Evaluation of Clinicians' Knowledge, Attitudes, and Planned Behaviors Related to an Intervention to Improve Acute Respiratory Infection Management

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Abstract

Background: Acute respiratory tract infections (ARI) are commonly diagnosed and major drivers of antibiotic prescribing. Clinician-focused interventions can reduce unnecessary antibiotic prescribing for ARIs. We elicited clinician feedback to design sustainable interventions to improve ARI management by understanding the mental framework of clinicians surrounding antibiotic prescribing within Veterans Health Administration (VHA) clinics.

Methods: We conducted one-on-one interviews with clinicians (n=20) from clinics targeted for intervention at five facilities. The Theory of Planned Behavior guided interview questions. Interviews were audio-recorded and transcribed for qualitative analysis. An iterative coding approach identified six themes.

Results: Emergent themes: 1) barriers to appropriate prescribing are multifactorial and include challenges of behavior change 2) antibiotic prescribing decisions are perceived as autonomous yet, diagnostic uncertainty and perceptions of patient demand can make prescribing decisions difficult, 3) clinicians perceive variation in peer prescribing practices and influences, 4) clinician-focused interventions are valuable if delivered with sensitivity, (5) communication strategies for educating patients are preferred to a shared decisions process, and 6) team standardization of practice and communication are key to facilitate appropriate prescribing. Clinicians perceived audit-feedback with peer comparison, academic detailing, and enhanced patient communication strategies as viable approaches to improve appropriate prescribing.

Conclusion: Implementation strategies that enable clinicians to overcome diagnostic uncertainty, perceived patient demand, and improve patient education are desired. Implementation strategies

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were welcomed, with some more readily accepted (e.g., audit-feedback) than others (e.g., shared decision making). Implementation strategies should address clinicians' perceptions of antibiotic prescribing practices and enhance their patient communication skills.

Keywords

antibiotic prescribing; clinician perceptions; acute respiratory tract infections

Introduction & Background

Acute respiratory tract infections (ARI) are common in outpatient settings.[1] Diagnostic and treatment recommendations for appropriate management of ARI rarely recommend antibiotics.[2, 3] Nonetheless, 30– 40% of outpatient antibiotic prescriptions are unnecessary, providing ample opportunity for improvement.[1,4] Clinicians who prescribe antibiotics most frequently prescribe them in 95% of ARI visits while those who prescribe least frequently do so in fewer than 40% of visits, demonstrating variability across individual prescriber behavior.[5] This variability emphasizes the importance of antibiotic stewardship s strategies directed at clinician behavior to drive change.

The Theory of Planned Behavior is a social cognitive theory that posits links between people's beliefs, behavioral intentions and behavior.[6,7] This theory predicts that clinicians' behavioral intentions are strongly linked to clinician behavior.[8–10] Figure 1 shows that attitudes toward behavior such as appropriate prescribing are influenced by beliefs about the relationship between a behavior and a positive outcome (e.g., less antibiotic resistance will result from appropriate prescribing). Subjective norms are influenced by perceptions of what constitutes socially normative behavior such as perceptions of how peers are prescribing. Perceived behavioral control is how effective a person believes themselves to be. These beliefs and perceptions influence behavioral intentions and behavior.

Clinician-focused antibiotic stewardship implementation strategies such as audit-feedback with peer comparison, academic detailing, and clinician communication training are promising approaches to reduce unnecessary antibiotic treatment of ARIs.[11–13] Audit-feedback with peer comparison has been perceived by clinicians as an acceptable method for improving antibiotic prescribing. [14] However, not all audit-feedback implementation strategies targeting inappropriate ARI management have demonstrated improvements in antibiotic prescribing, suggesting additional interaction with clinicians may be necessary to facilitate behavior change.[15] Academic detailing consists of education delivered one-on-one to clinicians by a respected peer. Academic detailing for ARIs has demonstrated short-term improvements in antibiotic prescribing.[16] Clinician overestimation of patient demand for antibiotics is associated with over prescribing for ARIs, suggesting an opportunity to improve prescribing by improving clinicians-patient communication. Clinician training focused on enhanced patient communication, including the use of shared decision making (SDM) techniques, is associated with reductions in antibiotic prescribing for ARIs without diminishing patient satisfaction.[17, 18] While the above clinician focused behavioral interventions can improve ARI antibiotic prescribing, limited information is available to characterize clinicians' preferences.

