



**AgeTech Discussions:  
Exploring Perspectives on Technology**

ABLE Innovations ALTA Platform™ | Report  
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**Competing Interests of Authors**

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# Executive Summary

Canada's population is aging faster than ever before and this has many implications in terms of healthcare, social services, and the economy. In response, AgeTech, or Age Technology, a subset of the health technology industry, has emerged in recent years and uses technology to support healthy aging by enhancing and adapting alternative care approaches. Yet, for many older adults, especially those living in northern and rural communities, there exists a disconnect preventing emerging AgeTech from getting to those that need it the most. The Centre for Technology Adoption for Aging in the North (CTAAN) focuses on bridging that technology adoption gap by testing, piloting, adapting, and implementing new and existing technology solutions tailored to address the challenges experienced by older adults and care partners in northern and rural communities in British Columbia. One of CTAANs' key service is AgeTech Discussions: Exploring Perspectives on Technology, heretofore referred to as ADEPT. The ADEPT workshops focus on emerging AgeTech to describe the applicability, usability, and feasibility of a featured AgeTech from end users' perspectives in northern and rural BC.

This report shares the findings from ADEPT Workshops featuring the ALTA Platform. Data collection occurred over four workshops with a total of 13 participants. Each workshop included pre- and post-surveys, a demonstration of the ALTA Platform, question and answer period with ABLE Innovations, and a facilitated discussion period where participants discussed the usability, feasibility, and accessibility of implementing the ALTA Platform in healthcare settings across northern and rural BC.

Participant findings from the workshops were analysed and 4 themes arose which are described in this report. These themes include: 1) Elevating staff confidences during patient handling; 2) Shifting towards an enhanced patient transferring experience; 3) Examining functionality and design challenges; and 4) Conveying geographically-based space and maintenance concerns. Theme 1 details advantages of using the ALTA Platform for healthcare staff. Theme 2 discusses the potential the ALTA Platform has to improve transfer experiences for patients. Theme 3 explores challenges related to the design and functionality of the ALTA Platform. Theme 4 describes maintenance and space concerns common to northern, rural, and remote healthcare facilities.

Overall, the findings of this report demonstrate potential to significantly improve patient handling safety for healthcare staff, and patients, alike, while also addressing challenging aspects of staff shortages and resulting workload capacity issues related to patient transfers. Through its effortless transfer design, the ALTA Platform can promote positive patient-centred experiences and add value in a range of care-based contexts. That said, there are opportunities to improve promotional materials to highlight the ALTA Platform and its extensive suite of capabilities, develop applications for a wider patient population, and improve infection control methods, to enhance usability in northern, rural, and remote BC healthcare settings.



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# Background

Although Canadians are living longer, they are also more likely to develop a chronic or life-limiting illness and have complex care needs as they age.<sup>1,2</sup> Consequently, increasing numbers of individuals are requiring additional care support in hospital, assisted-living, and long-term care facilities, when personal and community supports are no longer able to provide a sufficient level of care. With the growing number of individuals in need of health care comes an increased demand on staff. In the first quarter of 2023, Statistics Canada determined that nursing job vacancies increased by 24%.<sup>3</sup> Staff shortages have made it difficult for nurses to provide care in an efficient, comfortable, and safe manner. Performing tasks such as patient handling, along with low nurse to patient ratios, puts nurses at higher risk for back injury.<sup>4,5</sup> With back strain or injury the leading cause of injury in the health sector, nurses account for over 80% of back injury claims with WorkSafe BC.<sup>6</sup> Ensuring the BC nurse workforce is safe requires innovative solutions to prevent patient handling-related injuries across the health care sector.

In recent years, innovative solutions and technologies have begun to emerge from the AgeTech sector. AgeTech, or Age Technology, a subset of the health technology industry, uses technology to support healthy aging and to support care partners and health professionals to improve the quality of life for aging adults. By enhancing and adapting alternative care approaches through emerging technologies, it may be possible to enable and extend the ability for older adults to safely age in place within their own homes, improve healthcare setting experiences, and/or decrease healthcare care costs/needs.

The Centre for Technology Adoption for Aging in the North (CTAAN) supports aging in northern and rural communities by making Age Technologies more available to older adults, care partners, and the healthcare systems that support them. CTAAN's programs focus on testing, piloting, adapting, and implementing new and existing technology solutions tailored to address the challenges experienced by older adults and care partners in northern and rural communities.

CTAAN is built on a partnership with UNBC, the Northern Health Authority, and AGE-WELL. CTAAN has an extensive network of partners and "Living Lab" sites that allow for evaluation, testing, and validation in real-world settings. CTAAN leads testing, research projects, and evaluation to validate the technology and works collaboratively with our partners to support implementation for healthcare settings across the continuum of care. This information provides companies with important third-party validation that will not only provide key product insights but will allow the company to achieve a first sale or further reinforce a value proposition that will help the company scale in the region and far beyond. These services are provided by CTAAN staff including researchers, students, older adults, community partners, and healthcare providers.

The first step to introducing AgeTech to the region is one of CTAANs' key services, AgeTech Discussions: Exploring Perspectives on Technology, heretofore referred to as ADEPT, which focuses on emerging AgeTech in northern and rural BC to describe the applicability, usability, and feasibility of a featured AgeTech from end users' perspectives. Through workshops, end users participate in facilitated discussions and provide important insights and

recommendations to inform the design and adjustments of featured AgeTech. This process provides technology developers and companies with evidence that helps form the next steps to scale their products and services to northern and rural areas. A common and physically demanding task for nurses and other healthcare workers is patient transfers, most often from one flat surface to another. Currently, patient transfers can be performed by using slide or transfer boards, sliding sheets, transfer belts, and/or turn tables<sup>7</sup>; these methods require three to four people<sup>8</sup> to do the majority of the lifting manually. While lift and transfer equipment can be an effective way to reduce injury risk, limited use of these assistive tools is a persistent challenge, and these transfer methods can be physically strenuous, unsafe, and uncomfortable for all involved.<sup>9</sup> Patient handling solutions are imperative in the healthcare field to decrease physical strain and injury risk on nurses and other healthcare workers and improve the safety and comfort of the patient, particularly in northern and rural communities where individuals and staff face distinct challenges.

