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Talking to Your Patients About Antibiotics: What Nurse Practitioners Need to Know

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ABSTRACT

Talking to Your Patients About Antibiotics:
What Nurse Practitioners Need to Know

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Antibiotic resistance is a growing threat to our current ways of treating infections. The overuse of antibiotics is a major contributor to this threat, especially with the prevalence of unnecessary prescriptions written for upper respiratory infections (URIs). Better education tools are needed for providers and patients regarding antibiotic resistance. The purpose of this project was to use evidence-based practice to produce an educational video about antibiotic resistance. Following a review of the literature, a 6-minute video was made using Mayer's cognitive theory of multimedia learning. A convenience sample of 15 family nurse practitioner (FNP) students, from one master's program, participated in a pre/post feasibility survey to assess knowledge, rate video aesthetics, and evaluate the video as an educational tool. Following the video, FNP students reported an increase in knowledge and that the video was informative. In conclusion, this project's goal was to help educate nurse practitioners by creating a video that could be easily disseminated and viewed. Use of videos such as this may increase antibiotic stewardship among practicing NPs and help fuel future projects and educational tools.

Keywords: *antibiotic resistance, antibiotic stewardship, educational-based video, educational-based film, nurse practitioners, antibiotics.*

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Talking to Your Patients About Antibiotics: What Nurse Practitioners Need to Know

The discovery of antibiotics has greatly transformed healthcare. Just one-hundred years ago, people routinely died from infections that are now successfully treated with antibiotics (Shales & Bradford, 2018). Indeed, the discovery of antibiotics was a medical miracle that saved countless lives. However, the current problem revolves around this miracle's overuse: antibiotics are used too much and too often (Wilson, 2019). In fact, antibiotic overuse contributes to more infection—creating superbugs that have stopped responding to our current antibiotics (Lawrence, 2017).

Alexander Fleming discovered penicillin, the first antibiotic, in 1928. Interestingly, Fleming (1945) warned about the resistant nature of bacteria in his Nobel Prize speech; under certain conditions, Fleming had seen bacterial resistance to penicillin in his lab. As Fleming predicted, antibiotic resistance is now rampant. The World Health Organization (WHO) (2019) lists antibiotic resistance (ABR) as one of the top 10 global health threats. If more strands of bacteria become resistant to our current antibiotics, then treatable illness will once again become deadly (Jethwa, 2016).

Current overprescribing practices contribute to rising ABR rates (Worthington et al., 2020). A study by Alhomoud et al. (2018) showed that ABR is strongly correlated with higher prescription rates, and ABR rates skyrocket in countries where antibiotics are available over-the-counter. For various reasons, many healthcare providers struggle in refusing patients' demands for antibiotics, thus contributing to non-vital prescription rates (Zhu et al., 2018). It is imperative to minimize these factors by providing correct information to providers and patients.

A lack of correct information and practices becomes evident when reviewing common provider responses to upper respiratory infections (URI). As one of the top three reasons to seek

outpatient medical care, URIs significantly impact healthcare costs and antibiotic overuse (Thomas & Bomar, 2019). Antibiotics are given to many patients that present with URIs, despite most URIs being viral—not bacterial (Thomas & Bomar, 2019). In fact, the Centers for Disease Control and Prevention (CDC) (2019) estimates that 50-70% of all antibiotic prescriptions for URIs are erroneously given. This prescribing contributes to the rise of ABR as many URIs are treated with unnecessary antibiotics.

Education in antibiotic stewardship is vital to stop ABR. The CDC is dedicated to increasing ABR education and has instituted antibiotic stewardship programs specific to outpatient, hospital, and nursing home settings (Sanchez et al., 2016). These programs list better education as a 'core element' and call on healthcare providers to take more responsibility with prescribing antibiotics (Sanchez et al., 2016).