Our study was developed to aid in planning a multi-faceted implementation strategy to improve ARI antibiotic prescribing practices within outpatient Veteran Health Administration (VHA) settings, using the Core Elements of Outpatient Antibiotic Stewardship.[19] We investigated clinician knowledge, attitudes, and behaviors, (consistent with Theory of Planned Behavior), and their perceived barriers to appropriate prescribing for ARIs as well as their preferences for clinician-focused behavioral interventions prior to broad implementation.

Methods

We conducted one-on-one interviews with clinicians (*n*=20) — physicians and nurse practitioners — from ten clinics within five VHA academically affiliated medical centers to provide representation across included study clinics. Clinics were selected to provide a mix of clinics that did and did not accept clinician trainees and to give a range of sizes (large 22–79 clinicians); (medium 11–18 clinicians); (small 2–10 clinician). Study investigators identified clinic leaders who identified clinicians who met the following criteria: 1) Federal employees with VHA appointments; 2) routinely diagnose and treat patients with ARIs; and 3) could speak to the knowledge, attitudes, and behaviors of their peers. Clinicians identified as potential interviewees were sent an e-mail with an option to decline interviews. Those who did not decline were contacted to schedule an interview, provided a summary of the study, and an informed consent document. Consent was obtained verbally upon interview initiation.

Interview questions based upon the Theory of Planned Behavior were developed by the study behavioral scientist and tailored through discussions with a panel of physicians, pharmacists, and study personnel. Questions aimed to assess knowledge, beliefs, and attitudes about personal and peer antibiotic prescribing.(Table 1) Future plans to prescribe antibiotics were gauged by asking about intentions to change practice, support needed to make improvements in antibiotic prescribing, and preferences for delivery of potential implementation strategy components such as audit-feedback reports, peer comparison, academic detailing, and clinician communication training.

The study behavioral scientist or a trained associate interviewed each clinician by phone.Thematic saturation was reached when no new information emerged from interviews. Interviews were audio-recorded, transcribed, and de-identified for qualitative analysis, which was performed by a 4-person experienced coding team using ATLAS.ti (version 7.5.18v). An iterative approach to coding included team members assigning initial codes to interviewee quotes, with discrepancies resolved by consensus discussions. Codes related to beliefs, barriers, desired features, and suggestions regarding potential implementation strategies were assigned and iterative coding resulted in examination of each transcript multiple times by the full coding team. This research complies with all federal guidelines and VHA policies relative to human subject research and was approved by the institutional review boards of each participating facility.

Results

Participants included physicians (n=9) and nurse practitioners (n=11) practicing within different settings: two large emergency departments (ED's) (35%); one large and two medium primary care clinics (30%); one large and four small community-based outreach clinics (CBOCs) (35%). Most were female (65%) and practicing in academic clinics (60%). Six themes emerged which are —described below and in Table 2.

Theme 1: Barriers to appropriate prescribing are multifactorial and include difficulty in changing old practices and patient demand.

Respondents cited difficulty in changing established practice behaviors; time constraints for clinician and patient education; frustration with patient education effectiveness; and, within CBOC settings, limited point-of-care testing.

Clinicians felt that changing routine practice takes conscious effort: "*[Clinicians are] ingrained in their way of how they do it and instead of taking new evidence-based practice into consideration, it's just hard to change their habits.*" Clinicians cited time constraints during a visit as limiting opportunities for clinicians to learn, apply new practices and educate patients: "*[Patients] are getting fit into a busy schedule already… people are more likely to go ahead and prescribe because it's easier. Do I really have time to go into a discussion with this person as to why they don't need an antibiotic?*" In some clinics, difficulty in obtaining rapid molecular diagnostic tests or chest radiographs is perceived as impeding the ability to make informed diagnoses: "*…We don't have the ability to do a lot of lab testing…every time they come in, it's not certain…*" This contrasts with data indicating that a minority of ambulatory patients with ARI require such tests to determine if antibiotic treatment is necessary or cost effective.[2,3]

Theme 2: Antibiotic prescribing decisions are perceived as highly autonomous, yet diagnostic uncertainty and perceptions of patient demand make prescribing decisions more difficult.

