Chapter 1
Section
1.03

Ministry of Health, Ontario Health–CorHealth Ontario

Follow-Up on 2021 Value-for-Money Audit:

Cardiac Disease and Stroke Treatment

RECOMMENDATION STATUS OVERVIEW

		Status of Actions Recommended				
	# of Actions Recommended	Fully Implemented	In the Process of Being Implemented	Little or No Progress	Will Not Be Implemented	No Longer Applicable
Recommendation 1	5	1		4		
Recommendation 2	2	1			1	
Recommendation 3	2			2		
Recommendation 4	4			3	1	
Recommendation 5	2			2		
Recommendation 6	1			1		
Recommendation 7	2	1		1		
Recommendation 8	4	1		2	1	
Recommendation 9	2	2				
Recommendation 10	3			3		
Recommendation 11	2	2				
Recommendation 12	4			2	2	
Recommendation 13	2			2		
Recommendation 14	2	1		1		
Recommendation 15	2				2	
Total	**39**	**9**	**0**	**23**	**7**	**0**
%	**100**	**23**	**0**	**59**	**18**	**0**

Overall Conclusion

The Ministry of Health (Ministry) and Ontario Health-CorHealth Ontario (OH-CorHealth), as of November 3, 2023, have fully implemented 23% of actions we recommended in our *2021 Annual Report*. The Ministry and OH-CorHealth have not made progress in implementing any other of our recommendations.

CorHealth Ontario was a standalone provincial agency during our initial audit, but was amalgamated into Ontario Health in December 2021.

The Ministry and OH-CorHealth have fully implemented recommendations such as updating the funding model for cardiac procedures, adjusting the number of transcatheter aortic valve implantation (TAVI) procedures funded to cover all eligible patients, increasing the stipend to encourage more stroke neurologists to

participate in the Ontario Telestroke Program, and completing a procurement process for computerized tomography perfusion (CT-Perfusion) that provides all eligible hospitals with access to this software at a centrally negotiated price.

However, the Ministry and OH-CorHealth have made little progress on 59% of the recommendations, including the development of new wait-time targets, the development and implementation of a plan to expand its Integrated Heart Failure Care Initiative, and the establishment and execution of a plan to implement the recommendations in CorHealth Ontario's Cardiac, Stroke and Vascular Rehabilitation Call-to-Action report.

The Ministry and OH-CorHealth informed us that, due to the COVID-19 pandemic and health human resources constraints, they were required to re-prioritize activities to address immediate challenges, and this was also true for hospital operations. This limited their ability to progress toward implementing our recommendations. The Ministry will not implement 18% of our recommendations, such as expanding CorHealth Ontario's role to include prevention, non-hospital care, and the ability to provide performance-based funding to hospitals. The Office of the Auditor General of Ontario continues to support the implementation of these important recommendations.

The status of actions taken on each of our recommendations is described in this report.

Background

In 2021, the Ministry of Health (Ministry) provided funding of about $1.1 billion to hospitals to perform cardiac and stroke procedures and provide in-hospital care for cardiac and stroke patients. This treatment occurred primarily at 20 designated cardiac centres and 28 designated stroke centres—hospitals with the specialized equipment and staff expertise needed to perform cardiac and stroke procedures.

Overall, our audit found that emergency/acute treatment for cardiac disease and stroke was generally being provided in alignment with best practice standards and guidance, including those adopted by CorHealth Ontario (CorHealth) from Heart & Stroke, a Canadian charity involved in research, advocacy and health-promotion programs related to cardiac disease and stroke. We also found that the overall mortality rate following cardiac and stroke events in Ontario was similar to or lower than the rates in other Canadian provinces.

Nonetheless, provincial treatment-time targets for emergency cardiac and stroke procedures were not being met. We identified opportunities to provide better or more cost-efficient treatment. For example, we found that while many patients were well enough to no longer require care in acute hospital beds, they still had to stay in those beds while waiting to be transferred to a more appropriate care setting, such as an inpatient rehabilitation setting or a long-term care home. We estimated that, in 2019/20 alone, if these patients had been transferred without delay to more appropriate care settings, the Province would have saved over $150 million.

The following were some of our significant findings:

- The amount of dedicated funding given to hospitals was outdated and did not cover the actual costs or patient demand for cardiac procedures, leading to delays in performing some procedures. For example, CorHealth estimated that in 2018/19, hospitals were underfunded by about $28 million compared with their actual costs to perform cardiac procedures. While hospitals could make up for funding shortfalls by taking from the hospital's global budget, this budget had to cover all hospital operations. As a result of the funding deficit, hospitals were delaying some cardiac procedures to the upcoming year, when additional dedicated funding was due to be provided. For example, one hospital informed us that in 2019/20 it saw 325 cardiac patients that needed transcatheter aortic valve implantation (TAVI) procedures, but because the hospital was funded for only 265 TAVI procedures, it deferred 60 of these procedures until 2020/21. Nine of these patients died in 2020/21 before a TAVI procedure could be performed.

