

# AI's Impact on CDI

The most common impacts from the implementation of CDI technology are increases in remote work and in productivity (cited by 67% each), followed by identifying “low-hanging fruit” queries (65%) and improving documentation issues with high-volume DRG groups (54%).



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In the United States and worldwide, the advent of artificial intelligence (AI) has prompted a wealth of software applications across various industries. Healthcare and CDI are no exception. Though the AI-centric software solutions available to CDI are by no means well established, they are presently budding, undergoing fundamental developments that may shape the future of CDI for years to come.

To explore these avenues, the recent CDI Leadership Council survey—produced by the Association of Clinical Documentation Integrity Specialists (ACDIS) in partnership with Solventum—explored respondents' focus areas for a number of AI software solutions; potential challenges to software adoption and implementation; staff involvement in selecting, piloting, and launching technology; as well as AI's impact on CDI work and future hopes for the industry.

Several Council members were then asked to take a closer look at the survey data and discuss how CDI leaders and specialists can best address these topics and most efficiently solve the problems within each domain. The following is a review of the results and a summary of the discussion.

## CDI software use

According to the survey, the most commonly used CDI software solution that also has a positive impact on performance is the electronic grouper (75%), followed by electronic querying (70.5%). Most solutions cited have had either a positive impact or no noticeable impact. (See Figure 1.)

When it comes to negative impacts, 4% said that chart prioritization has had a negative impact, followed by 3.3% who said the same about computer-assisted coding (CAC) and 3% who said the same about computer-assisted physician documentation (CAPD). According to survey respondents, the solution with the most growth potential in the next year is CAPD, with 15% saying they plan to implement this solution in 2024.

The idea of CAPD is extraordinarily attractive for many CDI departments. For instance, the ability to cut down on query time is one of its most promising effects, notes **Leah Ainsworth, RHIT, CCDS, CDIP, CCS**, director of coding/CDI at Springhill Medical Center in Mobile, Alabama.

“We’ve started to just kind of feel and test the waters with our physicians to see if [CAPD] would be something that we could get some buy-in with—to get some more positive things going on because, here, we do a lot of queries,” she says.

Specifically, Ainsworth suggests that AI-driven solutions like CAPD could assist the CDI team with the repeated cycle of certain types of queries—“trending queries,” as she calls them. Though her organization hasn’t yet implemented any CAPD technology (it remains in the pilot stage), she says that many of her physicians have provided positive feedback with respect to AI “nudges”—generated suggestions offered to the provider while in the record. When

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Figure 1: CDI software use

	We use this solution and it's improved our performance	We use this solution but it hasn't changed our performance noticeably	We use this solution and it's negatively impacted our performance	We haven't implemented this solution, but we're planning to in 2024	We haven't implemented this solution and have no immediate plans to do so
CAPD	15.23%	15.23%	2.98%	15.23%	51.32%
CAC	57.95%	20.53%	3.31%	4.97%	13.25%
NLP	46.03%	24.50%	2.32%	5.63%	21.52%
Electronic querying	70.53%	12.58%	0.66%	3.97%	12.25%
Electronic grouper	74.83%	12.91%	1.66%	1.99%	8.61%
Chart prioritization	55.96%	22.19%	3.97%	6.62%	11.26%
Quality database	39.07%	21.19%	1.32%	7.62%	30.79%
Internally developed EHR modifications	43.05%	17.55%	1.66%	4.97%	32.78%

successful, these nudges can “help cut down” some of the trending queries via automatically contacting the provider within the chart itself.

According to **Kaitlyn Crowther, RHIA**, chief product owner at Solventum in Pittsburgh, Pennsylvania, while CAPD is the “newest solution” among the CDI software options mentioned, developers are continuously updating its functionalities and implementation strategies to best meet the needs of CDI departments.

“We’ve learned a lot from our early adopters and we’re getting to kind of a golden moment with sites rolling it out. We’re having now those best-practice rollout recommendations. We particularly see benefits when this [technology] is coupled with CDI workflows and the CDI specialist gets to see the same clinical rationale that physicians are receiving CAPD feedback on,” Crowther says.

In terms of desired AI capabilities, a big item for CDI departments has been chart prioritization. The ability to customize work lists to prioritize cases, and even filter within those, allows the CDI specialist to home in on cases of desired complexity, quality, outcome, etc. At Hartford Healthcare (HHC), CAC technology has been particularly helpful in this respect.

According to **Marci Pease, RN, BSN, CCDS**, CDI system manager at HHC in Hartford, Connecticut, her team was able to work with their vendor to help create a list of prioritized surgical cases, as well as symptom DRG worklists.