Clinicians perceive a high degree of control over their prescribing. Decisions to prescribe antibiotics were described as easy to make, and antibiotic prescribing is an autonomous decision: *"Absolute. Nobody had ever questioned anything that I've prescribed or didn't prescribe as far as antibiotics."* Diagnostic uncertainty influenced a clinician's decision to prescribe antibiotics. When the diagnosis is uncertain, and patient follow-up might be difficult, they felt that they were more likely to prescribe inappropriately: *"… these people don't have really close follow-up with their primary … I think now you have to make a decision a little sooner than you prefer sometimes."* To remedy this, some clinicians prescribe "*just in case.*" Clinicians reported they considered additional clinical criteria, the patient's age, and overall health when deciding to prescribe antibiotics. Few clinicians specifically noted patient opinion and few perceived demand influencing prescribing decisions. However, clinicians felt patient demand might influence practice due to value placed on patient preferences.

Theme 3: Clinicians perceived variation in peer prescribing practices and influences.

Clinicians' perception of peers' practice varied substantially. When clinicians were asked *"How many people at your institution do the right thing in terms of antibiotic prescribing?"* responses ranged from 25% to 90%: *"I would say probably half"*. *"…. probably 25%"* … *"I think we are over 90% …"* However, clinicians acknowledged that they were unaware of how their peers actually prescribed: *"We're not aware of others' prescribing decisions, … I've never heard it or had any questions or heard anything about antibiotic use in particular."* Clinicians valued the opinion of their peers and experts: *"… if I am doing the wrong thing, I hope somebody jumps in and lets me know."*

Clinicians empathized with those faced with a patient demanding antibiotics and felt that all clinicians are exposed to patient demand for antibiotics: *"I think everybody caves once in a while. I mean, you just can't keep it up. Water on a rock, after a while you'll cave, and I think everybody has caved at some point."* For clinicians, mechanisms beyond clinician and patient education are considered necessary to alter prescribing beliefs and behavior. Clinicians felt information is available to make appropriate prescribing decisions: *"I think that they know in one part of their brain that antibiotic resistance is a huge issue …, in the moment, they're responding to the person in front of them and making a decision based on that."* This rationale is complicated by perceived social norms that inappropriate practices by peers reinforces patient demand: *"… if people don't get what they want [… they go to somebody else and get it"* and contributes to inappropriate prescribing.

Theme 4: Clinician-focused interventions are considered valuable if delivered with sensitivity:

Interviewees were open to proposed audit- feedback behavioral interventions including comparison to peers. Respondents indicated that delivery of feedback should consider the clinician's good intentions and be clear and concise. Academic detailing was viewed as a potentially useful approach to delivering clinician education, and patient education tools supporting decisions not to prescribe were desired.

Clinicians perceived that feedback had the potential to improve their personal practice behavior: *"I think that it would be very helpful, and I'm open to it, and I wish that we got more feedback. Because I would rather know early rather than late whether or not you're doing something right or wrong."* The way feedback is received depends on the person giving the feedback and the way feedback is delivered: *"If it's presented as something for people to add as an extra tool for them to use …, then that would probably be more successful than criticizing people for the way in which they are doing things."* Those delivering feedback need to consider that poor decisions are not made intentionally and should create opportunity for clinicians to justify decisions.

