



EVIDENCE-BASED PRACTICE

Step by Step

Following the Evidence: Planning for Sustainable Change

The EBP team makes plans to implement an RRT in their hospital.

This is the eighth article in a series from the Arizona State University College of Nursing and Health Innovation's Center for the Advancement of Evidence-Based Practice. Evidence-based practice (EBP) is a problem-solving approach to the delivery of health care that integrates the best evidence from studies and patient care data with clinician expertise and patient preferences and values. When delivered in a context of caring and in a supportive organizational culture, the highest quality of care and best patient outcomes can be achieved.

The purpose of this series is to give nurses the knowledge and skills they need to implement EBP consistently, one step at a time. Articles will appear every other month to allow you time to incorporate information as you work toward implementing EBP at your institution. Also, we've scheduled "Chat with the Authors" calls every few months to provide a direct line to the experts to help you resolve questions. Details about how to participate in the next call will be published with May's *Evidence-Based Practice, Step by Step*.

After the evidence-based practice (EBP) team of Rebecca R., Carlos A., and Chen M. synthesized and appraised the evidence they found to answer their clinical question, they concluded that rapid response teams (RRTs) were effective in reducing both code rates outside the ICU (CRO) and non-ICU mortality (NIM), excluding patients with do not resuscitate (DNR) orders (see "Clinical Appraisal of the Evidence: Part III," November 2010). They also decided that a reduction in unplanned ICU admissions (UICUA) may be a reasonable outcome to expect. In addition, they chose the members of their RRT: an advanced practice nurse, a physician, an ICU staff nurse, a respiratory therapist, and a chaplain.

The team's next step is to develop a plan to implement an RRT in their hospital. They begin by planning how to collect baseline data on their chosen outcomes so they can evaluate the RRT's impact on those outcomes. Carlos explains to the team that measuring outcomes, typically before and after implementing an intervention, is

essential to documenting the impact of the EBP implementation project on health care quality and/or patient outcomes.¹ Rebecca adds that they'll also need to consider cost as an outcome and must plan for how to capture the costs of the RRT as well as evaluate the cost savings for positive changes in CRO, NIM, and UICUA.

THE IMPLEMENTATION PLAN

Rebecca and Chen are excited about the plan to implement an RRT in their hospital and tell Carlos how much they appreciate his ongoing support. Carlos checks in often with the team now that the project is under way. His experience as an expert EBP mentor has taught him the importance of assessing the team's progress at frequent intervals to see how he can support them.

To help the team develop a detailed plan for implementing an RRT in their hospital, Carlos provides them with an EBP Implementation Plan template that he used in his EBP Graduate Certificate Program (Figure 1). This plan was developed using the Advancing Research and

Clinical Practice Through Close Collaboration (ARCC) model, in which EBP mentors are key facilitators of sustainable change. Carlos explains that even though they now have a template to guide them in the process, EBP implementation can be unpredictable. The team cannot anticipate all of the challenges or organizational nuances they may encounter in launching an RRT in their hospital.

Preliminary checkpoint catch-up. The team reviews the template, beginning with the Preliminary Checkpoint, to determine which steps they've already taken and which they'll need to prepare for going forward. They've already completed checkpoints one through four, but two steps in the preliminary checkpoint still need to be addressed: identifying key stakeholders and acquiring approval from the internal review board (IRB; sometimes called the ethics review board, or the human subjects or ethics committee). The team members discuss their roles in the project and agree that these may evolve as the implementation plan develops.

Key stakeholders. Carlos tells Rebecca and Chen that considering who would be stakeholders in a project—in this case, those individuals or groups that may be affected by or can influence the implementation of an RRT—is a step that’s often overlooked. He explains that *active stakeholders* are those people who have a key role in making the project happen. *Passive stakeholders* are those who may not be actively involved in the project but who could promote or stymie its success. Carlos advises the team to consider all potential stakeholders, as theirs is an organization-wide project and some stakeholders may not be obvious. He asks Rebecca and Chen to think about the outcomes of the project and to which stakeholders throughout the hospital they’d be important. The team discusses that, as staff nurses, they don’t always think about their work from an organizational standpoint. Carlos says that thinking about the project in an organization-wide context will help them figure out who needs to be on the team. He provides examples of stakeholders who would not only be critical to the RRT process but who might also have connections that could be important to the project’s success. For example, connecting with key councils (practice, quality, critical care) or work groups (education, communications) may provide access to already-established processes for introducing a policy into the organization.

