elevated creatinine and presence of a positive fluid wave. Further investigation would include assessment of liver function which in this particular case was normal. When considering an MI, as mentioned above, S.G. denied any recent CP; however, given his extensive history he is at increased risk and an electrocardiogram was completed to assess for any abnormalities. The electrocardiogram was unremarkable. Therefore, given his presenting symptoms and stable creatinine, he is likely dealing with fluid overload as a result of HFrEF.

The 2017 ACC/AHA/HFSA Focused Update of the 2013 ACCF/AHA Guideline for the Management of Heart Failure had no updated recommendations (Yancy et al., 2017). According to the 2013 ACCF/AHA guidelines loop diuretics are recommended for the management of fluid retention in patients with HFrEF (Yancy et al., 2013). Moreover, the guideline reviews the importance of diuretic titration, so the dose is not too low (resulting in fluid retention) or too high (resulting in hypotension or renal insufficiency) (Yancy et al., 2013). However, the guidelines do not discuss how to titrate diuretics or how to teach patients how to adjust them on a sliding scale.

An extensive conversation clarified how the patient manages fluid. The patient explained he avoids taking his diuretic on days he has outings (e.g., doctor's appointments, store visits, etc.) because he does not want to continuously use the bathroom. He further explained how he feels like if the diuretic is not making him use the bathroom, he stops taking it assuming it is not useful. Therefore, he intermittently takes his prescribed diuretic based on outings and his determination of medication effectiveness. Despite his inconsistent medication routine, the patient is mindful and attentive to fluid retention symptoms and weight changes.

Since the patient has recurrent hospitalizations and poor medication adherence, education and medication adjustments were a priority in hopes to decrease symptoms and hospitalizations. It was evident a steady dose of furosemide was not effectively treating fluid retention. Therefore, given the patient's history and current symptoms, it was determined the best approach would be to have the patient use his diuretic on a sliding scale.

The patient was currently prescribed furosemide 40 mg daily. S.G. agreed he would take his medication consistently and then up-titrate to 80 mg for 2-3 days if he noticed symptoms or an increased weight. Then, he would resume to 40 mg daily. Close follow-up would be needed to assess kidney function and review symptomatic episodes to determine if doses of 40 mg and 80 mg are

acceptable or need to be adjusted. Since there are no guidelines for determining a sliding scale, it is a "trial and error" approach. Cardiology was notified of the plan and will work closely with nephrology to determine the best sliding scale for both cardiac and kidney health. Since this patient was in tune with his symptoms and weight gain, no specific increments were given to up-titrate the diuretic and it was up to the patient's discretion. However, it may be applicable to provide more guidance for some patients such as an up-titration if they gain 3 pounds in a day or 5 pounds in a week. In both circumstances, it is important to discuss if the medication regimen is improving, worsening, or has no effect on symptom management.

Overall, the current heart failure guidelines do not provide assistance when using a sliding scale for diuretic use. Therefore, given this patient's presentation and history, it was determined fluid retention would be best managed with a sliding scale and adjusted by the patient based on his symptoms and weight.

Chapter 8

Student Case Studies

When Consequential Laboratory Values Trump a Chief Complaint

Maura Firth, RN, BSN & Emilee Liska, RN, BSN

Chief complaints are often the starting point of determining a differential diagnosis. As the experts of their own care and disease processes, patients hold intuitive knowledge that aid in clinical decision making and subsequent plans of care. Although a patient's reasoning for seeking medical care should be valued and appropriately addressed, there are certain circumstances when the provider needs to use critical thinking skills to determine priority of needs. Invisible to the naked eye, laboratory values can provide insight into consequential disease processes of which the patient and the provider might be unaware. Using these numerical pieces of information, along with history and physical examination, providers are able to develop individualized treatment plans while integrating clinical guidelines. Unfortunately, these evidence-based guidelines are merely meant to serve as guidelines, and do not fit every individual presentation. The following paragraphs describe a complex clinical case study in which lab values take precedence over the patient's chief complaint and subsequently alter clinical guidelines to fit this patient's unique presentation.

The patient in this case study is a 54-year-old Ethiopian male who recently immigrated to the United States. He presents to a primary care clinic to establish care as a new patient, also reporting a chief complaint of indigestion for two days. He has recently been seen in a podiatry clinic for a slowly healing left foot ischemic arterial ulcer, for which he is currently non-weight bearing and in a wheelchair. He is financially unstable, has no reliable transportation, and is on temporary Medicaid. He is traditional Muslim and speaks fluent English. He denies alcohol, cigarettes, drugs, caffeine, or stimulants.