Consistent with the conversational framework of academic detailing, clinicians suggested that communication with clinicians should include concise recommendations for improvement and provide supportive educational information, which is short and to the point. Further, the interaction with clinicians should be recurring and delivered by a respected individual in a non-punitive, conversational way. In addition, consistent messaging

and education should be delivered to all healthcare team members due to the potential for others to influence patient expectations: *"I don't have problems with people giving me advice or information. I believe that knowledge is power, and we learn along the way that it's a good thing. You can act upon it or not act upon it, but I don't really look at people giving me pointers or giving me input is a bad thing … I don't feel threatened by people doing that."*

Clinicians specifically noted interest in education concerning local bacterial resistance patterns to guide antibiotic prescribing.

Patient education tools were also viewed as desirable enablers of the implementation strategy. Tools should be understandable and support the decision of the clinician to not prescribe antibiotics: *"They [patients] also need to understand that it's a recommended practice everywhere."* In addition, educational tools should highlight evidence-based standards of care concerning antibiotic use.

Theme 5: Communication strategies for educating patients are preferred to a process of shared decisions:

Overall, clinicians were open to promotion of evidence based, communication techniques to clarify perceived patient demand and promote the judicious use of antibiotics, but they did not consider antibiotic prescribing an appropriate topic for SDM.

Most clinicians were receptive to learning communication techniques to address patient demand: *"Just mainly what are good ways to communicate to the patient? Just what are objective ways and how do we overcome any barriers that may occur while talking to the patient."*

SDM was not anticipated to be an efficient tool to improve prescribing practices, as clinicians felt it is their responsibility to either give or withhold an antibiotic. Clinicians viewed SDM as a useful tool in situations where patients expressed the desire to look for alternative treatments: *"Well, it's tough because usually you've already decided if you're going to prescribe it or not, … sharing in the decision about whether or not to get an x-ray or whether to use a nose spray or a costly medication or something like that, but with antibiotics it's tricky. If you've decided not to prescribe it, you can't really, you can't open it up for discussion."* Clinicians expressed the belief that such decisions should not be shared, but rather the reasons for their decisions communicated to the patient: *"If you take the time to educate the patient and explain the risk[… and they kind of agree that, "yeah, I can see where you're coming from, and I'm okay with that, and I'm willing to [take your recommendations]. Again, if you educate them, they can make shared decisions."*

Theme 6: The importance of clinical team standardization of practice and communication are key to facilitate future appropriate prescribing.

Clinicians emphasized that information for patients needs to be consistently delivered by all staff: *"I'm always educating the people on my team … helping them understand what's going on out there as far as overuse and ways that they can help patients …"* Also, standardizing appropriate antibiotic prescribing creates a clear expectation for patients: *"I*

know that my staff here knows that I don't just write prescriptions for antibiotics. I have patients that call in and say that I have such and such. I need an antibiotic, and they know to say no, you have to come in and be evaluated." Overall, clinicians planned to promote judicious use of antibiotic prescribing.

Discussion

Our study elicited rationale from clinicians for inappropriate antibiotic prescribing decisions in self-described typical practice. Findings confirmed those from other qualitative studies of antibiotic prescribing practices.[20,21] Clinicians identified typical barriers of insufficient time to learn and teach, diagnostic uncertainty, and patient demand for antibiotics, but also identified preferences on how clinician-directed behavioral interventions should be implemented.They viewed making inappropriate decisions as having "caved" and perceived this was an issue for most clinicians. Lack of clinician resolve to prescribe appropriately and a mentality that patients will get an antibiotic somewhere was a concern. Clinician estimates of appropriate prescribing rates for their peers varied greatly.

We did not ask clinicians about how often they prescribed appropriately, but we noted that clinicians value their peers' good opinion and desire to know how they perform relative to institutional expectations. These observations support the use of peer comparison within audit and feedback reports which parallel those of Linder and colleagues who found audit-feedback with peer comparison both effective and accepted by clinicians to improve antibiotic prescribing.[13]

Clinicians expressed desire to improve personal prescribing practices and welcomed implementation of tools to improve prescribing. Clinicians suggested that feedback should include both positive and negative prescribing behaviors, and that feedback discussions should include opportunity for decision justification, because clinicians are well intentioned. Such desires support the importance of conversational education from relatable and respected sources, which provides an avenue for delivery of education and feedback through academic detailing. Barriers to clinician education included changes in evidence-based messages over time and lack of clinician time for education. These barriers emphasize the need for clinician feedback and education to be short, to the point, and recurring. These points are consistent with both academic detailing and audit-feedback approaches.