With healthcare provider education being at the forefront of ABR strategies, more is needed to understand how to implement this teaching. Hamilton (2019) found a high percentage of nurse practitioners (NPs) rated online education as the preferred method of training and instruction on antibiotics and ABR. Further, Zhu et al. (2018) focused on using different media forms to educate providers about correct antibiotic use. Using different forms of media also follows Mayer's cognitive theory of multimedia learning. This theory states that a person's ability to learn is enhanced when there are both words and images in the learning process, like with a video or computer game (Mayer, 1997). The purpose of this project is to create an evidence-based educational video about ABR and conduct a small feasibility test of the video. The long-term goal is to use the video to enhance nurse practitioners' understanding of antibiotic stewardship when working with patients seeking antibiotics for a viral URI.

Methods

Content

A review of current literature was conducted to identify existing knowledge regarding antibiotic resistance and non-pharmacological interventions for URIs. Databases used included these resources: CINHAL, MEDLINE, APA PsycInfo, and the Cochrane Library. Applied search terms included antibiotic stewardship, antimicrobial/antibiotic resistance, treatment, intervention, non-microbial therapy, video-based education, and upper respiratory infection. Applicable references from several of the relevant articles were also reviewed. Abstracts were reviewed to find pertinent data to help develop an evidenced-based script and video-based education module. Additional evidence-based information was gathered from health-related organizational websites, such as the Centers for Disease Control and Prevention and the World Health Organization.

Script and Video

After collecting these data, a collaboration process was followed to develop a working script for the video-based educational tool. The script portrays a typical clinical setting involving a NP and his patient. The video starts when the patient presents with a chief complaint of coughing, congestion, and fever—common symptoms of a URI. The video script focuses on educating the patient about viral URIs and highlights how the NP can provide proper treatment without prescribing antibiotics.

There are also in-depth educational graphics and three overlays included in the script. The overlays address the following areas: URI basics, how ABR develops, and evidence-based treatments for viral URIs. To enhance learning, the information included in the overlays is incorporated into the video itself. The use of overlays incorporates Mayer's cognitive theory of

multimedia learning by providing visual graphics along with verbal teaching. Following Mayer's theory allows the audience to gain a better understanding of the information; verbal and visual modes of learning are both engaged and better connections are built as the two modes are presented simultaneously (Mayer, 1997).

The script was then stringently reviewed prior to filming to ensure the module reflected best practices. Further, three experts reviewed the script for accuracy. The experts were a mix of current NPs who prescribe antibiotics and researchers who specialize in antibiotic research; all are professors for a college of nursing as well.

The script was then presented to a media team. A director was selected to produce the film, and several meetings occurred with the director and media team to finalize the script. These meetings were essential in identifying actors for each character, compiling a shot list for the camera angles, and establishing a list of all the props and equipment needed. Dates were set to shoot the educational video and filming was accomplished over several days in December 2020. The filming for the NP/patient dialogue took place in a mock-clinical room; the teaching and overlays sections were filmed in a classroom setting.

After filming, the media team conducted a rigorous editing process using the Adobe Premiere Pro editing program. The editing process took several weeks to review the raw footage and produce the final video.

Film Assessment

After the film was produced, a feasibility study was conducted to determine its value as an educational tool. A pre- and post-questionnaire was developed using Qualtrics, to assess the quality of the video. A convenience sample of 15 first-year graduate students from one Family Nurse Practitioner (FNP) program were recruited to participate in the assessment. The FNP

students first took the pre-questionnaire on Qualtrics before watching the educational video; after the video, they completed the post-questionnaire. The Qualtrics surveys measured knowledge (before and after), perception of the film's aesthetics, and allowed for feedback about the film's educational value.

Dissemination

After the first feasibility study, the video-based education module was submitted to the 2021 Film Festival with The Association of Professionals in Infection Control and Epidemiology (APIC).

Results

Script

Creating a professional script was the first step in the process of making an educational video. The script was written using the most current evidence-based practice guidelines from the CDC and the WHO. Also, direction on how to write a script was taken from Chang and Hirsch (1994), Akcasu and Bodenmiller (1994), and Moreno and Tuxford (n.d.). The Highland Script program was used to establish proper script formatting, font, and spacing. Please see Appendix A for a copy of the official, critically-reviewed script used during the filming process.