The team preliminarily identifies the members of their RRT, patients, staff nurses, and administrators as active stakeholders. They identify the finance, risk management, and education departments, mid-level managers, and the chief executive and chief nursing officers as potential passive stakeholders.

The team agrees that although these may not be all of the stakeholders—more may be identified as planning continues—they’re likely key players who need to be included in the implementation plan for now. Carlos tells the team that it’s important to keep thinking about who will impact the project and whom the project will impact, so that everyone who needs to be on board with the plan is brought on early.

IRB approval. Carlos explains that an IRB is charged with making sure that subjects involved in a research study are safe and that the research is conducted in such a way that the findings are applicable to a broader population than just those in the study, which is known as *generalizability*.² The team discusses whether they need to submit their implementation plan to their hospital’s IRB for approval, since they’re not conducting research. Although they’ll be collecting outcomes data to evaluate whether they’re achieving the expected outcomes cited in the literature, their evidence-based RRT intervention is a best practice improvement project, not a research study. Still, Carlos stresses that the team has an obligation to publish how their evidence-based intervention works in their hospital. He reminds them that the seventh step in the EBP process is to disseminate results so others can learn how a project was implemented and evaluated (the process) and whether the outcomes identified in the literature were obtained (the *project outcomes*, or end points) (see “The Seven Steps of Evidence-Based Practice,” January 2010). Carlos tells Rebecca and Chen that if they’re going to publish their project, they’ll need to submit their implementation plan for IRB approval. Moreover, they

cannot collect their baseline data without prior IRB approval. The team discusses that when they write up their project, they can address some of the issues they had with the reporting of implementation projects in the literature, such as how differences in the formatting of these reports makes it hard to synthesize the data (see “Clinical Appraisal of the Evidence: Part III,” November 2010). For these reasons, the team feels it’s essential that they publish their project, so they’ll pursue IRB approval.

Considering who would be stakeholders in a project is a step that’s often overlooked.

Before the team begins writing up their implementation plan (which they will reformulate as an IRB proposal), they discuss an essential assumption they hold, which is that all patients who enter a hospital sign a “consent for treatment” expecting clinicians and others caring for them to provide the best care possible. Although patients may not refer to their care as *evidence-based practice*, the EBP team feels strongly that patients’ expectations reflect professional practice in which daily decisions are made based on the best evidence available. With this expectation and their decision to publish the project in mind, the team discusses that the outcomes data will be used in a way that wasn’t covered in the consent for treatment. Thus, the IRB review of their proposal should reveal any ways in which publishing the outcomes of the project could put recipients of the practice change at risk. In effect, the IRB would be reviewing the plan to make sure that the data from those patients

Figure 1. EBP Implementation Plan Template

ARCC EBP Implementation Plan	
PICOT Question:	
Team Members:	
EBP Mentor and Contact Info:	
Preliminary Checkpoint	<p>Notes:</p> <ul style="list-style-type: none"> Who are the stakeholders for your project <ul style="list-style-type: none"> Active (on the implementation team) and Supportive (not on the team, but essential to success) Identify project team roles and leadership Begin acquisition of any necessary approvals for project implementation and dissemination (for example, system and unit leadership, internal review board [IRB]) Begin relationship with EBP Mentor
Checkpoint One	<p>Notes:</p> <ul style="list-style-type: none"> Hone PICOT question and assure team is prepared Build EBP knowledge and skills Begin relationship with EBP Mentor
Checkpoint Two	<p>Notes:</p> <ul style="list-style-type: none"> Conduct literature search and retain studies that meet criteria for inclusion Connect with librarian Meet with implementation group – TEAM BUILD Begin relationship with EBP Mentor
Checkpoint Three	<p>Notes:</p> <ul style="list-style-type: none"> Critically appraise literature Meet with group to discuss how completely evidence answers question; pose follow-up questions and re-review the literature as necessary Begin relationship with EBP Mentor
Checkpoint Four	<p>Notes:</p> <ul style="list-style-type: none"> Meet with group Summarize evidence with focus on implications for practice and conduct interviews with content experts as necessary to benchmark Begin formulating detailed plan for implementation of evidence Include who must know about the project, when they will know, how they will know Begin relationship with EBP Mentor
Checkpoint Five	<p>Notes:</p> <ul style="list-style-type: none"> Define project purpose—connect the evidence and the project Define baseline data collection source(s) (for example, existing datasets, electronic health record), methods, and measures Define postproject outcome indicators of a successful project Gather outcome measures Write data collection protocol Write the project protocol (data collection fits in this document) Finalize any necessary approvals for project implementation and dissemination (for example, system leadership, unit leadership, IRB) Begin relationship with EBP Mentor