*Featured Technology: ABLE Innovations ALTA Platform*

This report focusses on the patient handling technology – ALTA Platform (please see Figure 1.). ALTA Platform (<https://www.ableinnovations.com/>) was founded by ABLE Innovations with the goal of providing a safe and easy tool to assist healthcare workers with patient transfers. The ALTA Platform is designed with many features to make patient transfers as easy as possible and is equipped with bidirectional platform extension, controls at each end, motion assist with powered wheels for easy maneuvering, and powered actuators that allow for adjustment of the platform's height and tilt. The platform is battery-powered and can complete over 50 transfers on one battery cycle. The ALTA Platform requires minimal training to operate and can move a patient with one operator in less than 2 minutes. This quick and safe method of transferring greatly increases the patient experience as healthcare professionals can focus on compassionate care for their patients instead of performing physical tasks. ALTA Platform requires no assistance from the patient so even immobile patients can be transferred with ALTA effortlessly. This method of patient transfer has no risk of injury to the patient or the operator which offers both parties peace of mind during the transfer process.



Figure 1. The ALTA Platform

\*In Canada, the term 'northern' is commonly used in a provincial context to identify the northern and more sparsely populated (e.g., rural, remote) areas, which may experience arctic/subarctic climates, political marginalisation, economic dependency on natural resource development, and larger proportions of Indigenous populations.<sup>7</sup> There is much diversity across northern and rural communities based on socio-spatial characteristics (e.g., population size, population density), social representation, population demographics and resource availability.

# Methods

To explore how CTAAN could collaborate with Able Innovations, CTAAN offered one of its key services: ADEPT. The ADEPT workshop preparation began with an introductory presentation of the ALTA Platform by Able Innovations to the UNBC research team. Through discussions, it was highlighted that a more in-depth understanding of the diverse needs of northern, rural, and remote BC communities would be beneficial to contextualize the decision-making processes, potential end-user priorities, economic viability, and implementation feasibility of patient handling technology across these unique settings. With a key objective of exploring the “Feasibility and Usability of the ALTA Platform in Northern and Rural British Columbia Healthcare Settings”, individuals working, volunteering, or personally engaging in these environments were recruited for ADEPT workshops. Maximum variation sampling techniques were applied to ensure diversity, equity, and inclusion in recruitment. Data collection occurred October to December 2023 over three 2.5 hour workshops and the target number of participants was reached. Informed consent was obtained from all participants prior to the workshops.

Each workshop followed the same format:

- 1) Pre-workshop survey (either prior to or in first 10 minutes of the workshop)
- 2) ALTA Platform presentation and demonstration
- 3) Question-and-answer session with an Able Innovations representative
- 4) Facilitated group discussion
- 5) Post-workshop survey (last 10 minutes of the workshop)

In the pre-workshop survey, participants provided demographic information and answered questions about their experience with and attitudes towards patient transfer technology in their respective roles/settings. Then, Able Innovations presented the ALTA Platform, detailing the functions, capabilities, current research and outcomes, and the physical design. The facilitated group discussions that followed were led by trained CTAAN staff without Able Innovations present. A discussion guide was used to direct the conversations and focused on soliciting information around patient transfers, the ALTA Platform, northern and rural BC health care settings, decision planning, economic viability, implementation considerations, and required supports. Prompts used to elicit participant views and experiences were open-ended opinion and experience-based questions. In the post-workshop survey, participants shared further insights relating to the ALTA Platform and their satisfaction with the presentation/demonstration, general workshop facilitation, and organization.

Workshops were digitally recorded and the audio was transcribed verbatim and checked for accuracy. All identifying information was removed to ensure confidentiality. Qualitative data was analyzed using a thematic approach guided by Braun and Clarke.<sup>10</sup> This involved following the six-phase process outlined using an inductive approach to code and generate themes:

- 1) Familiarisation with the data: Each transcript was read several times and initial thoughts noted to establish familiarity.
- 2) Coding: Concise initial descriptive codes were generated in a systematic manner and data relevant to each code was collated.

- 3) Searching for themes: A coding framework was developed by adding, removing, and organizing the initial codes into potential themes and sub-themes.
- 4) Reviewing themes: To maximize internal homogeneity and external heterogeneity, each theme was examined and refined in relation to the codes and in relation to the entire data set.
- 5) Defining themes: The “essence” of each theme was identified and described clearly to determine the aspect of the data which each theme captured.
- 6) Producing the report: Extracts were knit together to create an analytical narrative with interview quotes integrated to contextualize the analysis in relation to the objectives of the research and to existing literature.

Quantitative survey data was summarized using descriptive statistics in Excel, while qualitative data was analyzed using NVivo 12. A consensus approach was applied to ensure the findings and illustrative quotes used in this report best represented the prevailing patterns across participants to provide thorough recommendations for Able Innovations.

Ethics approval for the ADEPT workshops was provided by the University of Northern British Columbia ethics board (H22-00499), the Northern Health Operations Board (RRC-2022-004) and the National Research Council (2022-56).



# Workshop Findings

## PARTICIPANTS & PRE-SURVEY

Thirteen participants took part in three ADEPT workshops held between October and December 2023. Participants included managers, registered nurses, allied healthcare professionals, coordinators, and technicians across northern BC, who were currently employed in a variety of healthcare fields, including diagnostic imaging, surgical care, community care, physiotherapy, occupational therapy, and geriatric care.

A majority of the participants were motivated to take part in an ADEPT workshop because they wanted to learn about assistive technology that could alleviate staff injury risk when conducting patient transfers. Others had an interest due to previous experiences with injuries when handling patients, both in a personal and consulting role. Participants reported using lift systems including a single-patient air-transfer system, a ceiling lift system, and a slide/transfer board. Eleven participants reported a need for a system like the ALTA Platform in their department or facility, while two participants were unsure (see Figure 2.). Of participants who responded, safety during patient transfers was a top feature in a patient transfer system, followed by requiring minimal staff/user-friendliness to complete the transfer. Participants reiterated the importance of staff and patient safety and ease of use when identifying highest priorities for a patient handling system like the ALTA Platform. Further, ease of cleaning, efficient access to and storage of the platform, patient comfort, cost, reduced workload, and application with bariatric clients were also identified as priorities (see Figure 3.).