Filming Process

To ensure a smooth transition to filming, several meetings transpired with the BYU media team. During these meetings, team members found actors, made lists of filming angles, and identified necessary equipment. Please see Appendix B for a full list of actors and contributors; Appendix C and Appendix D include the shot list and breakdown sheet, respectively.

Video

After the script was written and all the filming preparation was organized, the video was ready to film. After collecting all the footage and sound, the final video was edited and uploaded to YouTube. Below is the link to the educational video:

https://youtu.be/C3A4sgylT_Y

Feasibility Study

A convenience sample of 15 first-year FNP students completed a pre- and post-survey to assess the quality and educational value of the film. The questions for these surveys can be found in Appendix E and Appendix F.

There was a 100% response rate for both the pre-and post-surveys. Table 1 shows the demographic information of the 15 survey participants.

TABLE 1

DEMOGRAPHIC	PARTICIPANTS (%)
MALE	3 (20%)
FEMALE	12 (80%)
AGE, YEARS	
20-30	8 (53.3%)
30-40	6 (40%)
40-50	1 (6.7%)
HIGHEST EDUCATION	
BACHELOR'S DEGREE	15 (100%)
WORK BACKGROUND	
INPATIENT HEALTHCARE	10 (66.7%)
OUTPATIENT HEALTHCARE	4 (26.6%)
NOT IN THE HEALTHCARE FIELD	1 (6.7%)

The survey results suggested the film expounded their understanding of how antibiotic resistance develops. In the pre-survey, only 66.7% responded that their understanding of ABR was 'good' or 'excellent'; this increased to over 85% in the post-survey. Significant knowledge

growth was also noted regarding appropriate treatment options for viral URIs; pre-survey showed that respondents knew an average of 4.4 individual treatments, and the post-survey showed an average of 5.1 treatments. Another area of increased knowledge following the video was the number of FNP students who correctly identified the percentage of unnecessary antibiotics prescribed for URIs: before watching the film, only 53.3% of students chose the correct answer; however, after watching the film, 86.7% of the chose the correct answer.

Two questions did not show an increase in knowledge: 1) whether antibiotics fight viral infections; and 2) naming three symptoms of a URI. All participants had prior knowledge that antibiotics do not kill viruses, with 100% choosing the correct answer in both the pre- and post-surveys. Then all participants correctly identified common URI symptoms in both surveys as well. Although the pre-survey responses were all correct symptoms, the post-survey responses were less varied among the answers. Interestingly, in the pre-survey, eight different symptoms were identified: cough, congestion, sore throat, runny nose, fever, headache, dyspnea, and tachycardia. While in the post-survey, only six symptoms were identified; cough, congestion, sore throat, runny nose, fever, and headache.

The participants also answered five questions about the presentation quality in the post-survey. The majority (93.3%) of the participants either ‘strongly agreed’ or ‘somewhat agreed’ that the film did a good job explaining ABR. In addition, 93.3% ‘strongly agreed’ that the film adequality taught about preferred treatments for URIs. Only one participant (6.7%) felt the film was too long, with the rest agreeing that it was just the right length.

After watching the film, participants were asked to provide qualitative feedback about the presentation; 14 out of the 15 participants offered this feedback. Most participants liked the film and thought it provided useful information. One participant wrote: “It [the film] showed a good

real-life example of what might happen with this topic in a clinical setting." Another wrote: "I thought it was very informative. Great job!"

Several participants offered the following constructive critiques: "[The video should] go more in depth on antibiotic resistance"; "…I liked the case study. I think I'd like more info on how to explain the importance of antibiotic resistance to patients"; "Love it! Maybe a minute shorter would be good, but it was clear and well organized…"; "[The film should have the] average time of how long we would usually wait/course of time that we would suspect a bacterial infection"; and "It was really great…my only suggestion would be to include other treatment options for cough besides just codeine cough syrup (like benzonatate for example)." The critiques were well articulated and helped identify future improvements that could be made to the script and video.