- Hospitals were generally not providing timely emergency treatment for heart attacks. CorHealth had set treatment-time targets for a procedure called primary percutaneous coronary intervention (PPCI), used to reopen the artery and restore blood flow for patients. Under the targets, 75% of such patients should receive a PPCI within 90 minutes of arriving at a hospital that performs PPCI, or within 120 minutes of arriving at a hospital that does not perform PPCI (which requires that the patient be transferred). Between the second quarter of 2017/18 (when CorHealth started regularly collecting data) and 2020/21, fewer than 60% of such heart attack patients received a PPCI procedure within the target times.
- Wait lists for cardiac procedures grew, resulting in worsening health conditions and more deaths while people waited. During the five-year period before the COVID-19 pandemic, the average number of patients on wait lists for cardiac procedures grew about 44% (from 5,450 in 2015/16 to about 7,850 in 2019/20) and the number of patients dying while on a wait list grew about 42% (from 147 in 2015/16 to 209 in 2019/20). During the pandemic (which started impacting health-care delivery at the end of 2019/20 and through 2020/21), the average number of patients waiting for cardiac procedures grew further by over 6% (from about 7,850 in 2019/20 to about 8,340 in 2020/21) and the number of people dying while on a wait list grew further by over 10% (from 209 to 231).
- Hospitals were often not providing timely emergency treatment for stroke. "Time is brain" is a fundamental rule of stroke treatment: the longer the delay in treatment, the more permanent brain damage is expected. CorHealth adopted treatment-time targets for two key emergency stroke procedures that can break up or remove blood clots in ischemic stroke patients.
  - One target concerned a medication called tissue plasminogen activator (tPA), a clot-dissolving drug used to restore blood flow. CorHealth's target was to treat patients with tPA within a median time of 30 minutes of their arrival to hospital. Our audit found this target has never been met province-wide, though there was some improvement from 2015/16 to 2019/20, when the median time in which patients received tPA dropped from 50 to 45 minutes.
  - The other target related to a procedure called endovascular thrombectomy (EVT), a procedure to remove a blood clot from a large vessel in the brain using a catheter. This procedure was to be initiated within a median time of 60 minutes of a patient's arrival at hospital. This target has never been met province-wide since 2017/18, when CorHealth started tracking hospital performance against the EVT target. During the first two quarters of 2020/21, the median time it took to start the EVT procedure was 75 minutes.
- Hospitals were not able to transfer many cardiac and stroke patients to a more appropriate care setting, which constrained acute hospital bed availability. There were times that patients had to remain in a hospital bed despite no longer requiring acute care because there were no beds available at a more appropriate care facility, such as inpatient rehabilitation or long-term care. Hospitals categorize these patients as Alternate Level of Care (ALC). In 2019/20, over 5,300 cardiac disease patients categorized as ALC spent over 82,000 days in acute hospital beds, while over 3,500 stroke patients categorized as ALC spent over 62,000 days in acute hospital beds. We estimate that the Province could have saved over $150 million in 2019/20 (over $94 million associated with cardiac disease patients and $56 million associated with stroke patients) if all ALC patients had been transferred from acute hospital beds to their homes or more appropriate health-care settings immediately after being deemed ALC.

- Hospital staff spoke favourably to us about the work performed by CorHealth, but the agency was limited in its ability to improve cardiac and stroke care in Ontario. Unlike comparable organizations, such as Cancer Care Ontario, CorHealth did not have oversight authority to require hospitals to follow the standards it established. CorHealth was also unable to direct or modify funding to providers so as to encourage performance improvement or compliance with best practices. Further, CorHealth focused primarily on cardiac disease and stroke care for adults in a hospital setting, which meant its work did not extend to primary prevention, paediatrics, or community-based care (such as rehabilitation). This limited the potential benefits from CorHealth's oversight of cardiac and stroke rehabilitation, including monitoring the performance of rehabilitation providers. In a June 2018 report, CorHealth made recommendations to the Ministry for improving cardiovascular rehabilitation in Ontario, which highlighted the need for a provincial and regional oversight structure.
- Purchase prices of cardiac equipment and supplies were not centrally tracked or reviewed to determine whether savings were possible through province-wide group buying. We noted that the difference in price that Ontario hospitals paid for the same types of devices varied as much as 367%. For example, one hospital was able to procure a simple ablation catheter at an average price of about $300, while another hospital paid about $1,400 per simple ablation catheter.

We made 15 recommendations, consisting of 39 action items, to address our audit findings. We received commitment from the Ministry and Ontario Health-CorHealth Ontario that they would take action to address our recommendations.

Status of Actions Taken on Recommendations

We conducted assurance work between March 2023 and July 2023. We obtained written representation from the Ministry of Health and Ontario Health-CorHealth Ontario (OH-CorHealth) that effective November 3, 2023, they have provided us with a complete update of the status of the recommendations we made in the original audit two years ago.

Cardiac Procedures Are Not Always Performed on a Timely Basis and Wait Lists for Procedures Have Grown

Recommendation 1

To improve wait-time reporting and provide patients with timelier cardiac disease procedures, we recommend that the Ministry of Health direct CorHealth Ontario (CorHealth) to:

- *develop separate wait-time targets for urgent and emergency procedures and separately track and report performance against these targets;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that wait times for urgent and emergency cardiac procedures were tracked and reported together against the same wait-time target, which overstates how quickly Ontario is providing care for urgent scheduled procedures.