Checkpoint Six (about midway)	<ul style="list-style-type: none"> • Meet with implementation group • Discuss known barriers and facilitators of project • Discuss strategies for minimizing barriers and maximizing facilitators • Finalize protocol for implementation of evidence • Identify resources (human, fiscal, and other) necessary to complete project • Supply EBP Mentor with written IRB approval and managerial support • Begin work on poster for dissemination of initiation of project and progress to date to educate stakeholders about project—get help from support staff • Include specific plan for how evaluation will take place: who, what, when, where, and how, and communication mechanisms to stakeholders • Begin relationship with EBP Mentor 	Notes:
Checkpoint Seven	<ul style="list-style-type: none"> • Meet with implementation group to review proposed poster • Make final adjustment to poster with support staff • Inform stakeholders of start date of implementation and poster presentation • Address any concerns or questions of stakeholders (active and supportive) • Begin relationship with EBP Mentor 	Notes:
Checkpoint Eight	<ul style="list-style-type: none"> • Poster presentation (preferred event is a system-wide recognition of quality, research, or innovation) • LAUNCH EBP implementation project • Begin relationship with EBP Mentor 	Notes:
Checkpoint Nine	<ul style="list-style-type: none"> • Midproject meet with all key stakeholders to review progress and provide outcomes to date • Review issues, successes, aha's, and triumphs of project to date • Begin relationship with EBP Mentor 	Notes:
Checkpoint Ten	<ul style="list-style-type: none"> • Complete final data collection for project evaluation • Present project results via poster presentation—locally and nationally • Celebrate with EBP Mentor and Agency Leadership 	Notes:
Checkpoint Eleven	<ul style="list-style-type: none"> • Review project progress, lessons learned, new questions generated from process • Consult with EBP Mentor about new questions 	Notes:

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who receive the intervention will be treated confidentially.

The team discusses that their RRT intervention is supported by studies of RRTs that were submitted to and approved by their respective IRBs; that the IRB approvals of these RRT projects lends confidence to their intervention. Rebecca and Chen know it's important that their plan be reviewed, but they express concern about how to engage the IRB process. Carlos tells them that the IRB has several forms available to assist clinicians and researchers in pinpointing those aspects of their

study or project that may increase risk of any kind to the people involved. The team seeks out more information on their hospital's Web site and finds the appropriate form for an implementation project. They agree to complete the form together as they develop their implementation plan.

Checkpoint five and forward.

As the team moves on to Checkpoint Five in the EBP Implementation Plan template, Carlos talks to them about the critical importance of defining the purpose of the project.

Purpose of the project. A clearly defined purpose sets the entire planning process in motion, Carlos says; it's the touchstone of the project that the team can return to periodically to ensure they're on course. The team agrees that the purpose of their project is *to implement and evaluate the effectiveness of an RRT in their hospital.*

Baseline data collection. Carlos tells the team that collecting data prior to implementation of the RRT is important because it will help determine the extent of any already existing problems as well as enable the evaluation of the project outcomes.³ He explains that various data are generated within the hospital, which he calls *internal evidence*. The sources for these data are in various locations and are referred to in a variety of ways, such as: quality management, risk management, finance, and human resources departments; clinical systems; operational systems; and electronic medical records/information technology (see Table 1). Carlos tells the team that internal evidence that's collected for federal and state agencies or for regulatory and specialty organizations, such as the American Nurses Credentialing Center's Magnet Recognition Program, can also be used as outcomes. As an example, he provides reports from their hospital's quality committee that include

data for CRO, UICUA, and overall hospital mortality. Chen asks what it will require to get data only for NIM. Carlos replies that he'll have to find out which department in the hospital creates quality committee reports and ask if NIM data can be culled from the overall hospital mortality data. He explains that there are many data repository systems within the hospital and that each system may collect different data and may require a different way of requesting those data. Carlos helps the team understand that obtaining data may be complicated at times, but one's success greatly depends on knowing whom to ask.