Vital signs at the visit are unremarkable with the exception of a blood pressure reading of 142/88 mmHg. Pertinent labs drawn on the day of visit are as follows: glucose 215 mg/dL, Na 134 mEq/L, K 5.3 mEq/L, Cl 100 mEq/L, CO2 26 mEq/L, BUN 55 mg/dL, creatinine 3.09 mg/dL, eGFR 26 ml/min/1.73m2. His liver function labs are within normal limits. The patient reports his current medication list includes Keflex 500 mg twice daily, hydralazine 100 mg three times a day, and lisinopril/hydrochlorothiazide 20/25 mg daily.

Though this patient has several issues to be addressed, it is essential as an advanced practice provider to be able to correctly differentiate between urgent and non-urgent needs. For this patient, the most pressing issues include his blood glucose of 215 mg/dL, Cr of 3.09 mg/dL, and BP of 142/88 mmHg. The slowly healing arterial ischemic ulcer should be used as evidence for the necessity of treating co-occurring disease processes, but since the ulcer is being actively managed by another provider it does not need to be thoroughly addressed today. The presenting data is suggestive of several diagnoses including diabetes mellitus, chronic kidney disease, and hypertension. The most likely mechanism for his current presentation is type II diabetes mellitus with diabetic nephropathy due to poor glycemic control, delayed wound healing, hypertension, and evidence of kidney dysfunction (eGFR 26 ml/min/1.73m2, Cr 3.09 mg/dL, BUN 55 mg/dL).

As advanced care providers treating this patient, it is imperative to address his hypertension, his kidney function, and his diabetes. Given the severity of this patient's kidney function, preventing further damage is essential. An initial starting point is evaluating medications that the patient is currently taking and determining if there are renal consequences associated with them. If so, the provider must determine which medications can be eliminated or substituted with more suitable pharmacologic therapy. This patient's hydrochlorothiazide (HCTZ), hydralazine, and Keflex could all be contributing to his declining kidney function. As a professional courtesy to the podiatrist who prescribed the Keflex, no change should be made related to the antibiotic without consultation. However, renal dosing for Keflex could be a consideration post-consultation.

Consideration for stopping one of the antihypertensives should be made even though the patient's blood pressure is above the recommended guidelines. The 2020 International Society of Hypertension Global Hypertension Practice Guidelines recommend a BP <130/80 mmHg for a male <65 years old, this patient's BP was measured at 142/88 mmHg, but because of his renal function an adjustment to his antihypertensive medication needs to occur (Unger et al.,

2020). Moreover, since this patient has diabetes mellitus and chronic kidney disease, he is classified as high risk for atherosclerotic cardiovascular disease (ASCVD) (Carey & Whelton, 2018). Although the target goal for this patient is <130/80 mmHg to decrease the risk of death associated with cardiovascular complications, this does not have to be achieved at today's appointment and should be followed closely after changes are made to improve kidney function (Carey & Whelton, 2018).

Since determining medication alteration or discontinuation is versatile, each provider has to use their medical expertise and clinical judgment based on each scenario. Given that this patient's renal function values are indicative of kidney disease, it is imperative that his hypertension is appropriately managed as elevated blood pressure is a major risk factor for the development and progression of chronic kidney disease and albuminuria (Unger et al., 2020). Additionally, his eGFR of 26 ml/min/1.73m2 can be suggestive of masked hypertension and/or resistant hypertension (Unger et al., 2020). According to the 2020 International Society of Global Hypertension Practice Guidelines (2020), RAS- inhibitors with added calcium channel blockers and diuretics (loop diuretics if eGFR <30 ml/min/1.73m2) are appropriate first-line medical agents for patients with hypertension and chronic kidney disease.

This patient's current hypertension treatment does not fall in line with the guidelines. Although he is prescribed a RAS-inhibitor (lisinopril), he is also prescribed a vasodilator (hydralazine), which is only noted in the guidelines for the treatment of severe hypertension in pregnancy in a hospital setting (Unger et al., 2020). It should also be noted that hydralazine is a shorter acting medication, hence the need to take this medication three times daily which might contribute to non-compliance. Thus, discontinuation of hydralazine should be considered. Another option is to discontinue the patient's HCTZ. Thiazide diuretics, such as HCTZ, cause increased urine production and have the potential to induce dehydration which could lead to the changes seen in his GFR. If HCTZ is discontinued, the patient's hydration status could improve. Choosing this route would require a new prescription for lisinopril 20mg to be given separate from the combination pill that he is already taking. Whichever direction is taken by the provider to manage this patient's hypertension with declining kidney function, close follow up with blood pressure checks, redraw of concerning laboratory values, and education on lifestyle contributors to hypertension need to be included in the final plan.