The perception that other clinicians are likely to inappropriately prescribe antibiotics to their patients if they initially do not prescribe one themselves may contribute to the perception of patient demand. Implementation strategies to address patient demand include education on enhanced clinician communication techniques and clear communication of the standard of care among all staff and peers when interacting with patients during ARI visits. Overall, clinicians generally were receptive to learning new communication techniques; however, less so for SDM. It is possible that the perceived high control of decision making within a patient visit made SDM a non-intuitive solution to overcome patient demand. Other studies conducted in non-U.S. Health Care settings has found that SDM is effective does not contribute to diverting from clinical guidelines.[18, 22] Patient communication can be tailored to clearly delineate the role of the clinician as the prescribing decision maker with sensitivity

to patient preferences that can result in a decision that is better understood by the patient. Patient education tools should increase transparency concerning the standard of care for ARI visits and support clinician decisions not to prescribe antibiotics unless truly necessary, such as those illustrated with public commitment posters.[23]

Our qualitative study did not directly compare clinic culture factors based on practice setting. Our heterogeneous sample with diverse practice settings and diverse educational and training backgrounds contributes to the generalizability of emergent themes but also is a limitation. Future work could include employ direct comparisons of barriers cited in different contexts and by different types of clinicians. An additional limitation is that clinicians were selected by clinic leaders as able to speak to the prescribing climate of his/her clinic, but this was not validated.

Clinicians intend to prescribe antibiotics appropriately; however, insufficient time to educate, diagnostic uncertainty, and patient demand for antibiotics are perceived as barriers to optimal prescribing. Clinicians perceived behavior-focused strategies such as audit-feedback with peer comparison, academic detailing, and enhanced clinician communication training as acceptable approaches to improve ARI management. These findings can inform health care systems implementing outpatient stewardship programs should consider our findings and leverage existing resources when designing provider behavior focused strategies. [24–26].

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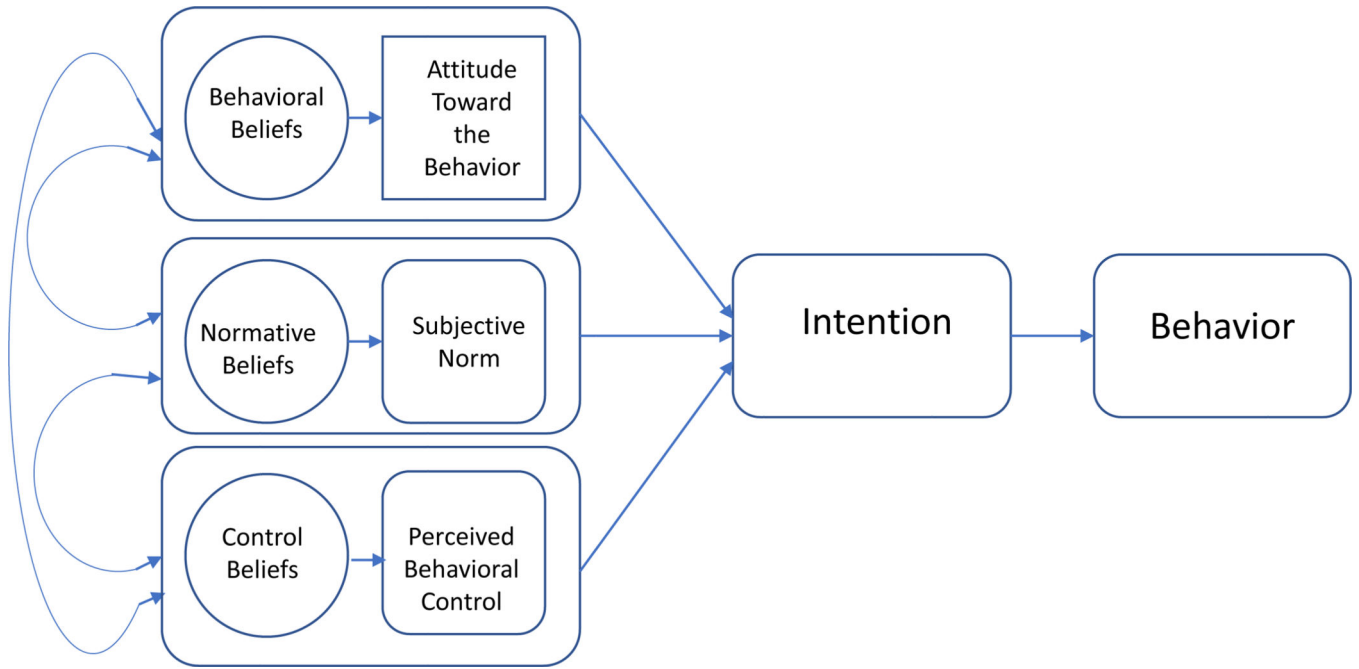
Figure 1.
Theory of Planned Behavior – Beliefs Impact Behavior

