



# The Roadmap for the Novice Infection Preventionist

BY BILL BRIDGES, PhD

## Taking the infection preventionist from day 1 on the job, all the way to the CIC exam

**I**n the Dark Ages before the Internet, we relied on maps, whether to go across the country or across town. Although we always set out with an understanding of where we wanted to end up, the map was the key mechanism to get us there efficiently. Without a map? Not only was the journey far more difficult and stressful, but sometimes we didn't reach the destination. For the novice infection preventionist (IP), that end destination is Certification in Infection Prevention and Control (CIC®). But getting to that point was often an individually determined trip, filled with more detours and stress than was needed—until now.

The Roadmap for the Novice Infection Preventionist (also known as the Novice Roadmap) establishes a clear path from day one on the job all the way to taking the CIC exam. Although it's still an arduous journey, at least now there is a map to guide IPs along the way.

### DEVELOPING THE ROADMAP

The Novice Roadmap is the culmination of nearly two years of work by the APIC Education Committee. In October 2013, the committee discussed ways to piece together the educational resources that APIC offers. The difficulty, as the committee saw, was that IPs don't have an agreed-upon developmental path. As a result, the training that a novice receives varies incredibly, depending on many factors. If a novice is fortunate enough to have a mentor or works with a well-organized, experienced senior IP, then he or she will receive at least some kind of training. But even then, the training received will depend on the background of the mentor. A mentor who is strong in microbiology will

naturally emphasize that field. Similarly, one who has a background in infectious diseases will emphasize that. If the novice has no one to provide even that amount of help, then the situation is even worse, as the burden of cobbling together an education falls on the individual.

Thus, the Education Committee hit on the idea of creating a standardized curriculum, which resulted in the Novice Roadmap. The committee brainstormed a list of knowledge, skills, and abilities that a novice would need, then divided all those items into "stages" of a novice's career: year 1, year 2, then year 3 until the IP takes the CIC exam. But although the list was robust, it was incomplete. The committee then shifted to seeing the Roadmap in terms of its destination: CIC certification.

The Certification Board in Infection Control and Epidemiology (CBIC), Inc., administrator of the CIC certification system, maintains a list of competencies that an IP should achieve (these same competencies are at the core of APIC's IP Competency Model).<sup>1</sup> CBIC divides the

competencies into six areas (or domains): Identification of Infectious Disease Processes; Surveillance and Epidemiologic Investigation; Preventing/Controlling the Transmission of Infectious Agents; Employee/Occupational Health; Management and Communication; and Education and Research.<sup>1</sup> (Effective July 1, 2015, Environment of Care and Cleaning, Sterilization, Disinfection, and Asepsis will be added to the six existing domains; however, these domains do not reflect new examination content. CBIC's 2014 practice analysis survey results noted that these two areas were weighted with sufficient importance to be identified as separate domains). Each area contains between 11 and 22 individual objectives that are all potential items to appear on the exam (e.g., under the Infectious Disease Processes category is the objective "Differentiate among colonization, infection, and contamination").

The Education Committee saw those objectives as landmarks or "mile markers," all of which needed to appear somewhere on the map. The committee also created another category of proficiency: Professional Development, to address important elements not covered by the CBIC list (e.g., developing a personal library of infection prevention resources). Since that initial meeting, tasks have been added, refined, categorized, and re-categorized until now, when the Novice Roadmap has finally been made available to APIC members.



### STRUCTURE OF THE ROADMAP

The Roadmap has three parts:

**1 Introduction and Frequently Asked Questions (FAQs).** In the first section, users will find an introduction to using the Roadmap, as well as the most commonly asked questions about how to use it.

As with the entire Roadmap, the FAQ section is fluid. As APIC Education receives feedback and hears of other questions, the FAQs will be expanded.

**2 Roadmap, broken down by CBIC competency area.** This section divides all the tasks, knowledge, and skills into the CBIC competency areas (APIC core competencies), plus the Professional Development area. Each row in a competency area has a series of related tasks that the novice IP needs to complete. Because the tasks build on previously gained knowledge and abilities, it's important to go through each row from left to right, completing each box before moving to the next.