Another consideration for this patient is the elevated blood glucose of 215, which is a random blood glucose level that is diagnostic of diabetes (American Diabetes Association, 2020). Prolonged hyperglycemia likely contributed to his reduced kidney function, or diabetic nephropathy. The American College of Physicians recommends that metformin be used as a first-line agent for improving glycemic control in patients with T2DM (Qaseem et al., 2017). In patients with kidney disease and diabetes mellitus, treatment with metformin and a sodium–glucose cotransporter-2 inhibitor (SGLT2i) is recommended if eGFR is >30 mL/min/1.73 m2 but contraindicated in patients with a GFR <30 mL/min/1.73 m2 (Kidney Disease Improving Global Outcomes [KDIGO], 2020). Unfortunately, this patient's current GFR is 26, therefore metformin would be contraindicated in this case.

In order to manage blood glucose in patients with chronic kidney disease, GLP-1 receptor agonists are recommended (ADA, 2020; Kidney Disease Improving Global Outcomes [KDIGO], 2020). Liraglutide and Dulaglutide are GLP-1 receptor agonists recommended for patients with an eGFR < 30 ml/min per 1.73 m2 and eGFR ≥15 ml/min per 1.73 m2 (KDIGO, 2020). Deciphering between Liraglutide and Dulaglutide requires further consideration for this patient's financial situation. This patient has financial barriers that could affect treatment choice and compliance for his diabetes. The consideration to choose Liraglutide was made because it is on Colorado Medicaid's Preferred Drug List but would need prior authorization with the documented contraindication of kidney dysfunction (Colorado Department of Health Care Policy & Financing, 2020). However, given this patient's laboratory values, it is imperative to consult with nephrology prior to initiating these changes (ADA, 2020).

Due to the complexity of this case, it would be essential to continue with close follow up. The patient should be scheduled to be seen in one week. At that time his chief complaint of indigestion can be addressed, if still present, as other issues trumped this patient's initial concern. It is also not uncommon to have GI issues resulting from Keflex or hydralazine use, as well as poorly controlled diabetes, so improvement may be seen just from the small changes made at today's visit. This is an example of a complicated case that requires advanced critical decision making guided by, but not reliant on, clinical practice guidelines. Guidelines aid as a starting point for treatment options but do not always serve patients who do not present with straight forward clinical presentations. As in the

case with complex patients, clinical guidelines have to be thoroughly investigated and adjustments made as necessary.

Chapter 9

Combining Art with the Science

During the course of a clinic visit, the NP should provide detailed discussion in their medical decision-making on what guidelines were consulted, how they specifically fit or didn't fit this particular patient, including a discussion of those guidelines' recommendations with the patient and how the clinical plan was determined taking the patient's desires, values, and resources into consideration.

Guidelines are all about evidence and the science that underpins their recommendations. As we saw in Section 1 however, including patients from the target population as stakeholders is becoming the norm.

Although the nomenclature of patient centered care has been around for some time, I practice from a more partnership centered perspective. If we break down the basics of the wording "patient centered" that could indicate that the treatment plan would be whatever the patient wanted taking no evidence into consideration or the highly educated provider's input and recommendations. The patient is a vital component in this relationship to be sure, but they are seeking care and advice from their provider on what is the safest, most efficacious, and current way to treat their problem.

In a partnership centered model, this is more akin to a dance. The patient seeks care and input, the provider presents evidence of best practices and guideline recommendations and then the partnership dance begins. What does the patient want to do based on those scientific recommendations? What resources do they have available to cover medications, testing, therapies? Are they able to get to appointments with transportation or time away from work, family responsibilities? Do they have the cognition to follow out the plan particularly if it is a complicated one? If not, do they have a caregiver that is also a stakeholder in this partnership that should be part of this decision-making? All of these considerations are patient centered but then the provider discusses any alternatives or resources that might assist the patient based on barriers identified.

For instance, if the patient declines to follow the recommendations in starting an ACE inhibitor as recommended by guidelines because they are concerned about erectile

dysfunction even though that is rarely a side effect of an ACE. The provider must understand what is driving the patient's decision and work through possible solutions that may then be outside the specific recommended guidelines yet doing the best to reduce their blood pressure and thus any sequelae from untreated BP such as cardiovascular events. The patient may refuse medication altogether, which is outside any guidelines. Instead of writing the patient off or being judgmental, the NP must seek to understand where they are coming from.

In a partnership centered care model, both parties need to feel they are being heard by the other and understood. There must be an established relationship of trust from both sides. Building that trust can take some time but depending on the patient situation, there may not be the benefit of time. The NP needs to be forthright in this and explaining that lifestyle would be first line if their BP were in the Stage 1 range (Whelton et al 2017) but now that they are in Stage 2, lifestyle should be paired with medical management to ensure patient safety. Transparency is vital to building this trusting relationship and talking the patient through why you are making the recommendations that you are, helps them build that trust and increases buy in for the treatment plan.

Simply telling a patient with Stage 2 hypertension that they "have" to be on BP medications or they could have a "heart attack" or "stroke" without explaining the why, will do little to build a foundation of trust and understanding from the patient. They will likely shut down with such scare tactics.

