



## **Impact Assessment of the VoQoL Project for Persons with Physical Disabilities and Associated Nursing Staff**

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## **Impact Assessment of the VoQoL Project for Persons with Physical Disability and Nursing Staff**

### **Introduction**

The VoQoL (Voice-activated Quality-of-Life) project has now been installed for paraplegic and quadriplegic individuals in 62 rooms, assisting over 80 such individuals (due to room sharing at some care homes). VoQoL allows these individuals to use just their voice to control several functions in their rooms including lights, TVs, fans, radios and much more. It returns some of their lost personal independence by giving them the power to perform these functions without the need to call for a caregiver.

Coral Tech, the company that designed and installs the VoQoL system, wanted to assess the impact of the VoQoL installations on the lives of both the recipients of the system, but also the nursing staff/caregivers.

It was important to Coral Tech that any such impact assessment be conducted by an arms-length third party to remove any possible bias. Coral Tech asked Anton Ressel of ARC to recommend a data analyst to perform the impact assessment and he recommended Alexei McGregor, who undertook the assessment, analysed the findings, and compiled all the data and findings in this document.

Payment for this impact assessment was effected using the generous SAB Foundation Social Innovation grant awarded to Coral Tech for the VoQoL project.



VoQoL recipients at Turfhall Cheshire Home in Cape Town

## Summary Findings

There is a clear and positive benefit to quality-of-life for persons with disability (hereafter termed “PwD”) as a result of being a recipient of the VoQoL system. Noteworthy impacts include:

- Greater independence with the average VoQoL user calling for a nurse 1.5 few times a day,
- 43% reduction in reported frustration among persons with disability,
- 18% increase in leisure time enjoyed after having been transferred to bed for the evening, and an increase in the quality of this leisure time,
- 46% reduction in reported boredom among persons with disability,
- 39% reduction in reported stressed among person with disability.
- 1-2 hours saved each day among nursing staff.
- 23% reduction in reported stress among nursing staff.

Please see Annexure A for a breakdown of the survey sample and Annexure B for a detailed breakdown of the survey results.

## Key Report Comments on Findings and Quotes from Respondents

### Comments on Findings:

- Persons with Disabilities identified the ease of doing basic tasks and being independent from nursing staff as being one of the key benefits of using VoQoL
- VoQoL unlocked this user’s ability to ask for help
- VoQoL has increased the quality of leisure options for recipients
- VoQoL has become a companion as well as a support tool
- The impact of VoQoL extends far beyond its operational function... it helps combat loneliness

### Quotes from Respondents:

*“Before Alexa I often had to wait a long time for the nurse to come. I was waiting a lot”*

*“[Before VoQoL was introduced] I only used to watch TV at night. Now I do all sorts of things and have more choices”*

*“VoQoL took away a lot of stress because I no longer have to wait for the nurse to come and help...My stress went down because I now have control of my environment”*

*“I have some friends from church who often visit. Their children often come because they enjoy VoQoL. They use it to tell jokes and play. These types of visits make me feel less lonely”*

*“Before Alexa (sic VoQoL) I often had to wait a long time for the nurse to come. I was waiting a lot”*

**Lessons learnt and recommendations for future study:**

- 1) **Disability categorisation.** Many of the PwD disliked having to categorise themselves as either “quadriplegic” or “paraplegic” and preferred to give more detailed specific medical histories. In future, rather focus on the degree of limitation/ activity. For example, ask about the extent of movement in the upper body: ‘Do you have full/limited/ completed movement in your arms’. This will break the sample into grouping more relevant to the VoQoL project.
- 2) **Baseline data:** I was able to work around not having a strict baseline through the design of the questionnaire. As you continue to roll out VoQoL it may be worth trying to implement a baseline survey prior to VoQoL’s implementation (and then again 4-6 months afterwards). These M&E results will hold up to greater scrutiny. However, note that this is often a more labour-intensive process. e.g. an accurate baseline comparison will require a larger sample group. People are prone to biases in their answers based on their feelings that day/ that week. A stakeholder may rate their frustration as being high because they had poor quality of sleep. However, the same stakeholder may rate frustration as low on any other day. The large sample group will mitigate these effects.
- 3) **Nurses Survey:** I was unable to extract the same level of depth and understanding from the nurse’s survey. Many of the nurses gave short, one-word answers, and I would often struggle to get more detail out of them. This may have been due to the time of day, or that I was only able to speak to the nurses during their breaks. The one exception was the manager/ head who gave long descriptive answers. While getting a diverse sample is important, it may also be worth concentrating your efforts at the nursing heads/ management.
- 4) **Afrikaans Speaking:** For some in the Turfhall Cheshire Home, Afrikaans was their first language. I unfortunately don’t speak Afrikaans. In one or two cases, this made conducting an interview/ survey difficult because there was a clear language barrier. It is worth remembering if there is a clear language preference in the home.
- 5) **Reference to the VoQoL.** A significant proportion of the PwD referred to the VoQoL as ‘Alexa’. To ensure that the stakeholders are rating all the VoQoL’s functionality (and not just those specific to Alexa) briefly introduce the VoQoL before each interview.