**3 Roadmap, broken down by stage.** This view enables users to see all the tasks that he or she should complete in a given time frame. Seeing things this way helps the user (whether the novice IP or the person training him or her) allocate training time and resources.

But, although the Roadmap's basic structure will likely remain unchanged, the rest is flexible. The Roadmap is a living document. Although the Education Committee feels confident with the content at this point,

it also recognizes that it will need to make adjustments as people use it. Whenever the CBIC competencies change, the committee will be updating the Roadmap. APIC will adjust the Roadmap based on the needs of the members.

### HOW WILL IT HELP?

"We wanted to make a tool that would help the new IP who works alone," says Kit Reed, Education Committee chair. "All too often, the new IP goes into the job with little or no training and is expected immediately to do surveillance, create an infection prevention and control program, serve on numerous committees, and also do a

thousand other things. It's no wonder a lot of them quit."

From APIC member surveys and other information sources, it does seem that novice IPs are often thrown into the job and then have to piece together enough information to survive the first few years. The determined ones learn enough information and gain skills to pass the CIC exam and remain in the field. An alarming number of these new IPs reach a breaking point in their first three to four years on the job and quit.

The Roadmap alleviates that stress by prioritizing what needs to be learned and when. Additionally, trainers can use the Roadmap when training a new IP, as it both provides

## What is the Novice Roadmap?

The Novice Roadmap provides a general structure for your time on the job, from day 1 until you pass the CIC exam. It provides a list of job-specific knowledge, skills, and professional development goals, and even helps you create your personal library of infection prevention-related resources. However, the way you prioritize, proceed through the roadmap will vary from facility to facility and program to program. It will also depend on your background, level of experience, and resources available to you within your infection prevention program.

**What does each stage cover?**

- **Stage 1:** Your first two months on the job, a hectic time when you must learn the basics of infection prevention while also learning what surveillance is involved in your facility and how to report what you find.
- **Stage 2:** In days 61-120, you will continue to report what you observe, but should also connect with those people in your facility and expand your knowledge base.
- **Stage 3:** This stage runs from the end of the first four months to the end of the first year. By this point, you've learned infection prevention basics and can start to serve as your facility's source of infection prevention-related tips and information.
- **Stage 4:** Stretches from after the first year until you've passed the CIC exam. We haven't included a specific end time for this stage because each person is a little different. You may find you are ready to pass the CIC exam after three years on the job or you may not be ready until after four or five years. There is no right or wrong time frame.

**How do I use the Novice Roadmap?**

Each stage builds on information you mastered in the previous stage. Thus, someone brand new to the job looks at all entries related to Stage 1. If you've been on the job for six months, then you should technically be in Stage 3. However, you need to have mastered all the skills and knowledge listed in Stages 1 and 2 before going to Stage 3.

**Should I have completed each stage during the suggested time allotted? Is it bad if I haven't finished by that time?**

The dates are just a rough guide to when you should have done something or learned something. However, these aren't absolute deadlines. For example, some people may take longer than 90 days to get through Stage 1.

**Do I have to get all the items listed in the Resources area?**

We picked the items in the Resources area because they are well-known, highly respected information sources that all infection preventionists should have at their disposal. But although we've highlighted many free resources, we've also included some things that may have an expense. (We've indicated when an item isn't free by putting a \$ next to it.)

Before you buy the resource, check around. It's possible that your facility or maybe someone in your local APIC chapter might have the resource and you can borrow it.