Discussion

ABR is a growing threat in our world today—a widening chasm between our current antibiotics and the infections they may no longer be able to cure. The overuse of antibiotics is a major contributor to this threat, especially with the prevalence of unnecessary prescriptions written for URIs. Better education tools are needed for providers and patients regarding ABR. A recent study by Hamilton (2019) showed that many providers want more online tools to enhance their learning. This project resulted in an online educational tool for nurse practitioners to understand ABR and demonstrated how to help patients who experience URIs without prescribing antibiotics.

The feasibility study showed that the film was an effective educational tool. Participants reported an increase in URI and ABR knowledge, and many found the film educational and engaging. The success in using videos to enhance education was also reported by Weakley et al.

(2019): this study tested the knowledge increase, among 65 working healthcare providers, after watching three educational videos on certain aging service technologies. The video program not only improved provider' knowledge, but also enhanced their ability to locate resources, properly refer, and improved patient communication (Weakley et al., 2019).

The increased knowledge growth seen in this project's feasibility study is also consistent with Mayer's cognitive theory of multimedia learning. The video provides verbal explanations along with visual scenarios and written informational graphics. Having both the visual and verbal aspects allows for greater connection and understanding (Mayer, 1997). As stated by Mayer (1997), "meaningful learning occurs when a learner…builds systematic connects between the verbal and visual representations." (p. 6). This educational video successfully blends visual and verbal information to increase knowledge growth.

Limitations

Comparison between the pre-and post-survey responses display positive knowledge growth in URI treatments and how ABR develops. Many participants felt that the film provide meaningful education and would recommend the video to other NPs. However, there are several limitations to the feasibility study. First, it was a very small convenience sample of FNP students at one school and may not fully reflect the general population's demographic. Also, because the participants were students and not practicing NPs, no data were gathered from NPs that are currently prescribing antibiotics.

Next Steps

The next steps would be to address concerns identified by the feasibility study: possibly adding more detailed information about the importance of ABR, and providing more treatment options specifically for coughing. After making any changes, another study should be done with

a larger sample of working NPs. Also, this educational film only focuses on viral URIs, but other films could be made about different infections that contribute to the rise of ABR (i.e., sinus infection and UTIs).

Summary

In conclusion, this project's goal was to help educate nurse practitioners by creating a video that could be easily disseminated and viewed. Hopefully, this video can increase antibiotic stewardship among practicing NPs and help fuel future projects and educational tools.

Acknowledgments

Many people helped create this educational video; their time and talents helped polish the final script and video. A major 'thank you' to Zak Gowans, Beth Luthy, Craig Nuttall, Jeff Peery, Trevor Brackney, Alexa Nguyen, Laura Titensor, and the BYU FNP graduating class of 2022.

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Appendix A

FADE IN:
INT. CLINIC ROOM #5 IN THE NLC—DAY

On SCREEN: PATIENT and COMPANION are sitting in the two chairs in the clinic room. PATIENT looks sick, has dark circles under her eyes and is blowing her nose.

COMPANION:
Remember, you need to tell them about how you were coughing all night. And you need to ask for antibiotics so that this visit isn't a waste of your time and money.

PATIENT nods her head. Has to blow her nose.

Knock at the door, and the NURSE PRACTITIONER (NP) walks in. NP has a stethoscope around his neck, and a white coat on. NP is holding a tablet.

NP:
Hi Alexis, I'm Trevor. I'm a nurse practitioner here to take care of you and see how we can help you feel better.

PATIENT:
Thanks for seeing me.

NP:
Tell me what brings you in today?

PT:
I'm really sick. I have had a fever for 3 days, very runny nose, bad coughing at night, and my ears feel stuffed up.

NP:
How long has been going on?

PT:
3-4 days now, I am super miserable and have missed so much work. I really think I need some antibiotics. Please help me.

NP:
Yes, we definitely want to help you. I do need to ask a few more questions and do a physical exam; then a few quick tests so that we can be sure what treatments are going to help you the most. I would like to check for the flu, strep throat, and for COVID-19. Would that be alright with you?