The CAC technology Hartford uses attaches “the system references for any possible opportunities” for CDI specialists, Pease says, including “missing diagnoses, quality issues, or even clinical validation of a diagnosis.”

For organizations considering the implementation of AI software, Pease recommends looking for technologies with this type of prioritizing function; in addition, she says a “large customizable reporting capability” within the software is a must.

## Challenges to adoption and implementation

According to survey respondents, the biggest challenge for implementing AI solutions is, unsurprisingly, budget restrictions (59.6% rated this challenge as #1), followed by customization limits (22.5% rated it as #1). The smallest challenges are resistance to change from CDI staff (31% rated it as #7) and concerns about compliance of chosen systems (24% rated it as #7). (See Figure 2.)

For organizations and departments that face budget constraints but would also like to see AI-assisted technology in their workflows, Pease counsels drafting a “high-level strategic plan” that can demonstrate a worthwhile return on investment. If executive leadership is convinced that a large short-term investment can benefit the hospital in the long run, Pease argues, they will be far more likely to authorize the purchase of the desired technology; however, in the absence of such a plan, they may deem the

Figure 2: Challenges to adoption/implementation (1 = most challenging, 7 = least challenging)

	1	2	3	4	5	6	7
Budget restrictions	59.60%	8.28%	8.94%	8.28%	6.62%	2.32%	5.96%
Concerns about compliance of the solution	6.29%	22.19%	12.91%	9.93%	12.91%	11.92%	23.84%
Customization limitations (getting what you want/need from the solution)	22.52%	27.48%	19.87%	11.59%	7.95%	7.95%	2.65%
Training for the CDI staff to effectively use the solution	4.97%	15.56%	14.90%	22.85%	13.91%	17.88%	9.93%
Training for the medical staff to effectively use the solution	7.95%	11.92%	18.21%	15.23%	23.84%	13.25%	9.60%
Resistance to change from the CDI staff	4.97%	6.29%	9.93%	15.23%	13.91%	18.87%	30.79%
Resistance to change from the medical staff	9.93%	14.24%	13.58%	17.22%	11.59%	17.55%	15.89%

technology too much of a gamble to risk the chips.

“I think having the manager or director knowing how many [FTEs] that would be required for the salary, how much would be required for a dedicated physician advisor support, and how much the solution costs the entire healthcare system—these are baseline projections that need to go to the C-suite. From there, you can then project the positive financial impacts with the implementation of the solution,” Pease says.

Crowther agrees: At a recent forum for executive leadership, she saw that many hospital leaders are “expecting ROI for any solutions they invest in” to occur “within 12 months.” Accordingly, CDI departments wishing to pitch CAC, CAPD, or any such technologies to the C-suite ought to be ready to answer difficult financial questions “clearly and up front.”

Full customization of a software solution is an excellent route for those who want to adapt AI technologies to their facilities across the board; however, it may be out of reach for departments lacking in available budget. Nevertheless, one partial workaround, according to Ainsworth, is to prioritize which factors the organization customizes.

“Sometimes you do have a higher cost associated with [customization], and usually they’re kind of complex when it comes to making sure that all those customizations meet the needs of your organization,”

Ainsworth says. “When you look at those things, and look at the budget constraints that you may have (if you are someone who has those), then those needs probably have to be the first considerations that you take note of.”

Implementing this type of software, however helpful it may be, is not always an easy gambit—neither technically nor socially. Many organizations will initially face resistance from staff for a variety of reasons. It is critical to recognize that not everyone will be on board right away, and thus organizations should identify key stakeholders who can facilitate the implementation of the technology throughout the applicable departments.

Physicians, for instance, may not immediately see a newly proposed software interface as a boon rather than a bog. One way to minimize this effect, Crowther suggests, is to have physicians in the room right at the outset.

By having the physicians in the room during the planning stages, vendors, providers, and CDI departments can work hand in hand to ensure that the technology’s functionality is optimized across workflows.

“We notice when those people aren’t at the table during rollout and implementation discussions, it can be very disjointed, and so we really want to ensure they’re part of this progress from the beginning,”

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Crowther says. “We see much better rollouts and adoption when the physicians are engaged early on with the CDI teams to decide which content they want to enable for [CAPD].”

From a general management perspective, Pease says, it’s important to give teams plenty of time to acclimate not only to the implementation of the new technology (via prioritization, implementation, education, etc.), but also to the notion that a new technology is on the horizon.

“If you’re bringing in new technology, I think it’s definitely important to start that change management process very early on to get your staff used to the idea of this new tool and solution coming down the pike. The last thing you want to do is spring something on your staff,” Pease explains. “Otherwise, I think the staff will become anxious and resistant.”