To help the team capture the outcomes data they'll need to obtain at baseline and again after the project, Carlos recommends they work with the information technology and finance departments. Chen asks if putting the outcomes in a chart would help to clearly outline the "who, what, when, where, and how" of baseline data collection. The team agrees that this would help them understand the financial outcomes (sometimes referred to as the business case), the process and structure of the project,⁴ and the patient outcomes that will be measured at the end of the project (see Table 2).

The process. The team discusses how to ensure that the process of implementing an RRT in their hospital goes well. Rebecca reminds the team about their and the MERIT trial authors' observations on how the MERIT trial was conducted, particularly on how the RRT protocol was implemented.⁵ (The control hospitals' code teams may have functioned as RRTs, which could explain why there was no difference between the control group and the intervention group; see "Critical Appraisal of the Evidence, Part II," September 2010). She asks the group for ideas about how they can collect data on the process of

Table 1. Potential Sources and Types of Internal Evidence

Source of Data	Type of Data
Quality Management	Hospital quality indicators Nursing quality indicators Patient satisfaction Regulatory/accreditation requirements
Risk Management	Incident reporting Medication errors Sentinel events Patient complaints
Finance	Admission, transfer, and discharge data Billing and coding, capital and operation budgets Medicare-severity diagnosis-related groups (MS-DRGs) Cost and return on investment data
Clinical Systems	Monitoring devices and equipment
Operational Systems	Patient tracking and flow Staffing and scheduling
Electronic Medical Records/Information Technology	Patient history Patient assessment Diagnostic test results Medication regime Plan of care
Data collected, submitted to and benchmarked with outside sources	National Database of Nursing Quality Indicators Centers for Medicare and Medicaid Services Patient satisfaction survey organizations

Table 2: Considerations in Measuring Outcomes for the RRT Implementation Project

Making the Case	Data Needed for an RRT	Processes/Outcomes to Be Measured
<p>The strategic case: Evaluate project in relation to its impact (high volume, high risk, high cost) and the strategic priorities of the organization (business plan, accreditation, reimbursement, licensing)</p>	<p>Hospital strategic plan; CRO, UICUA, and NIM data; and expected targets for these data, if identified</p>	<ul style="list-style-type: none"> • CRO, UICUA, and NIM before (and after) implementing a system-wide RRT
<p>The business case (financial outcomes): Calculate net return on investment—for example, cost of project minus cost offset by reducing identified outcomes</p>	<p>Actual cost assessed for supplies, staff education, RRT members providing the service, other infrastructure for the RRT team (special process for calling an RRT, for example), identified outcomes</p>	<ul style="list-style-type: none"> • Cost savings from prevention of CRO, UICUA, and NIM before (and after) implementing a system-wide RRT
<p>The resources case (assess/identify resources needed to achieve outcomes):</p> <p>Infrastructure: Policies, procedures, documentation systems, and data-reporting processes</p> <p>Supplies: New equipment or supplies needed for the project</p> <p>Human resources: Identify departments that will be supporting the project (such as, nursing, respiratory, physicians, information systems, purchasing, education, pastoral care)</p>	<p>Identification of:</p> <p>Policy for how to activate RRT:</p> <ul style="list-style-type: none"> • Define who will write policy • List committees needed to approve policy • List processes for rolling out new policy <p>Equipment required for early intervention care</p> <p>Human resources support for hiring personnel to fill RRT roles or to backfill positions vacated to fill RRT</p>	<ul style="list-style-type: none"> • Policies and protocols developed to facilitate RRT • Documentation systems adjusted to accommodate RRT record • Electronic data reporting available to capture RRT process and outcome • Redo code cart to add RRT box containing supplies/equipment that may expedite early intervention care • RRT members evaluation of their role
<p>Process measures to achieve outcomes (sometimes called process outcomes): Staff education plan, project data collection, staff and family feedback</p>	<p>Staff education plan RRT project data collection tool Staff feedback tool Family feedback tool</p>	<ul style="list-style-type: none"> • Staff education completion rates • Quality of RRT project events, such as how RRT protocol was followed • Effectiveness of RRT project events • Timeliness of project events, such as time frame from call to RRT arrival • Family and staff response to how RRT is delivered (the intervention protocol) • Outcomes of each RRT call