*Alexei McGregor, 08 March 2020*

**Annexure A: Sample Group**

21 persons with disability (PwD) and 6 nurses from the Turfhall Cheshire Home and Durbanville Quadriplegic Centre were interviewed using a standardised online questionnaire. A larger proportion of the data was collected from the Turfhall Cheshire Home.

Of the PwD interviewed 11 (53%) were identified as paraplegic and 10 (48%) as quadriplegic. 3 (16%) of the persons with disability interviewed had speech impediments. Those persons that arrived after VoQoL was already introduced are excluded from the qualitative analysis.

Location	Person with disability	Nursing staff
Turfhall Cheshire Home	19	4
Durbanville Quadriplegic Centre	2	2
Total	21	6

Disability Type	Count (n=21)	Percent %
Paraplegic	11	52%
Quadriplegic	10	48%
Speech impediment	3	16%

## Annexure B: Detailed results breakdown

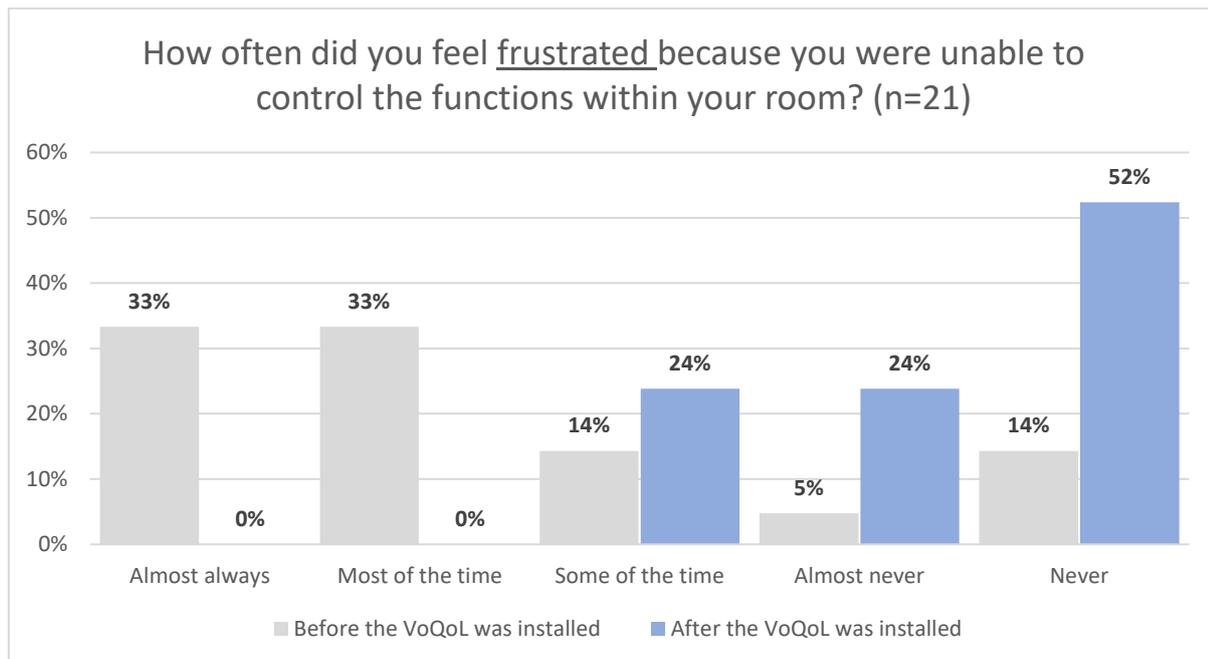
### **Impact One: Greater independence from the nursing staff with the average VoQoL user calling for a nurse 1.5 fewer time a day**