rTable 1.

ARI Antibiotic Prescribing Interview Sample Questions.

Question Category	Sample Questions
Current Practices	Tell me about the last time you as a primary care clinician prescribed an antibiotic for an acute respiratory infection such as a cold, otitis or sinusitis in the outpatient setting. Walk me through the decision and process – what you did and what you were thinking. Tell me about the clinicians in your clinic – how is their process similar to what you just described?
Knowledge	When are antibiotics indicated for acute respiratory infections in the outpatient setting? In what situations might you think about something differently (and prescribe something different) from what you described just now? Tell me about the knowledge that you (clinicians) in your practice or clinic have about prescribing. Can you give me an example where you realized a clinician had less knowledge than "average" about appropriate prescribing in the clinic?
Beliefs about Consequences	Describe a situation to me where you prescribed antibiotics when they were definitely indicated. Describe a situation where there was less certainty about whether antibiotics were indicated. What happens in these situations in your institution? What is your perception of clinician beliefs about the consequences? (e.g., what happens to you and what happens to others? What inherent risks might there be?)
Attitudes about Antibiotics Prescribing	If a clinician in your institution (and primary care clinic) "does the right thing" in terms of outpatient antibiotic prescribing for acute respiratory infections – what happens? How do others (patient, other clinicians, trainees, mentors) react? What do you think the attitudes about antibiotic prescribing, "doing the right thing" are for the patients you see in your institution? How many people at your institution – do the right thing in terms of antibiotic prescribing? For individuals (or times) when they do not, why not?
Subjective Norms	What do patients seen in your institution (ex. primary care clinic) think about antibiotics for treatment? Do clinicians discuss prescribing decisions with each other? Why or why not? Is there a process for providing feedback for antibiotic prescribing in outpatient environments at your institution? If yes, what is the process of feedback for antibiotic prescribing in outpatient environments at your institution? Have you ever received personal feedback relating to antibiotic prescribing in outpatient environment at your institution? How important are patients' opinions in treatment decisions for antibiotic use in your institution? How important are clinicians' opinions in treatment decisions for antibiotic use in your institution? Another way to think about this is how aware are other clinicians of your antibiotic prescribing decisions? Do they have opinions about them? How aware are you of others' prescribing decisions? Do you have opinions about their prescribing?
Control Beliefs	How easy is it to make antibiotic prescribing decisions for ARI in outpatient (primary care clinic) environments? What makes it easy (or difficult)? How easy is it to change antibiotic prescribing decisions and/or behaviors for ARI in outpatient environments? What makes it easy (or difficult)? Are there things that might make it easy for you to "do the right thing" in antibiotic prescribing? How much control do you have over the prescribing decisions that you make?
Shared Decision Making	Are you familiar with the term shared decision making? Have you used shared decision making with patients when making antibiotic prescribing decisions for ARIs? In making other antibiotic prescribing decisions?
Future Planned Behaviors	Do you think there is room for improvement in how you prescribe antibiotics? Do you have any plans to promote the judicious use of antibiotics in your own practice? If so, what are your plans? If not, why not? What barriers do you (and others) face in developing potential plans? What are the solutions to promote appropriate antibiotic prescribing? If you were given some additional pointers on how to communicate with patients about antibiotic prescribing – what impact would that have on your approach? How do you think you would feel about that experience? If you were given feedback on how you were performing with antibiotic selection and feedback (e.g., how well your prescribing matched evidence based recommendations) -what impact would that have on your approach and subjective experience? If we were designing an intervention about patient communication and antibiotic prescribing – what would help you to have included? If you were getting feedback on your performance (how well you stack up compared to your peers in domains like making diagnoses or with CDC recommendations for treatment) – what kinds of things would you want feedback developers to know?