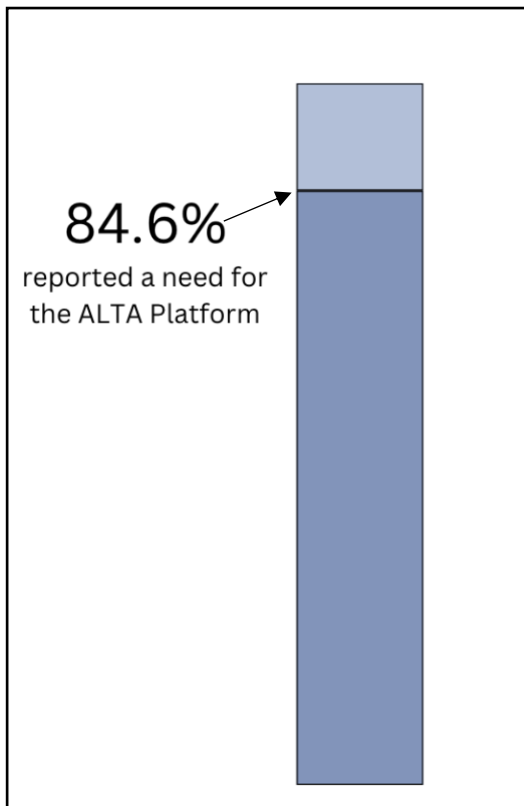


Figure 2. Pre-survey results of patient transfer system need

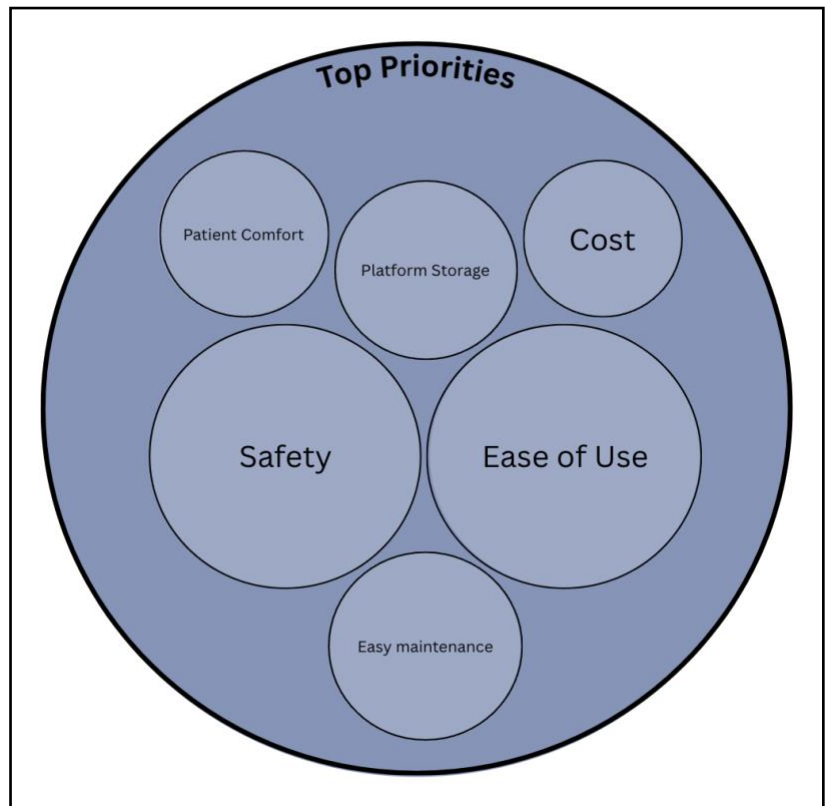


Figure 3. Pre-survey results of top priorities in a patient transfer system

## **FACILITATED DISCUSSION: KEY THEMES**

During the workshops, participants discussed their perspectives of the ALTA Platform. Four key themes were developed during analysis and include: 1) Elevating staff confidences during patient handling; 2) Shifting towards an enhanced patient transferring experience; 3) Examining functionality and design challenges; and 4) Conveying geographically-based space and maintenance concerns. The themes, shown in Figure 4., are presented as follows:

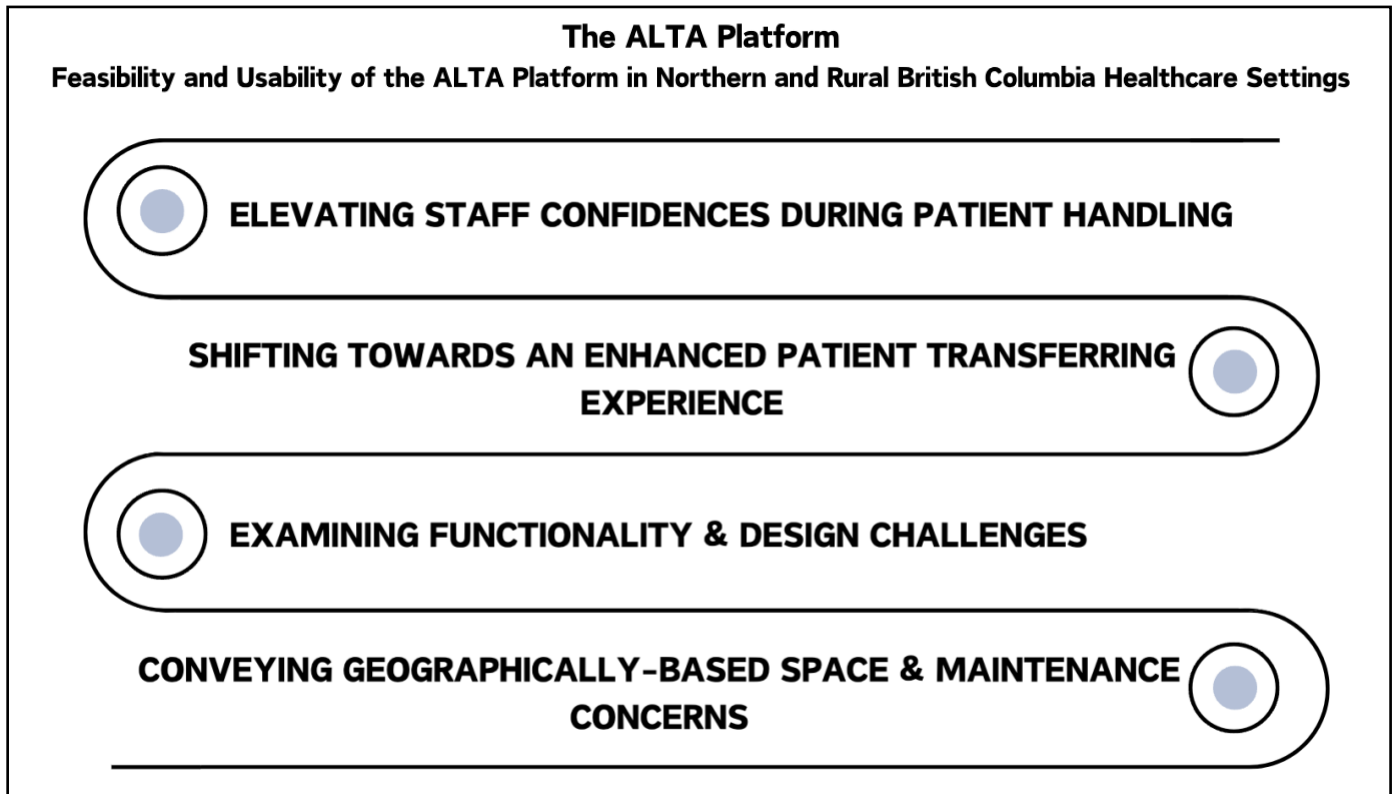


Figure 4. Key Themes

### ***THEME 1 ELEVATING STAFF CONFIDENCES DURING PATIENT HANDLING***

Participants described existing challenges with current patient handling methods that contrasted with the ALTA Platform patient transfer process. Participants shared how slider boards, ceiling lifts, and sometimes even sheets or soaker pads, were used for transferring patients and the issues they encountered using these methods.