**If I follow the Roadmap, will I pass the CIC exam?**

Although we made sure that all the competencies listed in the CIC Content Outline (<https://www.apic.org/certification/candidate-handbook/online-handbook/preparing-for-the-examination>) are found somewhere on

# Identification of Infectious Disease Processes

Stage 1: Days 1 - 60	Stage 2: Days 61 - 120	Stage 3: Days 121- End of Year 1	Stage 4: Beginning of year 2 - Passing the CIC Exam
<p><b>Learn infectious disease processes:</b></p> <ul style="list-style-type: none"> <li>Describe how to interpret diagnostic/laboratory reports</li> <li>Know the following terms associated with the infectious disease process:                             <ul style="list-style-type: none"> <li>Define colonization, infection, and contamination</li> <li>Geographic distribution</li> <li>Reservoirs</li> <li>Incubation periods</li> <li>Periods of communicability</li> <li>Modes of transmission</li> <li>Signs and symptoms</li> <li>Susceptibility</li> </ul> </li> </ul>	<p><b>Understand the basics characteristics of microbiology/ virology:</b></p> <ul style="list-style-type: none"> <li>Bacteria</li> <li>Fungi</li> <li>Parasites</li> <li>Viruses</li> </ul> <p><b>Differentiate normal flora versus pathogenic flora by site:</b></p> <ul style="list-style-type: none"> <li>Respiratory tract</li> <li>Genitourinary tract</li> <li>Gastrointestinal tract</li> <li>Skin, eye, ear</li> <li>Bone and joints</li> <li>Blood</li> <li>Central nervous system</li> </ul>	<p><b>Determine methods of antimicrobial susceptibility testing at your facility (e.g., minimum inhibitory concentration versus disc diffusion)</b></p> <ul style="list-style-type: none"> <li>Differentiate among prophylactic, empiric, and therapeutic uses of antimicrobials</li> </ul>	<p><b>Recognize limitations and advantages of the types of tests used to diagnose infectious processes</b></p>
<p><b>Identify epidemiologically significant infectious diseases that require immediate review and investigation (Check with state health department for complete list):</b></p> <ul style="list-style-type: none"> <li>Tuberculosis</li> <li>Neisseria meningitidis</li> <li>Influenza</li> <li>Measles</li> <li>Pertussis</li> <li>Varicella</li> <li>Mumps</li> </ul>	<p><b>Continue to learn about important infectious diseases, such as:</b></p> <ul style="list-style-type: none"> <li>Viral Hepatitis</li> <li>HIV/AIDS</li> <li>MERS - Coronavirus</li> <li>Norovirus</li> </ul>		

## Stage 1: Days 1 - 60

Task/skill	Track
<p><b>Become familiar with APIC:</b></p> <ul style="list-style-type: none"> <li>Join local APIC chapter</li> <li>Browse APIC website</li> </ul>	<ul style="list-style-type: none"> <li>Complete your APIC member profile</li> <li>Find a mentor (Connect with Membership services team)</li> </ul> <p>PD</p>
<p><b>Subscribe to APIC IP Talk &amp; other lists as appropriate</b></p>	PD
<p><b>Introduce yourself to facility personnel with whom you will interact:</b></p> <ul style="list-style-type: none"> <li>Lab/microbiologist</li> <li>Employee health</li> <li>Infectious disease physicians</li> </ul>	PD
<p><b>Assess your IT [information technology] needs:</b></p> <ul style="list-style-type: none"> <li>What software programs do you have/need?</li> <li>What training do you need for those programs?</li> <li>What access/passwords do you need?</li> <li>Learn your facility's electronic medical records system</li> </ul>	PD
<p><b>Learn infectious disease processes:</b></p> <ul style="list-style-type: none"> <li>Describe how to interpret diagnostic/laboratory reports</li> <li>Know the following terms associated with the infectious disease process:                             <ul style="list-style-type: none"> <li>Define colonization, infection, and contamination</li> <li>Geographic distribution</li> <li>Reservoirs</li> <li>Incubation periods</li> <li>Periods of communicability</li> <li>Modes of transmission</li> <li>Signs and symptoms</li> <li>Susceptibility</li> </ul> </li> </ul>	ID
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<p><b>Learn about multidrug-resistant organisms (MDRO) identification and infection prevention implications, for example:</b></p> <ul style="list-style-type: none"> <li>Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA),</li> <li>Vancomycin-resistant <i>Enterococcus</i> (VRE),</li> <li>Multidrug-resistant Gram-negative rods [extended spectrum beta lactams ESBL, carbapenem-Resistant Enterobacteriaceae (CRE), <i>Acinetobacter baumannii</i>, etc.]</li> </ul>	ID

a structure and a common language for trainer and trainee. APIC Board of Directors member, Gail Fraine, used a draft version of the Roadmap when orienting a new IP. She said, “The APIC Novice Roadmap provided a structure of specific elements defining the basic foundation of infection prevention as well as necessary skills and knowledge expectations. It also provided a plan for future growth and development of the infection preventionist.”