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Table 2.

Sample Clinician Quotes for ARI Antibiotic Prescribing Themes.

Theme 1: Barriers to appropriate prescribing are multifactorial and include difficulty in changing old practices and patient demand.	
Barrier: Belief of difficulty in changing old practices	"I think that it's always difficult to change people's minds that are set who kind of have that mentality of this is the way that I've always done things."
Barrier: Lack of testing and resources	"Well if we had you know more rapid tests that we could do right here and find out before we let the patient go, that would help you know, and we could say, "No you know nothing grew here or yes, this grew."
Barrier: Diagnostic Uncertainty	"Probably the other major driver is the uncertainty. In situations of uncertainty, I think the default is to give antibiotics just in case."
Barrier: Patient Demand	"There is a mix. Like there are some older patients who have always gotten antibiotics will tell me that, and then some of the younger ones are a bit more demanding but it's not like all of them."
Theme 2: Antibiotic prescribing decisions were perceived as highly autonomous and yet, diagnostic uncertainty and perceptions of patient demand were cited as factors that made decisions more difficult:	
Decisions: Based on knowledge and experience	"So, in 9 out of the 10 cases, I don't necessarily have to prescribe anything. It's just a matter of educating the patient about signs and symptoms of other things and when to return back to clinic if the conservative therapy isn't working is the key."
Decisions: Uncertainty influences decisions	"I think that the main reason why most providers prescribe when in doubt is because they don't want to see the patient again (laughter). […] Because I think that at time providers are overloaded, and they don't want to have to follow up or see them again in 2 days when they need to follow up because the conservative therapy didn't work"
Decisions: Patient demand/ preferences influence decisions	"Yeah, I don't feel any pressure from the institution at all to make patients happy in that regard. It's just more like my own (laughter)…. My own, and I'm not sure how to describe it. My own how pressured that I end up getting from the patient and then making me kind of doubt my judgement in certain scenarios where it's maybe more ambiguous."
Theme 3: Clinicians perceived variation in peer prescribing practices and influences:	
Belief: Social norms: appropriate prescribing by peers varies	"I would say probably 80% of the providers would do the right thing on a regular basis. And when they do not, often there are other things going on. […] There are a handful that do throw it out like candy. So, I think for the majority, they do the right thing the majority of the time, and those cases that they do end up prescribing antibiotics for, I think there's usually a reason, and usually a good reason."
Perception: Knowledge of guidelines exists but not necessarily followed	"It's the treat them and street them principle. You know. Get them. Get it done. Get them out. Because it's faster. You do your turnaround, and you go onto the next patient. Because it's a common mentality. Like I said, it's something that we as providers I think really have to understand that is the mentality, and the only people who can change that mentality is us."
Belief: social norms: peers' practice influences patient demand	"I think that you know it has to be everybody is using the same guidelines and you know. If we're all saying the same thing. I think where patients get confused is you go to one doctor who says you don't need an antibiotic and then the next time you go to a provider and they give you an antibiotic. The patient is going to have a sense of mistrust."
Belief: patient demand can be addressed	"If you're patients don't think that you care about them when they walk out the door. I mean they know when I don't prescribe that antibiotic. They know that I'm invested in their healthcare and so they've got to trust that decision you know."
Theme 4: Clinician-focused interventions were considered valuable particularly if delivered with sensitivity:	
Intervention Suggestion: feedback suggestion: compare to peers	"[…] I kinda enjoy the competition stuff, so you'll see a lot good to do things, […] if you kinda post those like anonymous up on a board and kind of see how everyone stacks up against each other."
Intervention Suggestion: Feedback should be a comprehensive review	"Well I'd like [those who provide feedback] to know what I was thinking when I wrote these antibiotics. I guess you know if we're talking just standard stuff I'd like them to be aware of how long the patient's been sick, how severe their symptoms have been, you know what they, you know kind of what they tried at home so they know why I've made the decision to write those antibiotics on something that they may think is questionable practice."
Intervention Suggestion: Feedback needs to be delivered in a positive way	"If it's presented in the sort of format of this is what you're doing wrong and this is how you have to do it better, that would not be very successful, but if it's presented as these are some tools that people have found to be successful and you might want to consider it as something to add to your - you know, in other words, if it's presented as something for people to add as opposed to an extra tool for them to use, then that would probably be more successful than criticizing people for the way in which they are doing things."
Intervention Acceptability: Feedback: positive perception	"Well, I would like to get pointers. As a provider, I feel like that we deal with people, and I think that we don't know everything, and we could always learn, and so the pointers should be helpful, and we all have