In our follow-up, we found that OH-CorHealth had not drafted any new wait-time targets for cardiac procedures and was not separately tracking or reporting wait times for urgent and emergency cardiac procedures. OH-CorHealth informed us that, due to health human resource constraints, the work to improve wait-time tracking and reporting will begin in future years,

with no definitive timetable in place at the time of our follow-up.

- *evaluate cardiac procedures with no treatment-time targets to determine whether timely delivery of care can impact patient outcomes;*
- *set treatment-time targets for identified procedures, and publicly report performance against these targets;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that not all cardiac procedures had treatment-time targets to compare with actual wait times.

In our follow-up, we found that while the Ministry of Health (Ministry) and OH-CorHealth still intend to act on these recommendations, they have made no progress to date and have no definitive timetable in place for when this work will begin.

- *regularly assess performance of hospitals against all treatment-time targets for cardiac procedures and work with hospitals to take the necessary actions to move toward widespread achievement of these targets;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that treatment-time targets for cardiac procedures were not consistently met, while wait times, wait lists and the number of deaths while on wait lists for cardiac procedures had grown.

In our follow-up, we found that the Ministry received updates from hospitals outlining their patient volumes and wait lists in the second and third quarter of the 2022/23 fiscal year, and OH-CorHealth was regularly assessing the performance of hospitals against existing cardiac treatment-time targets through annual outcome reports. However, no evidence was provided to show that this information was used to guide interventions aimed at improving widespread achievement of treatment-time targets, and there was no target timeline to do so.

- *analyze hospitals' practices of managing wait lists for cardiac procedures to understand the reasons for growing wait lists and identify corrective actions.*

  Status: Fully implemented.

Details

In our 2021 audit, we found that wait times, wait lists and number of deaths while on wait lists for cardiac procedures had grown.

In our follow-up, we found that the Ministry hosted meetings with hospitals that perform cardiac procedures in the second and third quarter of 2022/23 to gain insights on wait-list management practices and on the causes of long wait times. In September 2022, the Ministry and OH-CorHealth issued a report in response to growing wait times for atrial fibrillation ablation procedures. The report summarizes wait-list management strategies that hospitals can use, and recommends further capacity building to meet the increasing demand for complex ablations.

Cost-Effective Cardiac Treatment Approaches and Practices Are Not Widely Used Provincially

Recommendation 2

To allow for patients with aortic valve stenosis, a type of cardiac disease, to receive more effective care and to reduce their length of stay in hospital, we recommend that the Ministry of Health:

- *assess the number of transcatheter aortic valve implantation (TAVI) procedures needed to cover all patients who are eligible, and adjust funding accordingly;*

  Status: Fully implemented.

Details

In our 2021 audit, we found that TAVI procedures were not performed on everyone who could likely benefit from these procedures in Ontario, and that some patients who are eligible for TAVI procedures may need to undergo more invasive surgery to receive treatment in a timely manner.

In our follow-up, we found that the Ministry increased the number of funded TAVI procedures in 2022/23 to account for shifting eligibility criteria and forecasted growth in demand. The Ministry based this increase on an analysis performed by CorHealth to estimate the TAVI procedures required to cover all eligible patients in 2021/22, with funded 2022/23 volumes exceeding the 2021/22 estimate.

- *direct CorHealth to develop a standard for delivery of TAVI, and work with hospitals to confirm compliance with the standard to ensure TAVI can be performed cost-effectively.*

  Status: Will not be implemented.

Details

In our 2021 audit, we found that some patients who are eligible for TAVI procedures may need to undergo more invasive surgery to receive treatment in a timely manner. Surgeries involve longer hospital stays and generally are more expensive than a less-invasive procedure.

In our follow-up, we found that the Ministry does not have any plans to direct OH-CorHealth to develop additional standards for the delivery of TAVI. OH-CorHealth continues to monitor compliance of hospitals that perform TAVI procedures against patient eligibility criteria and guidelines for facility quality requirements. As part of this, OH-CorHealth monitors the hospital length of stay for patients undergoing TAVI procedures and will follow up with hospitals experiencing longer length of stays compared to the other hospitals. OH-CorHealth plans to perform the next analysis of this kind (length of stay following a TAVI procedure by hospital) by July 2024.

Recommendation 3

To allow patients with heart failure to receive high quality of care in the community and reduce emergency department visits and hospitalizations, we recommend that the Ministry of Health:

- *direct CorHealth to collect data to formally evaluate the Integrated Heart Failure Care Initiative in regions where it was adopted to determine what factors contributed to the success of the Initiative;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that the Integrated Heart Failure Care Initiative, which promoted an integrated system for heart failure care with involvement by cardiac centres and local community providers, led to reductions in readmission rates and improvements in the number of patients who received best-practice care from the providers who implemented it.

In our follow-up, we found that the Ministry had not directed OH-CorHealth to collect data to evaluate the Integrated Heart Failure Care Initiative (Initiative). The Initiative itself is a multi-year endeavour that is not yet complete, so collection of data to inform what contributed to the Initiative's success is ongoing. The Ministry informed us that a formal evaluation of the Initiative was underway but did not provide an estimated completion date.