When using a slider board, participants explained that ideally four or more staff would be present to conduct the transfer, however, due to reduced staffing and limited staff capacity, transfers were generally done with only two staff members, and on many occasions, only one.

*We do work alone a lot. We have a weekend technician who solely works alone. We've got like 2/3 of our days on call, which you're also working solo.*

*I never feel comfortable lifting a patient on a ceiling lift with just one person available. You're always checking the straps...*

Within the confines of limited resources and staff, participants described pressure to prioritize efficiency and expediency at the cost of their own personal safety.

*We do a lot of after hours on-call at our hospitals that are not like others, our ER is so far away from us, so we don't always necessarily have the ability to call a nurse to come over because they're so far and they can't leave their patients. So, when we do work after hours, it's just one of us and I'm sure the amount of times that each of us has done a slider transfer by ourselves - is it safe or good for us or the patients? - after hours, 100%. we do.*

*I think, for the most part when we're transferring someone the size of anybody in this room, we just use a sheet and pull them over or they'll use soaker pads, it's not appropriate, but it's what happens, because it's already dirty and it's easy, but people do get hurt, but it's really quick. It's all there, it's already under the patient.*

Introducing the potential to transfer patients safely and securely with only one staff member was met with appreciation and enthusiasm from participants, who reflected on how the ALTA Platform could improve workflow, enhance staff autonomy and confidence, and optimize operational processes, such as intradepartmental transfers.

#### Illustrative Quotes

*"The catering to the one man transferring, I think was very intriguing. Especially with being still on call backs and then nursing shortages, the last thing I want to do - I know [colleagues] are so busy - is stop and be like, 'hey, I need a hand to transfer' and you're like, oh god. I think that's a big pull... having the one-man transfer."*

*"If we had a CT scanner transfer from a trauma stretcher to CT and back - if one nurse could do that, that would be quite valuable, especially because on our nights we only have one nurse, so, if she can send one person to get somebody scanned that would be awesome."*

*"It's a good alternative, to be honest, for inpatient transfers. I see the whole idea of like, I'm having short-staffed units or facilities... we can do this with one...the innovation - the technology is quite impressive."*

*"I think it's cool for rural sites because like often we lack more staff than like big centers. So, like that's a huge plus like if we get trained on how to use it and you feel comfortable, like I think it could be a huge asset in that regard."*

Participants anticipated that use of the ALTA Platform would decrease the likelihood of injury for staff during a patient transfer, and would improve quality of care for patients.

*From a body mechanical view, just because we are asked a lot to assess people's transfers and teach nurses about how to stay safe during their transfers, you know, it definitely seems like really good for ergonomics, that's for sure.*

*[The benefits that ALTA Platform for staff] reduced strain on muscles, increased confidence on a call back. Just to be able to do it ourselves, patient care 100% - comfort wise, dignity wise, and even just safety as well...*

Particularly noteworthy was the ALTA Platform's automatic motion assist feature, which participants expected would facilitate easier and safer patient transport.

#### Illustrative Quotes

*"One thing that I just picked up from the video was when you need to push [the ALTA Platform], it will feel your pressure and as soon as you push more than 2lbs, it will kick in... so, I think like that alone, it would probably be quite easy to maneuver and that would be pretty exciting."*

*"I like the idea of [the ALTA Platform] with the motor to help move, that definitely would take the strain off of our backs and everything else, because I don't know essentially how heavy [the ALTA Platform] is, but a bit of electronics might be a little bit heavier than a normal table or normal stretcher and then with the person on top...of course, it can be difficult to get those things moving sometimes with a large patient."*

*"I like how it automatically moves, because pushing patient beds, they're heavy - you're going to have a heavy patient and it can be hard on your body and back."*

In reflecting on where the ALTA Platform would be the most useful, participants suggested a variety of contexts, and emphasized that larger healthcare facility settings with frequent patient transfers would benefit most from this patient handling system.

#### Illustrative Quotes

*"I think, for me, it was definitely seeing it in the hospital setting and using it with a porter and that he or she could be just available to... if [the ALTA Platform] is going by the bed and just transferring the patient to clean the bed or take to the treatments that they need - the ultrasounds and stuff like that - because definitely that is a barrier in the hospital right now when they don't have lifts in those areas. So, I could see that being super exciting."*

*"Overall, I do still see the use in more of that institutional type setting for sure, especially for CT scans, x-rays, those kind of things where we have to transport or for porter usage."*

*"With [the ALTA Platform] maybe being in the trauma room- if it's capable for CPR and having imaging plates."*

*"I could see it being a benefit in acute care as well as emerg care. As well as some of the long-term care facilities."*

However, even with the potential benefits afforded by the ALTA Platform, participants alluded to organizational norms that underpin the processes staff practice with respect to patient handling, which may impede adoption of new medical equipment.

*I fear that if people aren't encouraged to utilize it, that it might just be that redundant piece of equipment they could just set aside because, you know, throwing a transfer board under - it's going to be okay - we're just used to it, so we do it. I worry about those types of logistics, but I think once people got trained and use it in their practice more, they would probably use it...do you think that they would use [the ALTA Platform] or do you think that...they would just do what they always do because they're creatures of habit?*

*We can't even get the staff to put the appropriate slings underneath patients to use the lifts and then we end up with injuries because people haven't been put a sling and they're trying to move someone without using the lift. How could I convince them to use this huge bed when I can't get them to use the lift properly?*

Overall, participants saw the advantages of utilizing the ATLA Platform over current methods for patient transfers and transports, citing improved workflow, minimal human resource needs, and reduced staff injury risk with the platform.

## **THEME 2 SHIFTING TOWARDS AN ENHANCED PATIENT TRANSFERRING EXPERIENCE**

After viewing the ALTA Platform transferring a patient in a simple and relaxed manner, participants juxtaposed previous patient experience issues and challenges during patient handling with the presented patient experience of the ALTA Platform. Participants recounted poor patient experiences with current transfer methods, in particular, the slider board and ceiling lift were described as discomfoting.

*Never good. Yeah, they're scared. They say it hurts. They're always afraid of falling off the bed because we have to roll them first. So, they say, 'don't let me fall!', so, super uncomfortable. Yeah, for the patient, I'd say extremely uncomfortable.*

*I have to say, occasionally, I'll have to...put them up on a lift that may not be familiar... it's traumatic. A lot of them are non-verbal, but you can see this is scary for them.*

In discussing these circumstances, participants considered how the ALTA Platform could improve the quality of care for patients.