CRO = code rates outside the ICU; NIM = non-ICU mortality; RRT = rapid response team; UICUA = unplanned ICU admissions.

implementing the RRT to demonstrate that they have done it well. Carlos says that how well they implement the intervention is called the *fidelity of the intervention*. He recommends keeping good notes on the work being done. They talk about the need to develop a project data collection tool that staff can use when calling the RRT. Chen volunteers

to develop this form, using similar forms in the literature they reviewed as a basis. Carlos suggests that maybe Chen should see if anything new has been published, since it's been a few months since they completed their literature search.

The team talks about the importance of measuring the costs and benefits of the RRT, especially

its benefits divided by the costs, which Carlos notes is called its return on investment (ROI). Carlos suggests that the team meet with the finance department to discuss their plan to measure the costs and ROI of an RRT. Rebecca volunteers to be responsible for obtaining the financial data and requests that Carlos be available for support, if needed,

to which he readily agrees. Chen agrees to work with Carlos to ensure that data on CRO, UICUA, and NIM are systematically collected and to focus on the *process outcomes* (how well the RRT project is implemented). For example, if there was a breach in protocol implementation—in how well the RRT protocol was delivered to the active stakeholders, for instance—that breach could lead to an outcome that was different from what was expected. This unexpected outcome may not be because the RRT intervention didn't work, but because of a glitch in the process: the RRT protocol wasn't delivered as planned.

As work on the project is planned and discussed, the roles of the team naturally begin to fall into place. As part of formulating the implementation plan, they discuss what questions about data collection they'll need to ask in order to measure their outcomes of CRO, UICUA, and NIM (see *Questions to Ask in Preparation for Data Collection*). Carlos reflects back on the definitions and measures the team discussed in their appraisal of the evidence and how the different definitions of mortality

(whether it included DNR cases, for example) led to some confusion about comparing the impact of an RRT on that variable (see "Critical Appraisal of the Evidence: Part II," September 2010). He explains the importance of how the data are measured (what mechanisms are used, for example, and why and how to know they're good methods for measuring the data). He says that in order to determine the impact of an EBP project such as the implementation of an RRT, the data must be measurable (able to be counted), accessible (the team has access to the data), and user friendly (understandable and able to be used without difficulty). Chen and Rebecca decide they want to create a data collection plan that meets all of these criteria. With the questions on data collection to guide them, they realize that multiple disciplines within the hospital (not only nursing) will be involved in helping to collect the baseline data for the project.

From the team's discussion, Rebecca and Chen put together a preliminary plan for evaluating the RRT project, keeping the following key areas in mind: the strategic case, business case, resources

case, and process measures (see Table 2). They also add the following process outcomes to their plan: the number of staff educated on the RRT, the number of RRT calls, the primary reasons for calling an RRT, and family and staff satisfaction with the RRT process.

In the March column, join Rebecca, Chen, and Carlos as they move through the next several steps of the EBP implementation process, including identifying and planning for the barriers they may encounter as the EBP change is rolled out, as well as providing system-wide education on the intended use and expected outcomes of an RRT. ▼

Ellen Fineout-Overholt is clinical professor and director of the Center for the Advancement of Evidence-Based Practice (CAEP) at Arizona State University in Phoenix, where Lynn Gallagher-Ford is assistant director, Susan B. Stillwell is associate director, and Bernadette Mazurek Melnyk is dean and distinguished foundation professor of nursing at the College of Nursing and Health Innovation. Kathleen M. Williamson is former associate director of the CAEP. Contact author: Ellen Fineout-Overholt, ellen.fineout-overholt@asu.edu.

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Questions to Ask in Preparation for Data Collection

- How are the outcomes defined?
- What data will be used to measure the outcomes?
- Who "owns" the data needed for this project?
- Who will (or already does) generate the data needed for the project?
- What special clearances are required to access the data?
- What are the restrictions for sharing these data?
- Who will be responsible for collecting the data?
- When will the data be collected?
- Where are the data located in the hospital?
- How will the evidence-based practice (EBP) team access the data?
- How will the EBP team store the data?
- What program will the EBP team use to analyze the data?
- Who will help the EBP team with data analysis?
- How will the EBP team manage the data (data entry, cleaning, labeling)?