- *develop and implement a plan to expand the Initiative to all appropriate regions.*

  Status: Little or no progress.

Details

In our 2021 audit, we found that the Integrated Heart Failure Care Initiative, which promoted an integrated system for heart failure care with involvement by cardiac centres and local community providers, had not been widely adopted in the province.

In our follow-up, we found that in April 2023, one element of the Initiative was expanded to all cardiac centres by OH-CorHealth (the requirement that cardiac centres should have onsite or formal access to an outpatient multidisciplinary heart function clinic). However, at the time of our follow-up, neither the Ministry nor OH-CorHealth had a plan for how the remaining elements of the Initiative would be expanded to all appropriate regions.

Recommendation 4

To allow patients throughout the province with cardiac disease to receive more effective care in a consistent manner, we recommend the Ministry of Health:

- *direct CorHealth to develop and implement standards for remote monitoring and work with hospitals to implement this provincially;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that remote monitoring—a type of health-care delivery that can result in earlier detection of changes in a patient's health condition, prevent adverse events, and result in significant financial savings compared to hospitalization—was not available in several cardiac centres.

In our follow-up, we found that no work to implement remote monitoring standards provincially had begun and the Ministry had not directed OH-CorHealth to develop and implement these standards. The Ministry informed us that it does intend to address this recommendation but no definitive timeline existed at the time of our follow-up.

- *perform a reassessment of the quality-based procedures for patients with congestive heart failure to determine whether funding for remote monitoring should be included;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that remote monitoring was not being used by most hospitals as it was not required to receive congestive heart failure quality-based procedure funding.

In our follow-up, we found that no progress had been made on this recommendation. The Ministry informed us that its work with OH-CorHealth related to its Integrated Heart Failure Care Initiative, which is expected to run until March 31, 2024, should help inform future decisions regarding the heart failure funding policy. This would include considerations for funding related to remote care.

- *identify regions that could benefit from rapid assessment clinics and work with hospitals to ensure these clinics operate in a consistent manner;*

  Status: Will not be implemented.

  The Office of the Auditor General of Ontario continues to support that the expansion of rapid assessment clinics across Ontario hospitals would provide more heart failure patients with access to the appropriate level of care.

Details

In our 2021 audit, we found that not all cardiac centres had rapid assessment clinics. To facilitate access to the appropriate level of care, these clinics help triage patients who present to an emergency department with signs of a potential heart problem.

In our follow-up, we found that the Ministry does not plan to implement this recommendation, asserting that the concern of heart failure patients having access to the appropriate level of care is being addressed as part of a wider, integrated heart-failure initiative. While this initiative includes having an integrated care model where a co-ordinator in hospitals helps navigate patients through the health-care system, this does not necessarily mean that a patient who presents to an emergency room with heart-failure symptoms would be triaged appropriately to begin interacting with this co-ordinator.

- *identify patient groups that have benefited most from hospitals currently using an integrated comprehensive care model and work with hospitals and community providers to implement integrated care groups provincially where deemed appropriate.*

  Status: Little or no progress.

Details

In our 2021 audit, we found that integrated comprehensive care models were being used by some cardiac centres, with benefits that included improved patient satisfaction, reductions in emergency department visits and hospital readmission rates, and decreased patient length of stay.

In our follow-up, we found that despite still intending to do so, the Ministry had not conducted work to understand which patient groups benefited most from the integrated comprehensive care model to inform who should be the intended users of such a model if the program is expanded. Further, the Ministry had not developed a timetable to begin and complete this work.

More Accurate, Non-Invasive and Cost-Effective Diagnostic Test for Coronary Artery Disease Not Widely Used in Ontario Despite Expert Recommendations

Recommendation 5

To expand the use of cost-effective diagnostic testing that can reduce the need for more invasive testing to diagnose coronary artery diseases, we recommend the Ministry of Health:

- *work with stakeholders (including CorHealth Ontario and Ontario Health) to determine whether computerized tomography coronary angiogram (CT-Angiogram) should be recommended as the primary diagnostic test for certain cardiac patients, such as non-urgent chest pain patients, to help diagnose coronary artery disease; and*
- *work with hospitals to support the full adoption of CT-Angiogram where deemed appropriate.*

Status: Little or no progress.

Details

In our 2021 audit, we found that CT-Angiogram, a relatively accurate, non-invasive and cost-effective alternative to other tests, was not widely used in Ontario.

In our follow-up, we found that, in 2023, OH-CorHealth established a cardiac-imaging task group (with the first meeting of the group being on July 11, 2023) to advise the Ministry on barriers to clinical uptake of CT-Angiogram and improve access to the test. While this group could work with stakeholders to determine whether CT-Angiogram should be recommended as the primary diagnostic test for certain cardiac patients, OH-CorHealth was not planning to make this a required area of review for the group, based on the advice of its own clinical advisors. OH-CorHealth was performing analysis to understand the system impact of CT-Angiogram adoption on the broader diagnostic imaging sector to inform its next steps.