PATIENT:
Yes, that will be fine.

NP:
Great, do you mind coming to the table so that I can listen to your heart and lungs?

PATIENT nods her head, wipes her nose, then moves to sit on the table. NP removes his stethoscope and places it on the PATIENT'S chest.

FADE OUT: Camera fades out.

FADE IN:
INT. CLINIC ROOM #5 IN THE NLC—DAY

NP seems to have finished exam, puts down stethoscope and moves back to the provider chair, sits down, and looks at the PATIENT.

NP:
The good news is that your testing came back negative for the flu, strep and COVID-19. And there is no evidence of any ear or eye infections. I think you have an upper respiratory infection going on. Infections can be caused by bacteria or viruses. However, with the negative strep test, it is more likely that you have a viral infection, like the common cold, verses a bacterial infection.

ON SCREEN: Slight FADE out of the scene and OVERLAY #1 appears on screen. And NP has VOICE OVER while overlay is displayed.

Overlay #1: About URI'S

- The common cold is the third most frequent diagnosis in office visits.
- At least 200 different viruses that can cause colds and URIs.
- *Go to Symptom Graphics*
  - https://www.cdc.gov/antibiotic-use/community/images/Colds-Symptom-Duration.png
- Sources: https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/adult-treatment-rec.html and https://www.cdc.gov/antibiotic-use/community/for-patients/common-illnesses/colds.html

VOICE OVER

As stated by the Centers for Disease Control and Prevention, or the CDC, upper respiratory infections or URIs, are extremely common; and are among the top 3 diagnosis in outpatient settings.

URI's are usually caused by a virus, not bacteria, and at least 200 different viruses can be the cause.

The common symptoms for colds and other URIs include: sneezing, runny nose, sore throat, coughing, congestion, and a possible fever. Symptoms can last for up to two weeks.

On SCREEN: OVERLAY #1 fades out.

NP is still facing the PATIENT.

COMPANION looks a little annoyed.

COMPANION:

So, does this mean that you are not going to give any antibiotics?

NP:

I know that you mentioned antibiotics at the beginning of the visit, but antibiotics actually help fight bacteria, not viruses. And even though antibiotics are helpful for some infections, taking them when they are not needed is actually more dangerous for you.

PT:

Okay, but I just want to feel better. Won't antibiotics help me feel better, even though I have a virus?

NP:
Antibiotics won't actually help you feel better with a virus, and may even cause unwanted side effects like diarrhea and rashes. Viruses just have to run their course, until your body builds up enough of an immune response to fight it.

ON SCREEN: Slight FADE out of the scene and OVERLAY #2 appears on screen. And NP has VOICE OVER while overlay is displayed.

OVERLAY #2: About Antibiotic Resistance

- Antibiotics only help kill bacteria, but do not kill viruses.
- It's estimated that 50-70% of all prescribed antibiotics are given in error.
- Antibiotic resistance is a global health threat.
- *Go to graphic*
  - ..\..\23571.tif

- Sources: https://www.cdc.gov/antibiotic-use/community/pdfs/aaw/AU_trifold_8_5x11_508.pdf and https://www.cdc.gov/antibiotic-use/community/about/antibiotic-resistance-faqs.html and https://www.who.int/news-room/feature-stories/ten-threat-to-global-health-in-2019 and https://www.cdc.gov/antibiotic-use/community/for-patients/common-illnesses/colds.html

VOICE OVER
According to the CDC, "Antibiotics do not work on viruses, such as colds and flus, or runny noses, even if the mucus is thick, yellow or green."

The CDC estimates that 50-70% of all antibiotic prescriptions for URIs are erroneously given. This greatly impacts the rates of antibiotic resistance, which the World Health Organization lists as one of the top ten global health threats today.

Antibiotic resistance means that the bacteria have developed resistance to the antibiotic being used. When this happens, the bacteria are much harder to kill, they continue to spread, and create even more severe infections that our current antibiotics cannot fight.