Not unlike studies that have shown scare tactics don't work to get people to quit smoking, the same can be said for other illnesses as well. For people to play an active role in their health, they need to understand why they are eating healthy, exercising, monitoring their blood pressure, blood sugar, etc. at home and the importance of following up regularly. It's all about the why.

There is a lot of work from a patient's perspective to be an active participation in their health. Diet, exercise, home monitoring of values, meditation, journal writing or whatever stress reduction modality they have chosen to take much effort and if the patient doesn't understand how they work, why you are recommending them, they will likely opt for a pill because it is seen as a quick fix.

In the past, this was how medicine was practiced. A patient came in with a problem and the "authority" told them what was wrong, wrote a prescription and out the door they went. When they followed up and their condition was not controlled, the medication was increased, or another was added and off they went again. This happened again and again without a conversation about their life, if they were taking their medication as prescribed, if they could afford the medication, any side effects that

were keeping them from taking them etc. Patients were afraid to challenge their medical provider and were afraid of judgement if they were truthful with how they were managing or not managing their regimen.

That mentality has changed. Patients are savvier about their health; they are fiscally conscious and are interested in having an open dialogue with their provider about how best to treat their condition. By the time they have come into the clinic, they have been scrolling the web and have many thoughts on what their diagnosis is and how it should be treated. Keeping an open mind and helping them weed through all the information and misinformation that's available is now a part of this partnership dynamic. If a patient doesn't feel you are open to seeking to understand their life, they will unlikely follow your advice nor will they return to see you.

This is what makes being an NP provider so rewarding, partnership centered care. It is immensely pleasurable to learn about a patient, their hobbies, occupation, family, where they live etc. It would be nearly impossible to make appropriate recommendations without having this insight. For instance, if you prescribed daily walks but your patient lives at 10,000 feet elevation in a small mountain community without streetlights and sidewalks, this may be insurmountable and possible unsafe particularly in winter. If you do not ask the question, you won't know about their circumstances, thereby making recommendations that will not work. In the same scenario, telling them to eat more fresh fruits and vegetables and there is no grocery store for 40 miles, and they cannot afford the gas to get to it, would also be difficult. Same could be said for lack of a pharmacy for that same 40 miles so how to get the prescriptions? Gas for the car or the co-pay?

Some patients may be too embarrassed to tell you of their financial constraints and remain silent. You would be unable to help them if they cannot take the medicine, you have prescribed or the food you have recommended.

Although guidelines have shown improved outcomes, if patients are not able to carry them out, then they are not helpful. But barriers go beyond patient engagement. From a clinician's standpoint, barriers of reliability and credibility, bias, and limitations play a role as do getting the word out on a guideline's existence. Or they may not be applicable to the clinician's patient population to be helpful. Studies have shown that the more involved patients can be in decision-making, the more likely they are to be engaged in compliance. This has been recognized globally of such significance that guideline developers are strongly encouraged, some mandated, to take patient wants into consideration in their development (Guidelines International Network, the National Academy of Medicine {US}, and the United Kingdom's National Institute for Health and Care Excellence). The AGREE II tool requires Patient and Public Involvement (PPI).

However, there is no specific structure that guides this involvement or to what extent PPI's input should be. The Patient-Centered Outcomes Research Institute (PCORI) describes three levels of involvement: near term, intermediate, and long-term outcomes. In the near term, they describe this as providing care from a patient-centered culture as well as engaging in provider/patient partnerships that have a "positive influence," (Frank et al 2015, p.1035) on each member of that partnership. In the intermediate phase, the research needs to be relevant to not only patients but any other stakeholders including the care outcomes should be meaningful to clinicians. Utilizing that research should result in guiding healthcare decisions along with satisfaction improvement with the overall healthcare experience (p. 1036). Ultimately, the long-term outcomes will result in optimal health.

Evaluating these criteria not only based on ultimate patient outcomes but "ethical and societal" (Armstrong et al. 2015, p.2) components, one must comprehend the connections between PPI on guideline development and utilization otherwise getting the patient buy in may not be successful, eventually leading to poor outcomes. Frank and author's (2015) overall point then is to evaluate whether PPI is a valid component of guideline development and their use. In the PCORI model, it was stressed the importance of patients and their caregiver's involvement that information needed to be disseminated in language patients could understand when options were shared. They also believed that having patient's input increased the chance that the guidelines were focused on them as an individual. A big component that was included was on lifestyle as well as any psychological effects could occur as a result of recommended testing. As relates to mental health, input was garnered on occupation or limitations in the work force as well as any support required of their employers. It was important to include these psychosocial issues that often providers do not consider (Armstrong et al. 2018). The utilized patient focus groups to identify issues from their perspective and the support patients felt would be needed such as any topics considered socially taboo or when a provider may jump to medications as first line when lifestyle and patient education would have had more impact. Looking at guidelines from a holistic perspective instead of just a medical model guided their recommendations. Participants in these focus groups were asked about issues they found needed addressing like side-effects of treatment options or outcomes that would be relevant to the patient not just the medical community or research. PPI can then drive whether benefits outweigh risks in

addition to fiscal burdens and recommendations are useful. Another component I found interesting that these focus groups were asked was whether they thought the problem was even a priority. What the medical community may consider of utmost urgency, patients or their caregivers may not. When it came to disseminating information to patients in the form of patient education, advocacy and use of language they could understand instead of medical jargon was important (Armstrong et al. 2018).