- **Independence from the nursing staff.** The PwD identified the ease of doing basic tasks and being independent from nursing staff as being one of the key benefits of using VoQoL. With the expectation of one, all the users report calling for a nurse fewer times each day since VoQoL was installed. The average PwD reported that, prior to the VoQoL installation, they found themselves waiting 5.28 times a day for more than 10 minutes, for an action they can now perform using VoQoL. Please note that this is a minimum estimate and the true impact is likely far higher. Most of the users stipulated that they would often wait longer than 10 minutes. This waiting time could easily surpass 30- 40 minutes depending on the times of day and the nursing staff's capacity. Consequently, PwD would often spend upwards of an hour each day waiting for a basic activity to be completed.
- **Ability to call for help.** One user (Johnson Mayeki) reported calling the nurse 8 times a day MORE after the VoQoL was installed. Johnson Mayeki has a severe speech impediment and was largely unable to call for help prior to the VoQoL's installation. He identified the ability to communicate as the best part of the VoQoL. VoQoL unlocked this user's ability to ask for help!

*"It [VoQoL] gave me back a bit more of yourself. Being able to do basic things gives you power... it gives you freedom...it is not about needing to do it, it is about being able to do"* (Turfhall Cheshire Home – Quadriplegic individual)

### **Impact Two: 43% reduction in reported frustration among persons with disability**

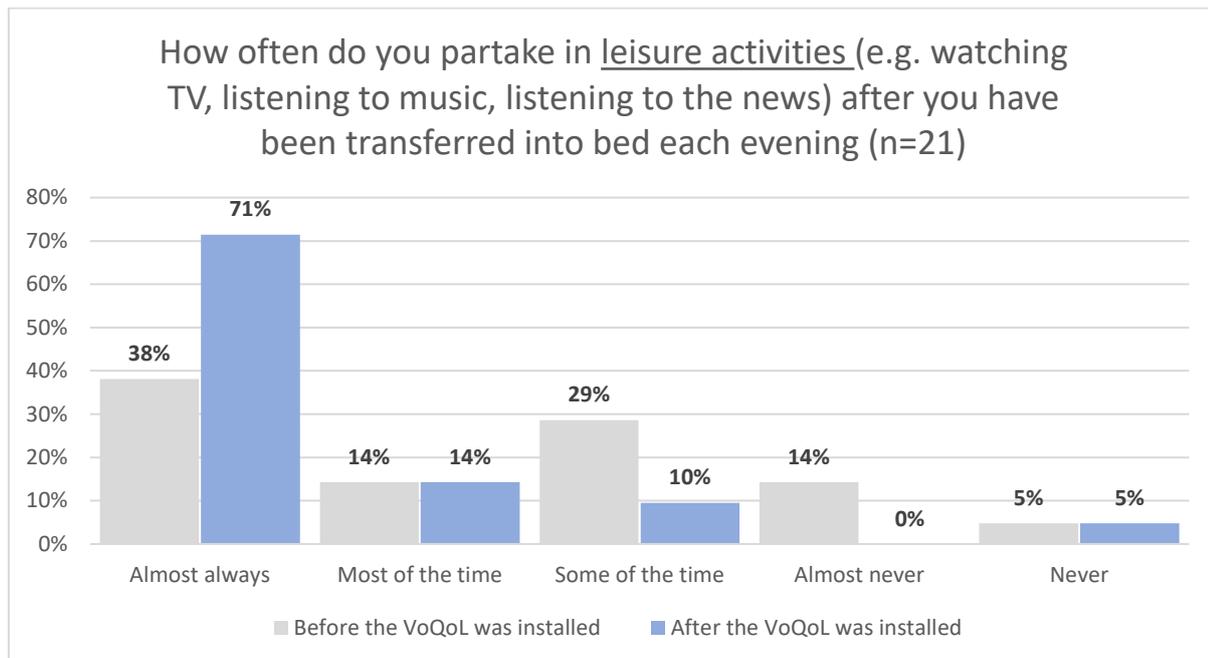
PwD reported a significant reduction in frustration after the introduction of the VoQoL. Frustration is the culmination of several contributors (including having to wait for nursing staff and feeling trapped). Control was often identified as the most important factor. Close to all the users interviewed identified control of their environment as being one of the leading benefits to VoQoL.