On SCREEN: OVERLAY #2 fades out.

PT has to blow her nose again.

PT:
Okay, so antibiotics won't actually help me. But I did come all the way here. Is there anything that will help me feel better?

NP:
Yes, there are other things I can share with you to help you feel better.

ON SCREEN: Slight FADE out of the scene and OVERLAY #3 appears on screen. And NP has VOICE OVER while overlay is displayed

OVERLAY #3: Preferred Treatments for URIs

- Non- pharmaceutical treatments
  - Get plenty of rest
  - Drink plenty of fluids.
  - Cough drops or honey (if patient is at least over 1 years old).
  - Saline Irrigation
- Over-the-counter medications
  - Decongestant medications.
  - Non-steroidal anti-inflammatory drugs.
  - An age appropriate over-the-counter cough suppressant.
  - Intranasal corticosteroids may help prevent secondary infections.
- Prescriptions
  - Prescription strength cough suppressant, like codeine syrup.
  - Antibiotics are NOT NEEDED to treat URIs.

-sources: https://www.cdc.gov/antibiotic-use/community/for-patients/common-illnesses/colds.html and https://www.cdc.gov/antibiotic-use/community/for-hcp/outpatient-hcp/adult-treatment-rec.html

VOICE OVER:
Some of the best treatments for colds and other URIs are not even medicinal; but simple treatments like resting, drinking lots of fluids, and using cough drops.

Many over-the-counter medications can also help with symptom relief. Decongestants, NSAIDs, cough medications, and nasal sprays can help.

If over the counter cough suppressants have failed to relieve symptoms, a prescription can be given for codeine cough syrup.

But antibiotics should not be prescribed, unless a secondary bacterial infection is suspected; or if trying to prevent a bacterial infection for those who are immunocompromised or have respiratory illnesses like asthma.

On SCREEN: OVERLAY #3 fades out.

NP is writing down some of the above instruction on a sticky note.

NP:
Some viruses can lead into a secondary bacterial infection. So, if you don't feel better in 5-7 days, please call my office, and notify me.

COMPANION:
So, Alexis may have to come back in, taking away more time from work, and spending more money?

NP:
Actually, there is a practice called delayed prescribing for antibiotics. What I can do is leave a note in your chart about your need for antibiotics if you are still sick. So, if you are not feeling better in 5-7 days, I can call in an antibiotic prescription over the phone. Does that sound okay to you?

PATIENT:
Yes, thank you.

On SCREEN: NP stands up and PATIENT and COMPANION follow the NP out of the room. All three actors use hand sanitizer on the way out.

Appendix B

Credits

Produced by: Danae Titensor and Zak Gowans

Written by: Danae Titensor and Dr. Katreena Merrill

Cast:
Nurse practitioner- Trevor Brackney
Patient- Alexa Nguyen
Patient's Companion- Danae Titensor
Teacher: Laura Titensor

Directed by: Zak Gowans

Edited by: Zak Gowans

Special Thanks to:
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Jeff Peery

Appendix C

Antibiotic Resistance Shotlist

	Setup	Shot	Type of Shot	Subject (other characters in shot)	Location	Angle	Lens	Movement?	Description
1	1	A	W	Everyone	Exam room 5	Eye	24mm	No	Entire Scene Coverage
	1	B	M (OTS)	Patient	"	Slightly above Eye	35mm	No	OTS on Patient coverage
	1	C	M (OTS)	Companion	"	Slightly above Eye	35mm	No	OTS on Companion coverage
	1	D	MW	Patient and Companion	"	Eye	35mm	No	Both see NP walk in
	2	E	M	NP	"	Slightly below Eye	35mm	Fluid head, but steady	Coverage of NP until examination
	2	F	M	NP	"	Slightly below Eye	35mm	Fluid head, track w/subject	Coverage of NP exam pg3-end
	3	G	M	Patient	"	Eye	35mm	No	Coverage Patient exam pg3-end
	3	H	CU	Patient	"	Eye	50mm	No	Insert of stethescope on patient
	4	J	M	Companion	"	Slightly below Eye	35mm	No	Coverage of companion exam pg3-end
	5	K	CU	NP	"	Above Eye	50mm	No	Insert of Sticky Note pg. 5