Part of being a patient advocate as an NP, is ensuring all sides of the issue are explained in language they can understand, which will be at different levels depending on the patient, their educational level, and their ability to be fully present (not acutely ill or in pain). Side effects of all medications and treatment options should be presented not just focused on the choice the provider wants them to make. And the risks vs benefit of the treatment, not choosing the treatment and instead something else or consequences of doing nothing, should all be presented to ensure patients make an informed choice. I was curious on how these patients are chosen. In a study described in this article done on Alzheimer's, the American Academy of Neurology chose patients/caregivers from the local Alzheimer's Association chapter believing directly involving patients who are dealing with the particular issue at hand would have better insight and recommendations than going to the general public (Armstrong et al, 2018). I appreciated this idea as much is talked about how guidelines should be geared toward the specific population they serve. The general public being involved would not be the specific target population and possibly not be able to understand the question at hand that a guideline is being developed for. This makes for true stakeholder involvement. It is also important that unnecessary testing not be done even if that is what guidelines recommend. As long as the patient/caregiver understand potential sequelae of that choice. Being able to understand real life impacts of their disease as well as treatment options. In the Alzheimer's Disease group Johnson et al. (2013) studied, a patient wanted information such as what would be discovered with a PET scan so they could understand the treatment life path and plan accordingly. They might choose to have a scan sooner than another patient in a different place in life. Another patient's wife talked about having confirmatory information with the PET scan although that might not change the outcome, it would give her closure on a definitive diagnosis. From a provider's standpoint, I was surprised to hear one comment that they did not want to do a test if it wasn't going to change the

outcome. I think many of us feel that way but also are torn between the legalities of not ordering tests and what guidelines recommend even when it will unlikely benefit the patient or we know it will be a hardship on them financially, socially, or even scheduling-wise – getting to/from an appointment or the physical or psychological pain involved in such testing or treatments.

Managing chronic conditions and health status isn't a one and done activity but occurs across the continuum. The connections between the primary care provider and the patient's home in how they conduct their lives has the potential for gaps in carrying out the treatment plan to occur. Ozkaynak et al. (2021) define this gap as "a break in continuity in the performance of health-related activities across clinical and daily-living settings," (p.2).

These barriers must be identified in order to within their confines or bridge them. But to do that, all areas of their health along a continuum must be identified so the provider understands what they are working with. Both healthcare environment as well as living environments are equally important and must be fully understood to increase patient success. But identifying the gaps are not the only thing needed, a deeper understanding of how they can occur and what the fallout could be to assist the provider in preventing any chasms of care in the future. Ozkaynak et al (2018) utilized Infinicare theoretical framework which works under the premise of four foundational precepts: "physical, social, organizational, and cultural dimensions," (p.67).

This framework hypothesizes that all these domains must work synchronously in order to affect a person's state of health in the treatment plan development as well as their home life without any boundaries between the two. This is very different from what we have modeled traditional health care on, that of the medical facility only, laying the blame for poor outcomes or non-compliance at the feet of the provider instead of coming from a partnership centered framework, understanding all the dimensions of an individual's world (Ozkaynak et al 2021). Previous studies focused more on continuity between hospital discharge, re-admission, and communication on discharge to avoid such re-admission. But the outpatient settings have long been ignored. Few studies have discussed lack of continuity in the arena of self-management of chronic conditions. When contributing factors are readily identified, providers can intervene proactively to avoid self-management gaps in care. Or to offer patients tools to overcome barriers. These could include access to electronic health

records via patient portal to enhance communication, ensure they are taking their medications correctly, providing education patients can refer back to after the clinic visit and share with family members for reinforcement and support, and even consideration for utilizing. In the more traditional model of care transition from acute care to home, social work, discharge planners, even home care nurses were deployed but often the patients living situation was not taking into consideration, therefore the discharge plan lacked specificity to their situation often leading to an inability to carry it out even with a patient/family's best intention to do so. This model was focused more on the institution than on the individual or family's needs. Re-framing care to narrow care gaps between clinic visits is more labor intensive as it involves social determinants of health, psychosocial situation, occupational barriers, even home layout could play a role (Ozkaynak er al 2021).