### **Illustrative Quotes**

*"Yeah, and old people, they don't like movement, they get really nervous when you're moving them from A to B. So, I really liked how [the ALTA Platform] actually [puts] pressure down under them and like the actual the feeling of moving, I think, is probably a little bit less dramatic."*

*"The one aspect I really liked is, some of the other transfer models I've seen you still have to roll the patient to get it beneath them, which you can encounter some hiccups there, but now with [the ALTA Platform] slip[ping] under, I thought that was really interesting."*

*"I think that the [ALTA Platform] looks way better than a [ceiling] lift, so I think this looks like a very nice system for transporting someone that is alert and awake and ready to go. So, I like it."*

Participants predicted that in using the ALTA Platform they would be able to conscientiously provide patient-centred care, focussing on the patients physical and emotional well-being.

*I think [the ALTA Platform] serves the purpose of promoting dignity for the patient as long as [the transfer] is properly executed.*

*I think [the ALTA Platform] would be a lot like less stressful for the patient because they literally just have to lay there.*

Along with enhanced well-being, improved patient safety was emphasized as a high priority when handling and transferring patients with the ALTA Platform.

*I think safety-wise, it's met its goal because [the ALTA Platform] has a wide base and seems to me that the transfer will be secure enough for the patient to be moved from one bed to another.*

Moreover, participants reasoned that the ALTA Platform's mode of transferring may prevent or reduce skin/wound irritation commonly encountered in the patient population.

*I like the mechanism too, how it works, [the ALTA Platform] looks very interesting. Definitely deal with a lot of wounds and shears and that type of thing, so, it looks like that might be a good product to avoid those things happening.*

*In regard to what [the presenter] was saying about how it's more sensitive to the skin - I think for patients that would be way better.*

Participants also highlighted how integrating the ALTA Platform into the care process could positively impact family and care partners.

*I would say that [the ALTA Platform] would probably make [family/care partner] feel more secure when they're not around, that they're taken care of, and just to not see their loved ones in pain or getting rolled around 1 million different ways to just get them into a different room. I know it's hard for a lot of them just to see them even in a care facility and then for all that on top of it, yeah.*

*Seeing that [a] loved one is in less discomfort and to be less handled, right, because [the ALTA Platform]'s more secure and safe.*

Participants also considered how the ALTA Platform could provide a valuable, inclusive transfer and transport alternative when currently available transfer methods were not an option.

*I can see a huge role for that with CT, especially coma patients that can't move. I could definitely see a place for it in the future, like mostly in CT or MRI.*

*I was just saying, my [family member] recently was in pain, crisis, and didn't get an x-ray because they couldn't get them, they couldn't transport them and [the ALTA Platform] still probably would have been uncomfortable, but it really would have made it so that they didn't have to be lifted, they didn't have to go through any of the jostling, so I feel one use case would be somebody's in significant pain and they can't tolerate another kind of lift.*

Related to patient-centred and inclusive care, participants agreed that the platform would be ideal for transferring, transporting, and supporting bariatric patients. However, with a 350lbs weight limit, participants advocated that alterations should be explored to accommodate bariatric patients.

Illustrative Quotes
<i>“Well, my initial thought was where I could see the nurses actually coming to get it would be with bariatric patients, but there's the 350lbs weight limit, so I don't know.”</i>
<i>“And the weight capacity, I just think that so many of our population... 350[lbs] is not that large at this point and it would be nice if it was just 500[lbs] straight up.”</i>
<i>“Can they increase the weight limit for that transfer? Because basically we want to use it for bigger patients and if it's only limited for 350lbs then...”</i>
<i>“We have a machine that had a 300lbs cut off and then it's awkward when you're pre-interviewing people because they're coming from outside communities - if [the pre-interview] wasn't done prior - to turn them away at the door due to their weight...that can be a really challenging thing to encounter. So, if you're able to keep [the ALTA Platform] able to go through the door frames, but also not having to push patients away just due to their size that... yeah, it's uncomfortable conversation to have sometimes.”</i>

Additionally, participants predicted that the scale feature, while of value for the current platform user population, would be of even greater value for bariatric patients.

Illustrative Quotes
<i>“And if it's even accurate enough, I think it would just be great in inpatient wards too just to know patients weights or people who can't stand.”</i>
<i>“One thought I just had though was, we do weigh clients when we use an overhead sling, it[s] a wonderful option to have [the ALTA Platform] have a scale in [it].”</i>
<i>“Well, actually the weight thing could be handy because with our bone density machine... we'll sometimes have inpatients come over, they're not able to weight bear to get on our scale. So, to have a stretcher like that, that would... first of all, help transfer the patient over to our table, but also could tell us the weight that would save us from having to guess or risk having the patient stand.”</i>
<i>“Or even bariatric patients - you can't accurately weigh. If you had [the ALTA Platform] - knowing if you have a bed or a system, like imaging, you're transferring to that has a weight limitation – knowing that you're not gonna potentially go over and then ruin two systems before you transfer.”</i>

In referring to the ALTA Platform product images in the presentation, some participants surmised the platform to be large enough in its current form to fit bariatric patients\*\*, while others questioned the dimensions and brainstormed solutions.

### Illustrative Quotes

*“Yeah, that makes more sense if it's actually the width of a typical hospital bed. It just looks wider than that. So it's like I feel like you're getting the footprint of a very bariatric bed without the weight capacity.”*

*“I know that in the presentation...their thought would be to do a separate bariatric model or that they would need to maybe have something wider to accommodate for the weight capacity, but I was curious about the width, isn't that consistent with the width of most bariatric beds? And what is the difference between the width of the ALTA [Platform] and the width of the typical stretcher that would fit in for a room for a client to be transferred to?”*

*“Probably like an attachment, then you're not increasing the size of the unit anymore, which is the big concern in space, especially for small spaces.”*

**\*\*To note:** This was a common misconception that arose around the platform's size. Based on the product images in the presentation, most participants deemed the platform to be much larger than it is and could not reconcile the perceived size with the actual size of the ALTA Platform.

### Illustrative Quotes

*“So, like in the picture it does look quite wide...”*

*“In the picture it looks like it's the size of a patient bed ... so, do you know what I mean when I say like a patient bed versus a stretcher?”*

*“Yeah, I thought it looked like very close to what a hospital stretcher or like hospital bed looks like. So, I was like, ‘well, that's quite big.’”*

*“My [impression] was big. I don't know why, but I didn't expect it to be like... didn't really know what I expected it to be, but I didn't expect it to be like a big thing like that.”*

*“It looks to me like a patient-sized bed, like a room bed, and that's a little bit too big, but if it's the size of a stretcher then it's really no different than utilizing a stretcher. Which we have to do any how, you know.”*

Altogether, participants agreed that the ALTA Platform had potential to improve the overall care experience for both patients and their families and foresaw that the development of a bariatric ALTA Platform model to be an asset to inclusive patient care practices.