Theme 1: Barriers to appropriate prescribing are multifactorial and include difficulty in changing old practices and patient demand.	
	different styles. But if it's something that I feel like that I could use or something that I feel like that I'm weak in, I would definitely try to incorporate it so that I could do a better job."
Theme 5: Educational communication for patients was assessed as superior to a process of shared decisions:	
SDM: For Abx this involves patient education and sharing alternate treatments	*" if you take the time to educate the patient and if you take the time to explain the risk, and then kind of make the decision together. Like you know, this isn't in your best interest, and they kind of agree that, "Yeah, I can see where you're coming from, and I'm okay with that, and I'm willing to do these other things." Again, if you educate them, they can make shared decisions".*
SDM: concern sometimes decision for abx should not be shared	*"It's hard to make or to do shared decision making with someone that's insistent on needing an antibiotic because most of the time they're not open to listening to reason because they feel that that's what they need and that's what they want."*
SDM: Antibiotic prescribing is not a shared decision	*"Yes and no. I, I don't really give them the option to say well yeah, I want an antibiotic […] I usually you know give them the proper education on what's going on with them and, […] the steps and what to do and you know if you're not better in so long then we'll consider an antibiotic, that sort of thing. So, I mean I, in that manner you know with shared decision making in that I provide them the education that they need but I'm not gonna let them tell me yeah, I'm good, go ahead and give me an antibiotic."*
Theme 6: The importance of team standardization of practice and communication were cited as key tools for engaging in future appropriate prescribing:	
Future Behavior: Promote wise stewardship through educating subgroups	*"I am pretty stingy if you will with antibiotics. I know that my staff here knows that I don't just write prescriptions for antibiotics. I have patients that call in and say that I have such and such. I need an antibiotic, and they know to say no, you have to come in and be evaluated. She's not just going to write you a prescription for an antibiotic."*
Future Behavior: Promote wise stewardship through educating subgroups	*"[…] spending that time to go over like the decision-making process and what antibiotics are and what they do and don't treat, what the side effects are, and then you know it's what I enjoy about teaching, so we have residents in here like 3 or 4 of them a day and we go through that and talk about it and, you know, decisions on which antibiotics to use and what pathogens you're treating and what are the risks, so I mean just that kind of education environment. I enjoy that, so yeah absolutely."*
Future Behavior: Promote wise stewardship through educating subgroups	*"I'm always educating the people on my team as well as encouraging the same kind of, especially with our care managers who are our in-care managers. Talking to them about it because a lot of times they are the first contacts of the patients. So helping them understand what's going on out there as far as overuse and ways that they can help patients and things like that."*