Community support in addition to social networks need to be identified and addressed. Ozkaynak and colleagues (2021) identified that such a model would be unsuccessful without a collaborative health information technology (HIT) system. This requires full integration with all care stakeholders including providers and patient access. Its own "ecosystem" that is not only an EHR but could include personal applications and social media. As HIT is in its infancy, this study set out to identify how it might best be utilized to bridge any care gaps so that care could be influenced via further development of HIT. A case scenario model was utilized with patients on anticoagulation therapy as this was identified as an area that required significant patient engagement for appropriate self-management. It crossed many realms of a patient's life including frequent clinic appointments for lab monitoring, medication dosing changes, dietary restrictions along with their ability to consume appropriate foods. In addition, anticoagulants can interact with many medications potentially putting the patient at risk for excessive bleeding or clotting. Also, it requires care coordination across providers such as antibiotic coverage for dental or other invasive procedures; areas where communication is vital and requires all providers to have the same information to ensure patient safety. Although this could be an extreme self-management condition to choose compared to others, it still highlights the importance of HIT to ensure care coordination across all realms of care including patient involvement. Both patients and providers were interviewed, and patients also kept a journal of their healthy activities, their social support (family, friends, co-workers, community), any cultural elements as well as the physicality of their

homes. Patients also identified any technological components they used to help them in their own care. In this study, the journaling was done on an electronic tablet. In their analysis, three main themes were identified as barriers to following the treatment plan: the provider's suggestions did not fit into the individual's lifestyle or their individual situation, and lastly that the recommendations were not interchangeable in other care environments. The consequences of these barriers were mentally and physically challenging on the individual leading to a reduction in patient satisfaction and ultimately an inability to fully comply with the plan recommendations. The authors recommend strategies to help bridge these barriers including engaging the patient in ways to implement their treatment plan that would fit their lifestyle and living situation, making these routine for easier follow through, helping patients with technologies to make compliance easier. Educating patients and families on tools and technology can improve their self-engagement like pillboxes, phone apps as reminders.

There is a whole world for the patient outside the medical office appointment. Patients are as busy as any of us, and we need to take their specific lifestyle into consideration along with their living situation, household, and work schedule into account. This cannot be done unless we seek to understand what encompasses their living situation and lifestyle. Even inquiring about how and when they shop for groceries can have an impact on healthy food choices. We also must be patient and not expect they can completely change all aspects of their lives at once. Discussing changes and plan development including how they want to begin to implement the changes at their pace will make for a better transition. Then once a regular routine is established, weekends and holidays need to be discussed as well as travel. A wider view of the patient's lifestyle and living situation was showcased in this study of anticoagulation treatment patients, (Ozkaynak et al 2021). For instance, avoiding alcohol could impact social gatherings or dietary changes also affects food for the rest of the family. So, the NP must take a larger view than just the individual patient. With the risk of bleeding, avoiding high impact hobbies could have an impact on their fun and socialization. Making these recommendations cannot be done in a vacuum of provider's orders without casting a wide net including the individual patient's life. Something else to consider is the patient who is very private with their health and then when they are in a social situation where they are eating or drinking differently can bring unwanted attention to their situation. Or perhaps they have

to give up a beloved hobby, raising flags to friends. Helping them identify these and how they may handle such situations proactively, can be helpful in their ability to remain on their healthy path.

If a patient decides to avoid social situations where they feel they may be unsuccessful with their health plan, will that lead to isolation? To be successful, patients need to be involved in strategies for self-management. Keeping an open mind as the provider to these sometimes-unorthodox strategies is important. As long as they are safe, we need to support them as much as possible if it gets them to follow the plan. Instructions must be easy to understand. Including their significant other in appointments can also increase overall success. Often people share the same habits – exercise, foods, smoking, drinking, so if you are trying to have the patient stop drinking but their significant other continues this habit, what impact will that have on the patient's success? Or if their partner does the grocery shopping and buys junk foods when the patient is trying to eat healthier this can cause difficulty in successfully following the plan, even potential difficulty in the relationship if the patient identifies their partner as sabotaging or unsupportive. The easier the plan is to follow and the more we help lay out that ease of use, the more likely to increase success and patient satisfaction. Something to take into consideration, however, is the considerable impact on a busy provider's schedule. Inquiring deeply into a patient's lifestyle and home situation along with inviting their support system and dual engagement in care could take a lot of time. How will this impact their clinic schedule? Could ancillary staff help such as patient navigation if available. Unfortunately, in most primary care offices, such services are not available, so it is left to the provider to fill this role. There is no easy solution to the problem of time. But by being proactive with dual engagement, the likelihood of patient success increases therefore possibly requiring less visits.