### THEME 3 EXPLORING FUNCTIONALITY AND DESIGN CHALLENGES

Participants saw the value of integrating the ALTA Platform into their patient transfer processes, however, current policies and the platform design, had potential to hinder implementation in northern, rural, and remote health care facilities.



### Illustrative Quotes

*"[The Able Innovations presenter]'s trying to tell us that this can be done by one staff. However, for example, for a ceiling lift... (health authority) is advising all staff to do it with another person. So I'm not so sure if [a transfer with an ALTA Platform] can be done with the one person, most especially if the manager or coordinator have a say... in comparison to a ceiling lift, which can be done ideally with one person, but because of the policy they have to follow a 2 person transfer just for safety of the patient themselves."*

*"The potential for porters... that's where we kind of see the main potential, especially if (health authority) policy could, for example, change to make it so that yes, you can do this with one person in these cases, which looking at the [ALTA Platform], it makes sense that you could do it with one person provided that they had the education and the person fit appropriately with the device. So I feel like that could become a one person transfer, but there's some policy barriers there."*

*"Not everybody is 6'0". I'm [very short]. So, as long as [the ALTA Platform] could come down to my level and not just be at a level for the average person. So being adjustable up and down would be a total benefit to somebody that is on the smaller side, because there are nurses that are like 4'5" and there are some that are 6'5"."*

*"Right, so it's so the size of the bed is quite big and we have some staff [that] are quite small and it's quite difficult for them to reach, right, most especially making sure that you know that the bed is clean and ready for use for the next patient."*

While transferring patients flat surface to flat surface was viewed as valuable in certain contexts, participants remarked on a number of scenarios where they were hesitant around the functionality of the platform.

### Illustrative Quotes

*"I feel like there's totally a use case and I see it, but I see it right now as being very specific. It's really for a flatbed transfer to a flatbed."*

*"Yeah, patients that can't lie flat. I'm not sure how you would transfer. Like we have people that have to have the head of the bed at like 30 degrees and you have to transfer them that way because of respiratory issues and... I don't know if it folds, and you can keep the head up?"*

*"I saw the table tilted side to side, but if it tilted kind of vertically as well because some of our beds in acute care, they don't go down all the way. The patient's kind of stuck on a bit of an angle. So yeah, we wouldn't be able to use it for that patient, say, if it only stays really flat. So, it would be nice if it could also tilt vertically."*

Participants struggled to picture the ALTA Platform complete a transfer to non-standard beds/stretchers, like CT and orthopedic tables.

### Illustrative Quotes

*“Just imagining a CT table - I think I just need to see [the ALTA Platform perform a transfer to a CT table] because the CT table’s just so narrow and it dips. I just imagine the patient just getting pushed off the table. I need to see it.”*

*“So, it's really nice to have a system with a one-person transfer, but lots of the CT tables aren't flat - they have almost like a cocoon shape. I'm worried if it goes over the patient, it will kind of dip a bit...”*

*“We have the orthopedic table, it's narrower and we can move it up, but then we only use for our fractured hips. We always use. So, only half of the table then we have to manipulate the legs, lower extremities, and everything. So how transfer [using the ALTA Platform]?”*

Building on these concerns, participants questioned how a single operator could safely transfer patients with specific precautions on the ALTA Platform.

*So, CT - the big thing I was worried about is that kind of rolled bed [CT table] and then someone with c-spine precaution, you're moving the bed and if you're by yourself, how can you hold them and then if they kind of shuffle...*

*Some CT scanners have flatbeds and some the cocoon and that's what I was worried about is if you go with someone in c-spine precautions and when you ideally use this is late at night by yourself, when things have gone wrong, and you may have a patient like this. So, it'd be interesting to see videos, because it would have been lovely to test it, but I understand. Yeah, but a video of how that happens because I don't know maybe I'm being worrisome.*

When using equipment that would be shared between patients, participants wondered how efficient the process of transferring would be with the addition of manually cleaning between each patient. Participants explained that the manual design of the cleaning function would prevent staff from using the ALTA Platform.

*Right, so that cleaning aspect is quite... kind of causes a lot of inefficiencies, yeah, I don't think that it would get used regularly because of that.*

*Definitely would be interested in [the ALTA Platform], if they improve the technology around the cleaning of it, that just seems like such a big issue which prevents its optimal use. If it's used, it's soiled, there's not another one...that's going to effectively make it not very useful.*

This was echoed by other participants, who emphasized that efficiency and convenience were top priority when completing the patient transfer process.

*You literally just get a friend, grab it, and pull them over or we can grab the transfer boards, which are pretty easy to grab and pretty easy to clean but even that, honestly, when you're in a rush and you're short staffed it's annoying to think about the fact that you're taking the time to go get it, bring it back, and then wipe it down after.*

*I think it's fantastic, but I don't think the nurses would actually take the time to go get it and use it most of the time because then have to take the time to go get it, bring it to the patient room, use it for the transfer, then clean the whole bloody thing, and then put it back... so that would be my concern is that it's big and a bit cumbersome and there's a lot to clean.*

While participants saw value in the ability to complete patient transfers with a single operator when there were staff shortages and capacity issues, the manual cleaning aspect had some participants second guess the utility and convenience of the ALTA Platform.

*I was also thinking about a comparison between a ceiling lift and [the ALTA Platform], for example, the task done in terms of the time, in terms of infection control... so [patients] have their own slings, so infection control is well managed there because they are the only one using, however, that [the ALTA Platform] ideally should be done with the one person...in terms of efficiency, in terms of the time to be transferred and so on.*

*I was trying to think about the whole thing in terms of doing the task of transferring. So for me, the idea of one person is good, however, I can imagine myself pushing the bed and then trying to set up everything and then making sure that the safety of the patient to be transferred is followed and then trying to follow also infection control. So, for me it's a little bit tedious work. I am not so sure if the person who's going to do this kind of task will be fine doing it with the one person, however based from my experience and from other staff that I work with, I think it's better for someone to work with another staff member because that delegation of tasks - making sure that everything's done - if I'm going to do it by myself, I know I have to make sure that everything is done efficiently.*

Participants noted that the proposed automated cleaning feature presented by Able Innovations could be of great use, but suggested some limitations with UV disinfection.