### WHAT DOES THE ROADMAP NOT DO?

Having said that, following the Roadmap doesn't guarantee that the novice will pass the CIC exam. However, going through all the boxes on the Roadmap and in the order in which they're written will give the novice the time to learn and reinforce that learning before being tested. More importantly, although it outlines what the novice will need to know and do, it will still be the novice's responsibility to go through all the boxes and learn the information and gain the skills.

### FUTURE OF THE ROADMAP

As of now, the Roadmap is much like maps before the Internet: flat, static, up to the user to follow it. The future looks very different.

**Interactive and customizable.** The Roadmap will become much more like Google maps and other mapping applications and will “learn” what the APIC member has learned through APIC class activities, self-declared training, or from prior experience, and will adjust the route accordingly. Thus, if a member says that he or she has learned everything about microbiology, then the individual's Roadmap and education suggestions will be adjusted to remove microbiology topics or resources.

**Testable.** Before a novice can check off achievement of a box on the Roadmap, he or she will be able to test the skills or knowledge gained in that box by answering some test questions. Of course, this won't apply to tasks that are specific to the individual's facility or to most items in the professional development track.

**Linkage to badges and certificates.** As users move through the Roadmap, they will earn badges of achievement (for example, finishing all tasks in Stage 1)

and certificates (for example, finishing all tasks related to Microbiology). The badges and certificates will be a fun way for the novice to show progress. (It's important to note, though, that these are not certifications. The only certification related to infection prevention is the CIC.)

**Linked to a revised professional development track for the IP.** This year, APIC's Professional Development Committee (PDC) will announce the specifics of the Advanced Designation Program, which will create a system for APIC's most experienced IPs to achieve the highest level on the APIC Competency Model. Once that's complete, the PDC will then develop the Roadmap for the Proficient IP, which will build on skills and knowledge gained from the Novice Roadmap and prepare those in the middle band of the APIC Competency Model to eventually gain Advanced status.

**Linked to learning resources.** By December 31, 2017, APIC will offer education, in one form or another, for every box on the Roadmap. Plans are moving forward now to develop a range of educational resources. In the future, the novice will be able to interact with his or her individual Roadmap, then find something, whether in a face-to-face class, an online class, a webinar, the APIC Annual Conference, or a variety of other delivery methods, to meet his or her needs.

### CONCLUSION

Ultimately, the Novice Roadmap is only a map. It's still up to the individual novice IP to do all the work. But, even with that caveat, its potential impact is huge.

“We want to sustain the profession by offering succession tools like the Novice Roadmap that can help not only those who are training novice infection preventionists, but also novice infection preventionists who work through the Roadmap alone,”

## ROADMAP FOR THE NOVICE INFECTION PREVENTIONIST: TEAM MEMBERS

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says Lela Luper, Education Committee vice chair. “The goal is to provide a tool that might alleviate frustration as well as deter novices from wanting to choose an alternate profession.”

Both Lela Luper and Kit Reed will speak about the Novice Roadmap in an education session at the APIC 2015 Annual Conference in Nashville, June 27–29. 

*Bill Bridges, PhD, is APIC senior director of education.*

### Reference

1. Murphy, D., et al. (2012) Competency in infection prevention: a conceptual approach to guide current and future practice. *American Journal of Infection Control*, 40(4):296-303.



**The Roadmap for the Novice Infection Preventionist is included with this issue of *Prevention Strategist*. You may also access it online. Visit [apic.org/roadmap](http://apic.org/roadmap) to download this resource. Member login is required.**

**The Education Committee welcomes member feedback on the roadmap so we can continue to meet member needs. Email [education@apic.org](mailto:education@apic.org) with your feedback.**