*"Before Alexa I often had to wait a long time for the nurse to come. I was waiting a lot"*  
(Turfhall Cheshire Home – quadriplegic individual)

**Impact Three: 18% increase in leisure time enjoyed after having been transferred to bed for the evening.**

The benefits of the VoQoL are mainly felt at night after the PwD have been transferred to bed for the evening. The online survey was designed to assess the propensity for leisure, not the quality of this leisure. A large proportion (n=13/21) of the PwD report no change in their propensity to enjoy leisure activities in the evening.



However, while many of the participants are still partaking in the same quantity of leisure, the quality of this leisure has increased with the users reporting great freedom to enjoy leisure activities after the VoQoL system was installed.

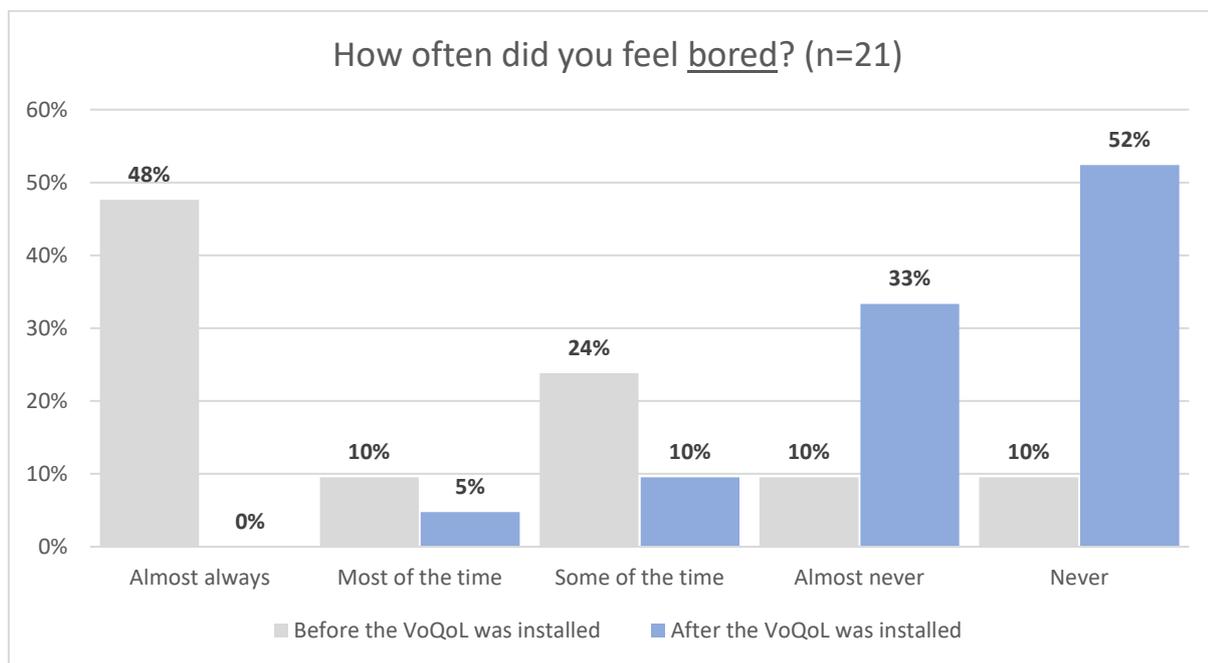
- **More choices and diversity in the type of leisure activities.** One user said that before VoQoL was installed, they would only watch TV in the evenings. Since its introduction, the diversity in functions they are able to enjoy has increased (for example, the radio, listening to the news, browsing the internet).
- **The PwD can enjoy these leisure actives with the choice and freedom to go to bed when they wanted.** One user said that without the VoQoL he was unable to turn off the lights when he was ready to go to sleep, whereas before he would often stay awake until 11pm before a nurse came to turn the lights off.
- **A reduction in guilt associated with enjoying leisure actives after being transferred into bed for the evening:** Many of the PwD do not like asking for help and being disruptive. One stakeholder reported that before VoQoL was installed, they would often choose to watch content that did not interest them rather than call for assistance.