#### **Illustrative Quotes**

*"The ease of cleanliness as well. They're looking doing ultraviolet as well as another type of sanitation built into the machine, which is fabulous. Hopefully they get to that."*

*"[Able Innovations] was just talking about an automated cleaning cycle, like how long would it take to kind of clean it and get it back into operation?"*

*"Yeah, UV would be great if it's nothing, but if it had actual mass to it..."*

Related to this, participants working in departments with trauma patients weren't convinced that the design of the ALTA Platform would make it easy to clean, especially in medical situations common to northern, rural, and remote communities.

*We get lots of scenarios where there is dirt and we're talking rocks and mud. Like we're a very industrial town...we've got lots of industry with our (named industrial companies) facilities, a lot of outdoor workers, a lot of forestry type stuff happening. So, a lot of our major traumas that are coming in, those patients are covered in rocks or even like the high impact accidents coming off the highway, they've hit a moose, they've got moose hair everywhere. How does [the ALTA Platform] work in terms of getting small amounts of dirt, soil, moose hair, whatever you want to say, [out]?*

*With enhanced COVID protocols and cleaning... that's kind of my only thought or concern would be with that rotating, and since this would be the trauma room, we bring a patient in for a trauma, they've got a major compound fracture that has to go straight to the operating room, they move that patient onto [the ALTA Platform] and then go to the operating room and there's blood that's been just cycled around and through. Is it accessible where you can get to all areas of it and then clean whatever it's rotating through?*

Though participants had some concerns around the current functionality and design of the ALTA Platform, they were encouraged by ABLE Innovations flexibility and openness to alterations.

*The fact that future iterations, if [the ALTA Platform] continues to be successful, would be made available. I feel that would help a lot with adoption, right? Because you don't want to get stuck with some, you know, trial model that doesn't have all the features you want to end up with. So, I feel like that does create some flexibility...it helps manage the risk given the cost.*

*[The ALTA Platform]'s very innovative. It's a pretty cool piece. I like how open [the ALTA Platform developers] were about trying to adjust according to your needs. Instead of being like, 'this is what we have, you buy it, that's it'... this is your choice.*

Overall, participants struggled to visualize the ALTA Platform safely completing patient transfers with non-standard beds and surfaces, and questioned whether the benefit of an efficient transfer outweighed the drawback of lengthy manually cleaning after each use.

#### **THEME 4 CONVEYING GEOGRAPHICALLY- BASED SPACE & MAINTENANCE CONCERNS**

When contemplating the ALTA Platforms usability in northern, rural, and remote facilities, participants recalled challenging experiences with medical equipment both in terms of space and maintenance.

When considering their respective work facilities, most participants were encouraged by the dual ended controls and bi-directional transfer option that would make the ALTA Platform practical for tighter spaces. However, others disagreed and suggested that the platform would not work for certain spaces within their facilities.

#### Illustrative Quotes

*“That's really nice. Just makes it easier because all the rooms are set up different and then you don't have to think about, oh, which way does the bed have to go in? It's just you can use either way.”*

*“Even though it's a newer hospital, they built some of the rooms with some really weird angles and our one room specifically where we're looking to put a CT scanner into. It really nicely fits a stretcher but it's a lot more angling of a hospital bed. So, if we have to take a patient from long-term care, we have an inter hospital hallway system we can get them into our department, but then it's kind of a mess to get them into the room. So yeah, I think just having that ability to have a little bit of a more narrow footprint would be helpful to us.”*

*“Yeah, I think some rooms are weird, I know for us here, our [type of imaging room], I don't think we'd be able to get it in. We'd still have to go portable, but that's just our room. I think some hospital rooms are strange. They've got weird... like every acute care and ER bed would be fine because you got that bi-directional movement you could go on either side and kind of squeeze it in to get the patient, but going into some rooms would be difficult.”*

*“I think just the space, only speaking to imaging departments, like for ultrasounds, you'd need quite a bit of space. A lot of our rooms are quite small - you need space to pull up the machine as well as bring it next to the stretcher.”*

Commonly northern, rural, and remote healthcare facilities have a smaller footprint, and with this comes less storage options. This had participants concerned about how they could accommodate the ALTA Platform in their smaller facilities.

#### Illustrative Quotes

*“I think it's really cool. I think it's innovative for sure. At first, like the size of it kind of... not concerns me, but it's just like, oh, now it's like another piece of equipment that we have to store somewhere because it is a kind of large piece of equipment.”*

*“The storage of the [ALTA Platform]? Especially in the rural facilities in which I serve and which I work in as well. No storage...the reason being is some of the hospitals have 4 beds in them. So that tells you that they could fit in a closet in (northern city center).”*

*“Yeah, we need a storage area. Right now, in acute care we mainly use overhead lifts. We have overhead lift installed in all the patient rooms. I'll use the transfer board in ER. But yeah, again, we have no storage space.”*

Repairs and maintenance were seen as particularly troublesome in geographically remote and resource limited facilities.

### Illustrative Quotes

*"It would be the maintenance of it. It would be the... if something goes wrong, how long is it gonna take to get it fixed?"*

*"I think just being rural, sometimes it's harder to get spare parts or people to come out and fix things, or just timeline-wise, things like that can be delayed."*

*"I think that would be a lot of the issues in the smaller facilities. With being able to use it, if a part breaks, how easy is it to change it? Can our own maintenance men do it here? Or is it going to be far too advanced for them because we only have biomed come up here once month, once every 2 months? So that's not going to work either. So, even if they have biomed involved.... Do you know what I mean? Because often like we have things break down and we've got to go a month and a half without having them because biomed is not here."*

Specific to the numerous automated features of the ALTA Platform, participants suggested there was an increased level of risk to adopt, especially in terms of timeliness and cost to repair.

### Illustrative Quotes

*"My kind of first initial thought was everything is like super duper automated and so I would worry about the fact that something is going to go wrong...everything just seems so sensor-related, which is fine, but when you're in a corner of the province and you're not necessarily that close to services..."*

*"I think that it seems to have like a lot of automatic moving features, which sometimes makes me a bit nervous. I know the technology is good and everything, but sometimes when things are too automated, I'm not as big of a fan just because there's a lot more things that could go wrong in that sense or break down..."*

*"The cost of maintenance and ultimately if something did go wrong...it just seemed to have a lot of bells and whistles which I mean, it's fine, but that also leads to potential for error...and he's thought of having a second device handy to trade it out, wow, that sounds expensive."*

*"It's a large cost to buy a table like that and if it was out of commission for a while because it was broken it wouldn't be great."*

Referring to the in-person set up and maintenance support described in the presentation, participants were skeptical if that type of service would be available to rural/remote communities.