In 1978, Leininger, Watson and doctoral students presented on current research of the time and philosophical thoughts on caring and how it relates to nursing (Turkel et al. 2018). The group formalized 10 years later as the International Association for Human Caring. Then in 2007, Jean Watson developed the Watson Caring Science Institute to advance theories and philosophies of "human caring." Putting the "ethics of love into healthcare," (p.66). Nurses were looking for a foundation to return caring to their daily practice. The concern with what seems

like semantics in changing the order of the name caring science vs science of caring had scholars at a conference in Kyoto, Japan in 2014 against it feeling like it would put caring only in the realm of what can be scientifically measured. Nursing as a scholarly discipline is the principle meaning that makes nursing its own discipline. It is how we distinguish what is the science in the realm of nursing from another field. It has evolved from research and organized study. Is it only science if it can be operationalized, if it is called science of caring (Dunlop, 1986). Watson and Smith (2002) say that caring science is ever evolving. Levinas (1969) thought that caring science is a "worldview that humanity resides in a unitary or undivided field of consciousness" (as cited in Turkel et al. 2018, p.68). Watson makes specific that love is at the center of all nursing care.

The connection between patient and NP is paramount to an engaged relationship. One where the patient feels heard and understood; making the art of communication an integral component to the NPs repertoire in addition to pharmacology, differential diagnosis, and plans of care. As Turkel and colleagues highlight, (2018) as a significant component to caring science. A universal love makes the inextricable connection from nursing to the humanities. Caring science principals of "knowing/being/doing" (p. 69) and intertwined in each moment in the art of caring that a nurse does. (Turkel et al. 2018). The connection between people and the relationship building that is done in the mindful moment can highlight the intersection of the art and science. This includes the nurse's individual creativity they bring to each encounter including their values and personal philosophies of caring. This caring can only be done between people in relationship. This caring viewpoint "promotes health and growth" (p. 69) of patients, families, and communities. When the nurse underpins practice from a caring science philosophy, you meet the patient where they are currently but also having in mind what they could be. It is not meant to be a mindset of cure, but health and relationship focused. The theory allows for independent choice and freedom but with that freedom comes independent responsibility. One does not have to be the recipient of love to continue to give love. We are still responsible for the life and trust they have placed with us by virtue of coming to see us and thereby entering a relationship. Continuing loving kindness in such a one-sided relationship can be difficult. Being present in this moment with this patient/family instead of thinking about the patient before or after can be difficult in a busy clinic setting. Taking a deep breath and brief moment before entering the exam room can center the nurse prior to entering. This may help in being present to

honor the individual's beliefs, culture, desires, and faith. It is important to develop this trusting relationship but maintaining it over time is vital as well. In the development of a mutually appropriate plan that honors all aspects of the patient will go a long way to fostering that long-term trusting relationship. Not only do you engage to get buy in from the patient on the importance of continuing their treatment plan, but the more you seek to understand, you develop a mutual learning relationship along with a teaching one. You are teaching them how to manage their health and they are teaching you about their core values, faith, philosophies, and the impact they have on their decisions in order to understand any social determinants of health issues at hand and cared for to help the patient be successful.

The ethics of love and belonging that underpin Caring Science, has not been needed as much as it is now. Particularly with how much evidence-based practice is stressed in education and clinical practice. What is not considered however is how to match art with science. Caring science however does afford the art of nursing evidence as it's underpinning, making the science of nursing an actual science with evidence to back it up not just thoughts or feelings but evidence to guide the importance of this connection (Turkel et al 2018). Is what we do so much more than a science? Are we not to be taken seriously as a profession if we do not have our own empiric evidence to support what we do? If not, then is caring just the hand holding maiden of Florence Nightingale's time? What then does this say about guidelines application when the individual patient/NP dyad must design a creative plan specifically for them? Is it science? Or is that art? Or just plain caring? Does 'it" have to be something that can be measured that is valid "nursing?" In Levinas (1969) worldview if we are all universally connected how does this play into the care dyad? Or even triad depending on the support system the patient brings to the equation. Adding even another angle besides patient and family but their community then there are many sides to the same coin in terms of the players the NP must take into consideration in developing a plan that is understandable and followable yet based on science.

Caring Science does identify that love is a universal principal but is mysterious. For the human species to survive, the interconnectedness of love must be nourished. Doing for is not as important as doing with. There are times when a patient is unable to engage in their own care and all their needs must be met by others but in the primary care setting this is unlikely as such a scenario usually

plays out in an acute care or long-term care setting. Therefore, teaching the patient to care for themselves while being willing to be the learner of their life can cement the relationship and their health will benefit. Not only are we bonded as one common humanity to our patients, their families, and their communities, but our own communities as well. We must see all as part of one interconnected common humanity.