Cardiac Rehabilitation Is Underused Despite Its Effectiveness in Reducing Deaths and Health-Care Costs

Recommendation 6

To provide patients with cardiac disease with access to the appropriate amount and the type of rehabilitation that will best meet their needs, we recommend that the Ministry of Health develop and implement a data strategy to begin collecting information on outpatient cardiac rehabilitation to assess why patients with cardiac disease are not completing rehabilitation programs they have been referred to, and take corrective action to increase the adherence rate by raising awareness and understanding through an effective communications strategy.

Status: Little or no progress.

Details

In our 2021 audit, we found that the Ministry had not centrally tracked outpatient cardiac rehabilitation data, which made it challenging to determine whether all patients who could benefit from cardiac rehabilitation actually receive it, and to determine why patients chose not to participate in or did not complete their prescribed program.

In our follow-up, we found that OH-CorHealth's data strategy—which had launched in November 2020, was paused during the pandemic, and resumed as a pilot in the summer of 2021/22—has continued to the present. For the most recent data available in the third quarter of 2022/23, 49 rehabilitation programs

were providing information on individuals who were referred to cardiac rehabilitation and who had experienced a cardiac event in the 12 months prior to the referral. The information collected at the time showed that patients who underwent primary percutaneous coronary intervention were less likely to be referred for cardiac rehabilitation than cardiac surgery patients. OH-CorHealth is planning to conduct a qualitative evaluation of reasons why patients with cardiac disease who were referred to cardiac rehabilitation did not complete their program. However, at the time of our follow-up, OH-CorHealth had no set timeline to begin and complete this evaluation. Once these reasons are identified, the Ministry will still need to address the underlying reasons why cardiac patients are not completing their program.

Emergency Stroke Procedures Not Always Performed on a Timely Basis

Recommendation 7

To provide emergency care to stroke patients in a timely manner, we recommend that the Ministry of Health:

- *direct CorHealth to analyze the critical success factors, and identify the best practices, of hospitals that routinely perform better than the provincial average for the administration of tissue plasminogen activator (tPA) and the performance of endovascular thrombectomy (EVT);*

  Status: Fully implemented.

Details

In our 2021 audit, we found that treatments for stroke patients were generally not administered in a timely manner, which increases the risk that the patient suffers permanent brain damage.

In our follow-up, we found that in an October 2021 report (prepared after the fieldwork on our 2021 audit had concluded), and in subsequent September 2022 and January 2023 reports, OH-CorHealth documented the drivers of strong performance as identified through discussions with endovascular thrombectomy (EVT) hospitals and the Ministry. These reports identified best practices for timely administration of EVT, such as notifying the intervention team when a stroke patient is en route so a room and the team can be ready upon their arrival, and requiring all EVT patients to be sedated, which removes the need to wait for an anaesthesiologist to determine whether sedation is needed prior to the procedure. Further, in December 2021, OH-CorHealth conducted a virtual webinar for hospitals to share best practices in reducing door-to-needle time for administering tissue plasminogen activator (tPA). During the webinar, the hospitals identified steps that help to facilitate an efficient process for tPA, such as clearly outlining roles and responsibilities of attending staff and getting commitment from emergency department and intensive care unit nurses to stay with the patient from arrival through to tPA delivery.

- *require other hospitals to implement the identified best practices from above where possible, and monitor performance to determine whether these practices are being effectively implemented.*

  Status: Little or no progress.

Details

In our 2021 audit, we found that some hospitals had developed their own best practices to reduce the length of time patients have to wait to receive treatment, but that these were not widely adopted.

In our follow-up, we found that while OH-CorHealth has helped to disseminate best practices related to providing timely stroke care to hospitals, the Ministry was not requiring other hospitals to implement these practices, where possible, to reduce stroke-treatment times. The Ministry informed us that, due to staffing challenges in emergency departments, it had put this work on hold until there is enough human resource stability to introduce and sustain best practices. Therefore, the Ministry had no timetable in place to implement this recommendation at the time of our follow-up.

Program Changes Are Needed to Provide Patients with Timelier Access to Appropriate Stroke Treatment and Care

Recommendation 8

To allow for all stroke patients to receive appropriate care in a timely manner, we recommend that the Ministry of Health:

- *direct CorHealth to identify the barriers and initiatives to increase the percentage of stroke patients receiving tissue plasminogen activator (tPA) and endovascular thrombectomy (EVT) across the province and implement a plan to achieve the target rates;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that the percentages of stroke patients receiving tPA and EVT were below the provincial target and Canadian Stroke Best Practices Recommendations, respectively.

In our follow-up, we found that there was no plan in place to meet target rates because the Ministry and OH-CorHealth had not settled on a timeline target for EVT to be adopted provincially for hospitals providing this procedure; however, they were conducting work to improve access. For example, in March 2022, OH-CorHealth developed transport maps and volume-impact estimates to identify regions that could benefit from a model where patients are transported directly to a hospital where EVT is provided rather than first providing tPA at the nearest hospital prior to transfer to an EVT-capable hospital. OH-CorHealth specifically identified Northwestern Ontario as a region with difficulties meeting the aforementioned targets, noting factors such as an inability to recruit health human resources, a lack of 24/7 physician coverage, and the lack of CT scanning in the eastern part of the region. As a result of this exercise, Thunder Bay Regional Health Sciences Centre is working to find a long-term solution for recruiting physicians with neurology-intervention expertise. At the time of our follow-up, no plans were in place to increase the percentage of Ontarians who receive tPA after experiencing a stroke.