### Illustrative Quotes

*"I might add to that quick, just I was saying user friendly for those that are using it and I mentioned about the biomed aspect and P04 had a good point like she had something with all the bells and whistles and then if something goes awry and you can tell he's very passionate about the piece, but he said how he just hops in his car and will like be there to help but being in (other province) and especially were not even in BC we're in northern BC like would they have... what kind of assistance would we have with that?"*

*"I like what [the presenter] said about having somebody there full-time, but if it's for one [ALTA Platform], how are they going to be able to employ somebody [in remote, rural community] full time for that one [ALTA Platform]?"*

*"It's kind of, not really realistic, for someone to be manning... checking for only one bed. One person for one bed and doing full-time work, right."*

One solution participants suggested was having a 24/7 help line or video tutorials.

*Maybe even like if they have like a contact person to call, if there is an issue, and if that isn't possible, video scenarios that you could even just watch and visually see how to fix.*

Altogether, participants foresaw space and maintenance challenges to adopting the ALTA Platform in northern, rural, and remote healthcare facilities.

### POST-SURVEY

Overall, the participants enjoyed the interactive group discussion of the workshop and the time set aside for questions and answers. The majority of the participants reported that they would recommend the ALTA Platform to a colleague or a larger institution (see Figure 5.). Half of the participants could see themselves using the ALTA platform to conduct easy and safe patient transfers, while the other half could not, either due to facility space constraints or the scope of their specific role did not include direct patient care or transfers.

Participants reported that the optimal settings to utilize the ALTA Platform would be healthcare facilities that are short-staffed, imaging departments, and long-term care facilities, and agreed that implementation of the ATLA platform could benefit both the staff/facilities and patients/clients, specifically

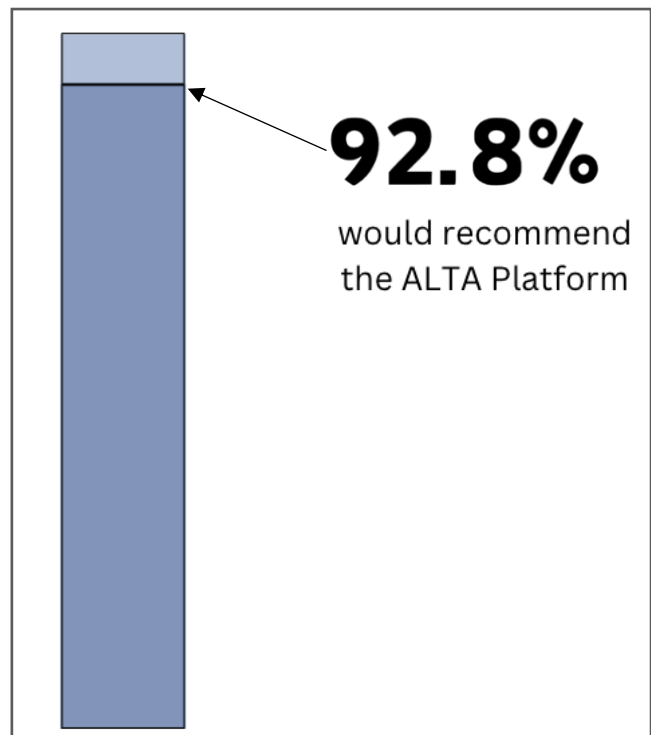


Figure 5. Post-survey results of participants who would recommend the ALTA Platform

patients who are bariatric (with alterations to the platform), immobile, or have been in a trauma event.

Participants listed that the key beneficial features of the ALTA platform were safety for both staff and patients, ease of use, and improved patient experience. Suggested areas for further development were automated infection control, expanded weight capacity, and ability for wheelchair transfers or transfers involving non-flat surfaces.

Participants reported that implementation could best be achieved through trialling the device and proper training on usage. Some of the implementation barriers stated were limited device storage, high cost, and accessibility to servicing/repairs. To remove these barriers, participants suggested increasing the multifunctionality of the device such as adding a bariatric adaptation, broaden capabilities to include other types of transfers, and decreasing size of the platform itself.



# Summary & Recommendations

Over three ADEPT Workshops that took place between October and December 2023, participants shared their perspectives and insights on the ALTA Platform. Four key themes were developed through analysis and include: 1) Elevating staff confidences during patient handling; 2) Shifting towards an enhanced patient transferring experience; 3) Exploring functionality and design challenges; and 4) Conveying geographically-based space and maintenance concerns.

The following are a list of recommendations based on the findings of this report:

- Develop promotional and tutorial videos demonstrating patient transfers with the ALTA Platform to non-standard surfaces, such as CT tables and orthopedic tables
- In noting that a bariatric model was in the development pipeline, there was much emphasis placed on creating a bariatric ALTA Platform to accommodate more weight
- In noting that an automated infection control function was in the development pipeline, creating an efficient, reliable, and expedient cleaning function or process would improve appeal
- Consider research trials evaluating infection control measures with different and varied materials on the platform
- Examine feasibility of adding “number of lifts left” feature to ALTA Platform
- Consider updating promotional images to better capture the ALTA Platform size and dimensions
- Highlight use-cases or create promo videos that show the versatility of the ALTA Platform in a variety of room sizes and shapes, as northern, rural, and remote healthcare facility room design and storage space was noted to be a significant barrier to use
- Explore how best to promote use of the ALTA Platform with healthcare workers, as they tend to stick to the status quo, i.e., partnering with facilities to encourage use, including staff adoption stories in promotional materials and presentations, and continuing to promote current use-cases
- In seeking out partnerships with different BC health authorities, understanding current patient handling policies that may hinder/enable use would serve as an important first step to collaboration (CTAAN can work with Able Innovations to explore deeper if there is interest)
- Identify and highlight areas where the ALTA Platform has significant advantages over existing methods of transfer in promotional materials and presentations
- In presentations to potential end-users, such as healthcare staff, ensure to demonstrate each function separately and clearly, through video or in-person demos, i.e., ALTA Platform moving up and down vertically to accommodate transfer bed size and operator fit
- Establish and clearly articulate the level of support available and response timeframes that would be provided to northern, rural, and remote areas to potential end-users of the ALTA Platform to reduce adoption hesitation

Overall, the findings of this report reveal potential to significantly improve patient handling safety for healthcare staff, and patients, alike, while alleviating workload challenges associated with staff shortages related to patient transfers common to northern BC healthcare facilities. Through its effortless transfer design, the ALTA Platform can promote positive patient-centred experiences and add value in a range of care-based contexts, including hospital, imaging departments, emergency departments, operation or trauma rooms, and long-term care. That

said, there are opportunities to improve promotional materials to highlight the ALTA Platform and its extensive suite of capabilities, develop applications for a wider patient population, while also improving infection control methods, to enhance usability in northern, rural, and remote BC healthcare settings. On the recommendations and insights provided in this report, CTAAN is committed to continued collaboration with Able Innovations.

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