## Involvement with selecting, piloting, and launching technology

According to respondents, when it comes to solution selection, CDI directors are most likely to be involved (86%), followed by CDI managers (69%). For piloting solutions, CDI specialists are most likely to be involved (49%), followed by CDI managers (47%) and CDI second-level reviewers (43%). For launching solutions, CDI specialists are most likely to be involved (55%), followed by CDI managers (47%). CDI supervisors, interestingly, are the most commonly excluded from all portions of the process at 40%. (See Figure 3.)

**“I think it is absolutely crucial for the CDI leadership to be involved in this new technology solution selection.”**

—Marci Pease, RN, BSN, CCDS  
CDI system manager, Hartford Healthcare

As the data suggests, CDI directors are almost always included in high-level discussions regarding AI-driven solutions. Because executive leadership is far removed from the daily work of the CDI specialist, it is virtually impossible for them to know how AI solutions will be implemented on a practical level; however, CDI leaders, in their daily oversight capacity, are privy to such knowledge, making them a vital asset in AI preparation and implementation.

“I think it is absolutely crucial for the CDI leadership to be involved in this new technology solution selection. They should definitely have a seat at the table, to be there for those product demonstrations, so that they can give those pros and cons of any new potential solution that’s being proposed,” says Pease.

As all CDI departments know, clinical documentation touches every aspect in, and department of, a health system. Therefore, if AI solutions are on the horizon at a facility, the departments that will be most affected by the solutions should weigh in during the early stages of selection and implementation to facilitate effective and clear documentation workflows.

**Figure 3: Involvement with selecting, piloting, and launching technology**

	Involvement with selecting the solution	Involvement with piloting the solution	Involvement with launching the solution	N/A; not involved at all
CDI specialists	17.55%	49.01%	54.64%	19.54%
CDI second-level reviewers	13.25%	43.38%	37.09%	38.41%
CDI managers	68.87%	46.69%	47.35%	12.58%
CDI supervisors	36.75%	33.44%	31.13%	40.40%
CDI directors	86.09%	28.81%	34.77%	8.94%
Physician advisors/champions	50%	23.51%	20.86%	35.10%

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As Ainsworth observes, “Building those relationships and things with people from other departments has been something that has worked for me. We have been able to lend our expertise and skills to people and departments that are sometimes like, ‘What even is CDI?’ ”

As noted previously, physicians, providers, and particularly physician champions are critical parts of this discussion. Though CDI specialists will be the ones who leverage much of the AI technology, Crowther says it is “imperative” for physician champions to understand “why these initiatives are needed” and, furthermore, “that they ultimately hinge on the provider’s documentation.”

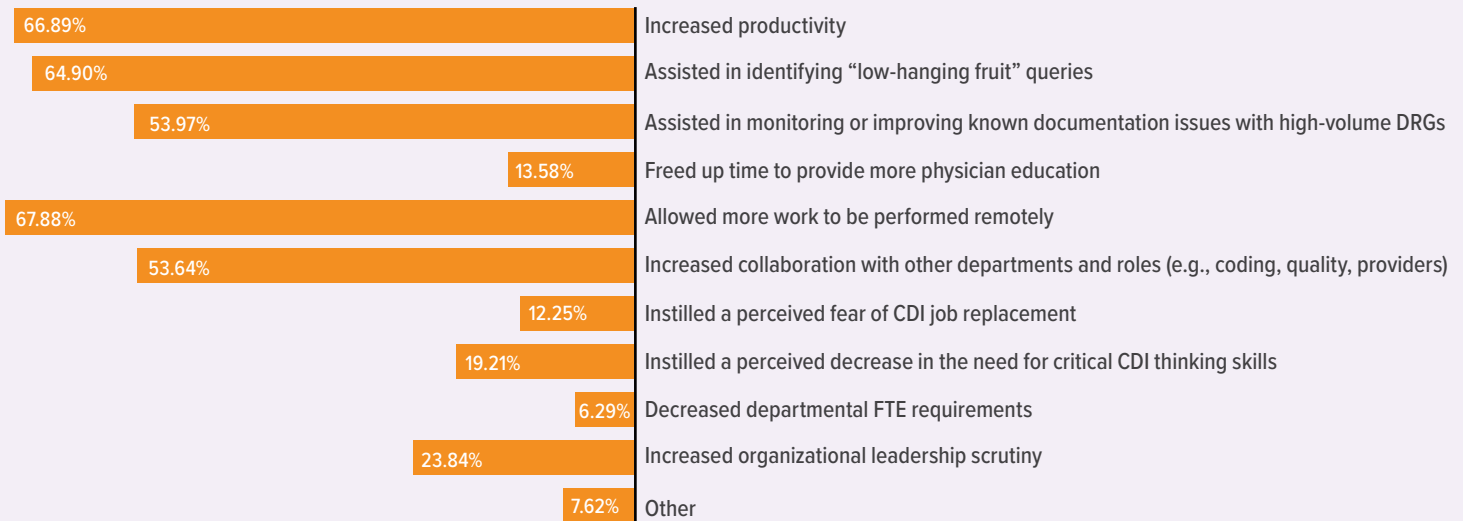
Physician champions, Crowther reiterates, are “peer-to-peer representatives that can be champions to these initiatives with their physician peers and help the rest of the health system understand why this is also important.”