- *work with CorHealth to develop or provide supports to initiatives or programs (such as funding the FAST campaign run by Heart & Stroke) that increase public awareness of stroke symptoms and appropriate actions (such as the need to call an ambulance) if symptoms of a stroke are occurring;*

  Status: Will not be implemented.

  The Office of the Auditor General of Ontario continues to support initiatives and programs that increase public awareness of stroke symptoms and appropriate actions if symptoms of a stroke are occurring.

Details

In our 2021 audit, we found that provincial support for an effective stroke awareness program was discontinued despite the program's effectiveness in helping Ontarians understand and identify the signs of stroke so they know to call 9-1-1.

In our follow-up, we found that the Ministry had no plans to develop or provide supports to initiatives or programs that increase public awareness of stroke symptoms and appropriate actions if symptoms of a stroke are occurring. The Ministry is still considering what further actions it can take to promote health, prevent chronic disease, and improve health outcomes for those living with chronic disease.

- *evaluate what additional changes (if necessary) are needed to achieve the target percentage of stroke patients treated on stroke units and implement those actions;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that the percentage of stroke patients treated in a designated stroke unit, which includes beds attended to by an interprofessional team who specialize in treating stroke patients, was below the provincial target of 75%.

In our follow-up, we found that in September 2022, as part of a Stroke Unit Task Group meeting, OH-CorHealth presented a current assessment on the state of stroke unit access in Ontario. The assessment noted challenges, such as Alternate Level of Care patients "blocking the bed" for new stroke patients while waiting for admission

to another care setting, variation in how stroke units are organized, and recruitment/retention challenges for staff with stroke expertise. Various opportunities for improvement were identified through this assessment. For example, OH-CorHealth recommended to the Ministry that new funding models be explored for stroke care to incentivize use of stroke units and to ensure stroke patients receive best-practice care. Further, in June 2023, OH-CorHealth revised the provincial stroke unit definition and stroke unit criteria to improve accountability. OH-CorHealth developed a plan to improve stroke unit access which involves three phases, the first of which is expected to be completed by the end of 2023/24, and concluding with best-practice adoption by hospitals and the beginning of hospital-specific action plans. Phases 2 and 3 of the plan involve addressing gaps to help hospitals meet best practices and developing a measurement framework to support stroke unit hospitals in improving quality of care, respectively. Phase 2 planning had not yet started at the time of our follow-up and its start date is uncertain.

- *work with stakeholders, including CorHealth and stroke neurologists, to identify any changes needed, such as changes to the stipend offered to neurologists, to encourage more stroke neurologists to participate in Telestroke.*

  Status: Fully implemented.

Details

In our 2021 audit, we found that calls to the Ontario Telestroke Program had increased almost 90% over a four-year period while the number of stroke neurologists handling these calls only increased from 13 neurologists to 15. Based on an analysis prepared by CorHealth, the relatively low level of compensation for these professionals was the main reason for the low participation of stroke neurologists in Telestroke.

In our follow-up, we found that in February 2022, the Ministry worked with the Ontario Medical Association to increase the stipend offered to neurologists for one day's participation in the Ontario Telestroke Program from $850 to $1,500, which it applied retroactively to April 1, 2021. This helped increase the roster of participating physicians from 15 to 24 in February 2023.

Effective Diagnostic Test Can be Expanded Provincially to Determine Appropriate Treatment for More Stroke Patients

Recommendation 9

To provide stroke patients with timely access to diagnostic testing that will allow them to receive the most appropriate type of care, we recommend that the Ministry of Health direct CorHealth to:

- *complete its procurement of computerized tomography perfusion (CT-Perfusion) imaging technology for all eligible hospitals and provide support to identify and address any barriers that prevent hospitals from using or accessing CT-Perfusion; and*

- *continue to monitor the need for CT-Perfusion among other hospitals provincially and work with the hospitals to obtain the CT-Perfusion technology.*

  Status: Fully implemented.

Details

In our 2021 audit, we found that only 16 hospitals were using CT-Perfusion imaging technology—a diagnostic test that can help determine whether ischemic stroke patients are candidates for EVT—which was significantly fewer than the 44 hospitals that CorHealth identified should have this software.

In our follow-up, we found that in July 2022, OH-CorHealth and MMC Plexxus Sourcing Collaborative finalized a provincial contract for CT-Perfusion imaging software for all Ontario stroke sites. Under this contract, any Ontario hospital could obtain a standard price for this software. As of May 2023, OH-CorHealth identified that 25 hospitals were using CT-Perfusion software while five more were purchasing the software and an additional hospital received approval to purchase it. Further, OH-CorHealth identified 18 hospitals that are "potential adopters" of CT-Perfusion imaging technology. The Ministry told us that the software may still be cost prohibitive for smaller stroke volume hospitals, so it is unrealistic to expect all tPA-administering hospitals to adopt it. As hospitals are responsible for their own business decisions, further expansion is at their discretion.