Appendix D

Antibiotic Resistance – Breakdown Sheet

Actors

- Patient
- Companion
- Nurse Practitioner
- Teacher

Props

- Two chairs, for Patient and Companion
- Tissues
- Stethoscope
- Tablet
- Chair/Stool for NP
- Hand Sanitizer
- Sticky notes
- Pen

Wardrobe

- NP: Professional dress and white coat
- Patient: Comfortable clothing, like she just got out of bed.
- Companion: Everyday dress
- Teacher: Professional dress

HMU

- Looks sick; circles under eyes (Patient)

Appendix E

Pre-Survey

Question 1:
Name three common symptoms that occur due to upper respiratory infections (URIs).

Question 2:
In your opinion, about what percentage of antibiotics prescribed for upper respiratory infections are not truly needed?

- ☐ Below 20%
- ☐ 30-50%
- ☐ 50-70%
- ☐ Above 80 %

Question 3:
True or False: Antibiotics help fight infections caused by viruses.

- ☐ True
- ☐ False

Question 4:
Please rate your understanding of the preferred treatment methods for upper respiratory infections that are caused by viruses, like the common cold.

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Terrible

Question 5: When treating a patient for a viral URI, rather than giving antibiotics, what other options are available? Please list as many as you can below.

Question 6: How comfortable are you in refusing to prescribe antibiotics to a patient who is suffering from a viral URI?

DEMOGRAPHICS

How old are you?

- ☐ 10-20 years old
- ☐ 20-30 years old
- ☐ 30-40 years old
- ☐ 40-50 years old
- ☐ 50-60 years old

- ☐ 60-70 years old
- ☐ 70-80 years old

What is your gender?

What is your highest degree?

- ☐ Some high school
- ☐ High school diploma
- ☐ Some college
- ☐ Associates degree
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate degree

Where do you work?

- ☐ Inpatient healthcare
- ☐ Outpatient healthcare
- ☐ Not in the healthcare field
- ☐ If you do not work in the healthcare field or the above choices do not apply to you, please state what field you work in

To help us compare your pre and post-test survey results, please sign here with either your initials or a four-digit PIN. Then write the EXACT same initials or PIN when you complete the post-test survey. Thank you.

Appendix F

Post Survey

Question 1:
Name three common symptoms that occur due to upper respiratory infections (URIs).

Question 2:
According to the CDC, about what percentage of antibiotics prescribed for upper respiratory infections are not truly needed?

- ☐ Below 20%
- ☐ 30-50%
- ☐ 50-70%
- ☐ Above 80 %

Question 3:
True or False: Antibiotics help fight infections caused by viruses.

- ☐ True
- ☐ False

Question 4:
Please rate your understanding of the preferred treatment methods for upper respiratory infections that are caused by viruses, like the common cold.

- ☐ Excellent
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Terrible

Question 5: When treating a patient for a viral URI, rather than giving antibiotics, what other options are available? Please list as many as you can below.

Question 6: How comfortable are you in refusing to prescribe antibiotics to a patient who is suffering from a viral URI?

ABOUT THE PRESENTATION
The presentation did a good job of explaining antibiotic resistance.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat agree
- ☐ Strongly agree

The presentation did a good job of explaining preferred treatments for URIs.

- ☐ Strongly disagree
- ☐ Somewhat disagree
- ☐ Neither agree nor disagree
- ☐ Somewhat agree
- ☐ Strongly agree

How was the overall length of the presentation?

- ☐ Too long
- ☐ Just right
- ☐ Too short

Please provide feedback about the educational video and how you would improve the presentation?

Would you recommend this presentation to a fellow nurse practitioner or NP student?

- ☐ Yes
- ☐ Maybe
- ☐ No

Please sign here with the SAME initials or PIN that you provided in the pre-test survey.