## Technology’s impact on CDI work and future hopes

According to the survey, the most common impacts from the implementation of CDI technology are increases in remote work and in productivity (67% of respondents cited both of these impacts), followed by identifying “low-hanging fruit” queries (65%) and improving documentation issues with high-volume DRGs (54%). The least common impacts are decreased departmental FTE requirements (6%) and the perception that AI software is a way to replace CDI jobs (12%). (See Figure 4.)

Similarly, the impact respondents most hope to see immediately upon implementing a new solution is the ability to identify “low-hanging fruit” queries (64.6%). Monitoring issues with high-volume DRGs, freeing up time for provider education, and increased productivity are all impacts respondents hope to see within the first year after implementation. (See Figure 5.)

Figure 4: Technology’s impact on CDI work



### Selected “other” responses:

- Too soon to tell, we’ve just implemented the technology
- Our current process is manual
- We’ve seen a decrease in productivity
- We’ve seen an increase in our CDI team roles and FTEs
- We’ve had problems integrating with existing EMR and IT capabilities
- It has doubled our query rate
- No change

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Just under 49% said they don't foresee any solution limiting the need for additional staff/FTEs, and 33.44% said they don't foresee any solution giving staff more flexibility to work remotely.

For organizations interested in AI-driven solutions, the ability to eliminate simpler query opportunities sounds quite attractive. Again, with CAPD as an example, if the physician can “receive a nudge” at the point of documentation, resulting in better diagnosis capture, the CDI specialist does not need to track down the provider or send a query, letting them reallocate that time and energy elsewhere.

However, as Crowther notes, AI solutions can get a bit tricky in terms of CDI metrics. The challenge lies in maintaining data integrity.

For instance, Crowther once worked with an organization that saw a great deal of encephalopathy queries. The organization enabled a CAPD nudge for encephalopathy type, which resulted in a decrease in encephalopathy queries—no doubt a win for the organization. However, as Crowther says, the organization's overall query volume did not go down. CDI specialists were freed up to focus on more complex cases, so they spent time querying those

cases instead.

“We don't ever say, ‘Oh, your query rate is going to drop if we enable the solution,’ because it's not about dropping the overall rate. It's about being able to change your department's focus from this encephalopathy type to something else,” she explains.

However, that “something else” can take on a variety of forms—each specific to an organization's departmental needs.

For instance, at HHC, the extra time that would have been spent on querying has allowed the CDI department to pursue increased specialization within the various domains of CDI (e.g., mortalities, ambulatory care, quality improvement, etc.). Additionally, as Pease notes, the demands of the industry require consistent and recurring education. In short, even if AI-driven solutions eliminate many lower-complexity queries and give time back to specialists, the CDI work is never done.

“We encourage our CDI [staff] to be on work groups or work on specialty projects when their daily work has been completed. They're also encouraged to attend webinars and other training to keep their skills up,” Pease says. ■

Figure 5: Hopes for greater impact on CDI work

	Hope to see this impact immediately upon implementing a new solution	Hope to see this impact within the first year after implementing a new solution	Hope to see this impact within three to five years after implementing a new solution	Don't foresee this impact from any new solution
Increase productivity	44.70%	47.68%	3.31%	4.30%
Identify “low-hanging fruit” queries	64.57%	28.81%	2.65%	3.97%
Help to monitor or improve known documentation issues with high-volume DRGs	42.05%	49.01%	5.30%	3.64%
Free up time for provider education	20.86%	48.68%	11.26%	19.21%
More remote work flexibility	42.72%	20.53%	3.31%	33.44%
Increase collaboration with other departments and roles (e.g., coding, quality, providers)	36.75%	45.03%	7.62%	10.60%
Limit the need for additional staff/FTE requirements	14.24%	21.19%	15.89%	48.68%