Not All Stroke Patients Have Timely Access to Appropriate Amount, Type of Rehabilitation Services

Recommendation 10

To provide stroke patients with access to appropriate amounts and types of rehabilitation that will best meet their health needs, we recommend that the Ministry of Health:

- *work with stakeholders, including CorHealth and rehabilitation providers, to understand challenges in meeting the best practice of providing 180 minutes of inpatient rehabilitation per day;*
- *take the appropriate action to address these identified challenges;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that stroke patients received significantly less than the best practice benchmark of 180 minutes of inpatient rehabilitation per day. Patients who receive 180 or more minutes per day of rehabilitation experience better outcomes.

In our follow-up, we found that, since our audit, OH-CorHealth had not performed work to understand barriers to meeting this best-practice benchmark. The Ministry informed us that health human resource constraints have historically been the main barrier, that this is an issue experienced across the health-care system, and that no plans to staff these positions to the level needed to meet the benchmark have been developed. While the Ministry still plans to address these recommendations, it had no defined timetable at the time of our follow-up.

- *fund physiotherapy services for all stroke patients who need it, regardless of age.*

  Status: Little or no progress.

Details

In our 2021 audit, we found that stroke survivors aged 20 to 64 that were not hospitalized for their stroke were ineligible for publicly funded physiotherapy services.

In our follow-up, we found that in April 2022, the Ministry announced a $5-million investment in a community post-stroke rehabilitation program. The first step toward developing the program involved asking Ontario Health to assess the current state of community stroke rehabilitation services and to map access points to these services to identify opportunities to improve access to post-stroke care. The Ministry was reviewing Ontario Health's recommendations on how to expand this across the province, but had not committed to a timeline to implement these recommendations at the time of our follow-up.

Hospital Beds Are Taken Up by Cardiac and Stroke Patients Who No Longer Require Hospital Acute Care

Recommendation 11

To give cardiac and stroke patients cost-effective and appropriate care once they no longer require hospitalization, we recommend that the Ministry of Health, in collaboration with Ontario Health:

- *require hospitals to report on which type of facility patients deemed Alternate Level of Care are waiting to be admitted to; and*
- *analyze this information to determine, by region, the need for additional beds in other types of facilities and to identify opportunities for improving co-ordination among hospitals and other facilities.*

  Status: Fully implemented.

Details

In our 2021 audit, we found that hospital beds were occupied by cardiac and stroke patients who no longer needed hospital care and were waiting to be transferred home or to an opening at another facility that provides inpatient care.

In our follow-up, we found that Ontario Health was collecting data on the hospital/facility type and the most appropriate discharge destination for patients who no longer required treatment in a hospital bed. Using this information, in combination with other information collected, the Ministry provided one-time

funding of about $72 million in 2022/23 to support the implementation of initiatives aimed at addressing alternate level of care and improving patient flow. This included activities such as bed creation in hospitals and expanding models of home care and community services. Activities and associated funding were detailed on a region-by-region basis, with identified lead hospitals and/or other organizations to execute the work.

CorHealth Ontario Faces Constraints and Does Not Have Complete Oversight of Cardiac and Stroke Care

Recommendation 12

To allow for more fulsome oversight and improvement of the entire cardiac disease and stroke care system, we recommend that the Ministry of Health, in collaboration with Ontario Health:

- *provide CorHealth the ability to allocate and adjust funding to hospitals and other service providers based on provider performance against established performance targets;*

- *modify CorHealth's role to oversee additional aspects of cardiac disease and stroke care, including prevention and non-hospital care, such as recovery and rehabilitation, with the expectation to set standards and to carry out performance monitoring for the entire system;*

  Status: Will not be implemented.

  The Office of the Auditor General of Ontario continues to support that the expansion of Ontario Health-CorHealth Ontario's role to include performance-based funding and oversight of additional aspects of care can help improve cardiac and stroke care in Ontario.

Details

In our 2021 audit, we found that CorHealth did not have the power to adjust hospital and service provider funding to improve their performance, and that its role did not include oversight of prevention activities nor non-hospital care, such as cardiac and stroke rehabilitation.

In our follow-up, we found that the Ministry did not plan to transfer any funding responsibilities to OH-CorHealth, which is now part of Ontario Health rather than a standalone organization, nor did the Ministry plan to expand OH-CorHealth's mandate to include further oversight.

- *centralize co-ordination and oversight of provincial paediatric cardiac disease and stroke care that has funding, priorities, and deliverables distinct from adult cardiac disease and stroke care;*

  Status: Little or no progress.

Details

In our 2021 audit, we found that CorHealth did not oversee paediatric cardiac and stroke conditions, and that additional standards, monitoring, and interventions for paediatric patients could lead to better and more consistent results provincially.

In our follow-up, we found that the Ministry had not yet begun to centralize co-ordination and oversight of cardiac and stroke care for paediatric patients, asserting that broader oversight of paediatrics was needed first. While the Ministry still plans to implement this recommendation, it had no timeline for implementation at the time of our follow-up.

- *establish and execute a plan to implement the recommendations in CorHealth's Cardiac, Stroke and Vascular Rehabilitation Call-to-Action report.*

  Status: Little or no progress.

Details

In our 2021 audit, we found that the Ministry had not made any progress on implementing the recommendations made in CorHealth's Cardiac, Stroke and Vascular Rehabilitation Call-to-Action report.