Chapter 10

Social Determinants of Health

Social determinants of health (SDoH) are well understood to play a significant role in an individual's health. Worsening morbidity and mortality is directly correlated with an individual's, food, housing and financial security, personal safety, employment, educational level, literacy, social network, and support. Providers may be afraid of "opening a Pandora's Box" (Chung et al. 2016, as cited in Andermann, 2018, p.2) during an already time crunched clinic to assess SDoH, and they may not understand how these elements play a role or may not know their own role in understanding these aspects of their patient's lives to inquire. A survey conducted by the Robert Wood Johnson Foundation (2011) found that although 80% of physicians report not feeling qualified to address their patients' social needs, they do however, feel this lack of skill likely impedes their ability to provide the best care. A provider may also feel the potential issues SDoH may present would be overwhelming and not know where to start with obtaining appropriate resources to help them. Or even if they do understand, would that level of understand have any impact or could they have an impact on improving something that may be a societal issue requiring much wider governmental intervention or program availability. The purpose of Andermann's inquiry (2018) was to determine what screening tools are available and whether utilizing them improved outcomes. Screening tools were strong in the maternal/child arenas initially but in recent years, they have expanded across many populations. It is recommended that a provider select a tool that is specific to the population being screened. In an article by Behforouz et al. (2014) recommended not a specific screening tool but a more robust data gathering of the social history. The CLEAR toolkit, available free, helps providers screen for a broad level of SDoH in the clinical practice (Andermann 2018, p.7; Andermann 2015). What is nice about this toolkit besides cost and availability, is it includes isolation as a SDoH; important in all but especially assessing in the elderly as well as availability of childcare; important to young families and their feelings of safety for their children and impacting their ability for employment. In terms of screening and which tools to use, single risk tools like for domestic violence for

instance have long been utilized but as these authors point out, risks tend to cluster, so it stands to reason that more than one element of risk likely exists: making the use of a broader screening tool more appropriate. Although not commonly conducted in general clinical practice. Adopting a routine screening process as part of your practice helps ease the burden and makes these difficult conversations easier to have. Studies have shown that when a provider feels comfortable with broaching the conversation, they are more likely to have helped their patients (Naz et al. 2016).

Even though recommendations and overall guidelines for screening are beginning to surface, they are by no means mainstream practice. When providers do not utilize screening tools or at least asking the questions on a routine basis, they do no good nor improve outcomes. Some factors that hold providers back from using them were reported lack of knowledge of availability or content; unsure of their own abilities to utilize them appropriately and lack of referral resources (Andermann, 2018, p.10). Approaching these questions in a caring way makes for a trusting relationship that patients are more readily able to share. Beginning a screening process should include training for clinical staff and providers on how to ask questions as well as specific referral resources clearly identified. There are a multitude of reasons to do the screening including identifying factors that contribute to the presenting illness, availability of resources so care can be as cost-effective as possible, reducing emergency visits or hospitalizations, and caring for the person from a holistic perspective. By not including SDoH evaluation, prescribing medications without ensuring patients can afford them, leads to non-compliance and potential worsening of their condition and hospitalizations or an increase in healthcare utilization.

It stands to reason that understanding an individual's social determinants of health must be taken into consideration when developing a plan of care and utilizing clinical guidelines. As they may not be able to afford what the guidelines recommend or have the ability to follow them perhaps based on education, time allotted away from the job or need for support from their community.

The important issue about screening though is then having a plan or resources available to assist the patient. Just asking and then not doing anything is not effective nor helps build trust in the patient/provider relationship. It does not seem like there is one single tool that would fit the bill for overall SDoH screening but more of a piecemeal approach. The biggest issue I see with this approach is

time and lack of resources to refer patients to when a problem is identified. This would all have to be mapped out clearly in advance. Perhaps a one-page screening questionnaire could be done at check-in or on the patient portal as part of their registration process. Although this takes away from the provider/patient connection and trusting relationship and may make it seem more like an inquisition. Andermann (2018) refers to the skilled provider that can empathically inquire about social determinants can lead to a deeper relationship as well as richer responses. This person-to-person interaction becomes part of the engagement and trusting relationship that can't be replicated with the individual answering deeply personal questions in an impersonal way on a computer screen. In addition, make such an inquiry a component of check-in with either a receptionist or medical assistant becomes rote and does not allow for that holistic engagement by the provider as they seek an understanding of the patient as a whole person. Another layer of this face-to-face inquiry allows the provider to tailor their plan of care. Although this could add considerable time to the encounter, if it is a better encounter, leading to engagement, trust, and ultimately better outcomes, it seems the benefits outweigh the time investment. Perhaps one screening tool for all isn't necessary. But asking specific questions that pertain to the visit at hand are more valuable.

In conclusion, although utilizing clinical practice guidelines can be immeasurably helpful in providing the most up to date, evidence-based care, as we have discussed, one size does not fit all. For the novice NP student, this can be daunting. But guidelines are a place to begin formulating a plan of care and opening the conversation with the individual on what is considered best practice for their particular issue. Based on all of the factors including social determinants and their personal desires and values, the plan of care can then be tailored to the individual, laying the foundation for a trusting relationship between patient and provider. This ensures the patient is willing and able to participate in the plan for their best outcome.

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