In our follow-up, we found that the Ministry had no plan in place to implement the recommendations in the Cardiac, Stroke and Vascular Rehabilitation Call-to-Action report. While the Ministry still intends to act on these recommendations, it had no timeline for implementation at the time of our follow-up.

Procurement Practices and Funding Rates for Cardiac and Stroke Care Need to Be Reviewed and Updated

Recommendation 13

To procure necessary cardiac and stroke supplies, devices and equipment in a cost-effective manner, we recommend that the Ministry of Health, in collaboration with Ontario Health:

- *collect cost information on cardiac and stroke equipment and supplies from hospitals, and identify those items where savings can be achieved through group procurement, or direct Supply Ontario to do this; and*
- *develop and regularly update a schedule, mindful of the need to consider the terms of existing hospital contracts with suppliers, to conduct all identified group procurements in a timely manner, with an aim to co-ordinate with other organizations, including CorHealth, Supply Ontario, and Ontario's existing shared service organizations, as necessary.*

Status: Little or no progress.

Details

In our 2021 audit, we found that hospitals were primarily responsible for procuring their own equipment and supplies for cardiac and stroke procedures, with some hospitals participating in ad hoc group-procurement processes.

In our follow-up, we found that the Ministry had not collected cost information to identify items where savings could be achieved through group procurement. The Ministry informed us that it would be exploring value-based procurement with Supply Ontario, an organization created in November 2020 to provide and support supply chain management; however, no work on this had occurred at the time of our follow-up and no timeline was in place to implement these recommendations.

Recommendation 14

To better match funding to the hospital care needs of cardiac disease and stroke patients, we recommend that the Ministry of Health, in collaboration with Ontario Health:

- *develop and implement a process to update funding rates for cardiac procedures on a regular basis;*

Status: Fully implemented.

Details

In our 2021 audit, we found that funding rates for most cardiac procedures were outdated, with the last full update completed nearly 15 years prior.

In our follow-up, we found that in March 2022, the Ministry updated the funding rates for cardiac procedures. Rather than funding every individual procedure separately, the revised methodology incorporates case-costing data to pay hospitals for each cardiac-related admission, with funding for each admission based on the procedure with the highest estimated cost that occurs during that admission. This methodology can be updated on a regular basis to incorporate updated case-costing data for cardiac procedures.

- *assess quality-based procedure funding criteria for stroke patients to determine whether the criteria should be expanded to cover treatment costs for more patients, including patients treated through surgical interventions and patients who experience a stroke in hospital.*

Status: Little or no progress.

Details

In our 2021 audit, we found that funding for stroke care would not cover many stroke patients, with about 7,000 stroke hospitalizations excluded from funding because the stroke occurred after the patient was admitted to the hospital and/or because the stroke was listed as a secondary diagnosis rather than the primary diagnosis leading to admission.

In our follow-up, we found that the Ministry and OH-CorHealth had not reassessed the quality-based procedure funding criteria for stroke patients. The Ministry informed us that, in combination with OH-CorHealth, it does plan to assess funding criteria for stroke patients to determine whether the criteria

should be expanded in the future, but no specific timing for this assessment had been determined at the time of our follow-up.

Fewer Cardiac Patients Sought and Received Care during COVID-19, Resulting in Growing Wait Times and Backlogs

Recommendation 15

To address the impact of COVID-19 on the provision of cardiac and stroke care, we recommend that the Ministry of Health work with CorHealth Ontario and Ontario Health to:

- *assess the prevalence of unidentified cardiac and stroke conditions as a result of the COVID-19 pandemic and determine the impact of these patients on the cardiac disease and stroke system going forward in order to identify additional funding or initiatives that may be needed to address these patients' health-care needs;*

  Status: Will not be implemented.

Details

In our 2021 audit, we found that wait lists for cardiac procedures grew as a result of a directive issued twice by the Chief Medical Officer of Health requiring that all non-essential and elective surgeries stop or be reduced to minimum levels to ensure that hospitals had sufficient capacity to treat COVID-19 patients.

In our follow-up, we found that the Ministry will not be implementing this recommendation, as the Ministry does not believe that it possesses the data-collection abilities to assess the prevalence of unidentified cardiac and stroke conditions resulting from the pandemic.

- *monitor the impact of the surgical recovery plan by periodically measuring and publicly reporting the cardiac procedure backlog and provide the necessary resources to help hospitals achieve this plan.*

  Status: Will not be implemented.

Details

In our 2021 audit, we found that the Ministry planned to invest $324 million in various initiatives, which included extending operating room hours with the intention to fund 67,000 additional procedures, a portion of which would be cardiac procedures.

In our follow-up, we found that the Ministry did not monitor the impact of the surgical recovery plan based on cardiac procedure backlogs. Rather, the Ministry was using average wait times—which Ontario Health (formerly Health Quality Ontario) continues to post publicly—and counts of patients who waited longer than target wait times for surgeries, to monitor progress on surgical recovery. While this is not the same as reporting the number of people waiting for care, and is therefore not equivalent to monitoring the cardiac procedure backlog, there is still significant overlap since it does show how long people are waiting and how many are waiting longer than provincial targets.