*“[Before VoQoL was introduced] I only used to watch TV at night. Now I do all sorts of things and have more choices” (Turfhall Cheshire Home – quadriplegic individual)*

#### Impact Four: 46% reduction in feeling bored.

The following are identified as key contributing reasons for the reduction in boredom:

- **Reduction in wait time:** Before the VoQoL, each PwD could easily wait for upwards of an hour a day for a basic functions (e.g. turning on/ off the lights) to be completed by a nurse.
- **Greater choice in leisure activity:** As also noted above, VoQoL has increased the quality of leisure time. One participant said that they would often not call for a nurse to change the TV channel so as not to be disruptive. Consequently, they would often watch TV content that was of no interest to them.
- **Fun and play:** VoQoL has brought fun and play into the Home. Over a third of those interviewed said that they enjoyed using the VoQoL for stories and jokes. Many also enjoyed asking VoQoL to sing (with Happy Birthday being a favourite). VoQoL has become a companion as well as a support tool.



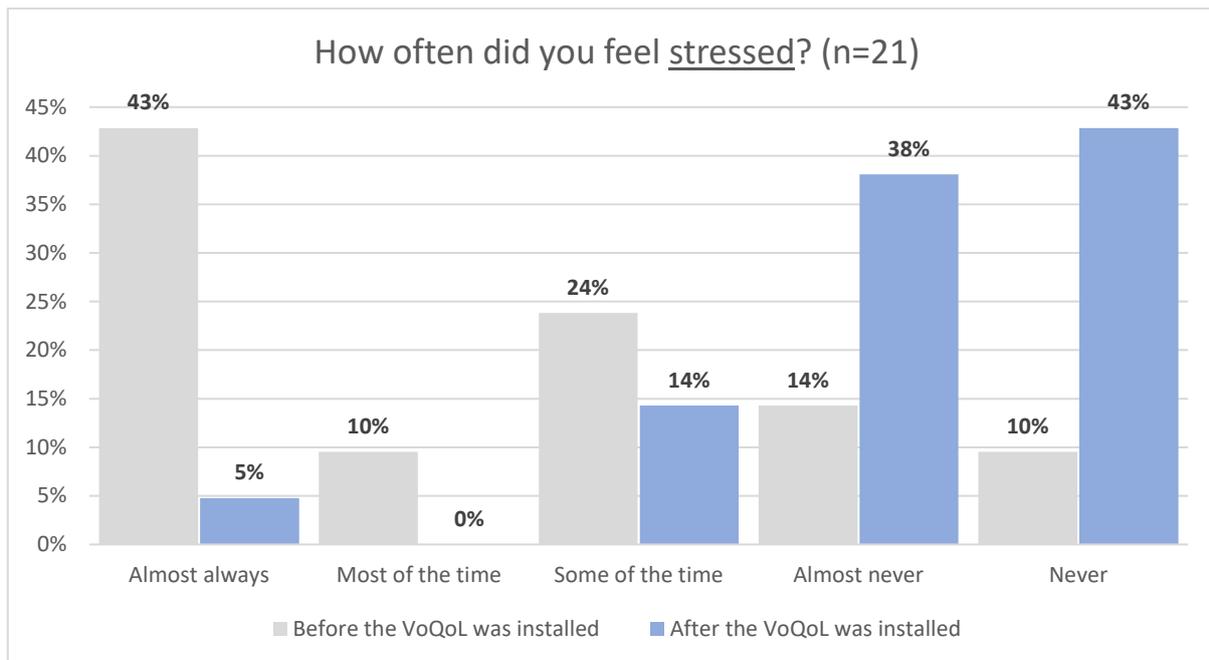
*“It can take a lot of time for the nurses to come and help. It is boring to have to wait before you can watch what you want”*

(Turfhall Cheshire Home – quadriplegic individual)

#### Impact Five: 39% reduction in reported stressed

Before the introduction of VoQoL, only 22% of PwD respondents reported being stressed 'almost never' or 'never'. After the introduction of the VoQoL this had increased to 79%. Contributors to this reduction in stress include:

- **Easy access to leisure activities:** Waiting for a nurse to respond is frustrating and stressful to many of the PwD. Three of the PwD note that they would often miss their favourite TV/Radio shows before a nurse came to change the channel. This was very stressful for many of the participants who clearly derive great enjoyment from accessing the TV and Radio.
- **Distraction and stimulation:** One of the PwD discussed how having to sit without anything to occupy their mind creates stress and anxiety. Another said they would often struggle to breath at night because of the stress, and that since the introduction of VoQoL these breathing problems have improved.



*“VoQoL took away a lot of stress because I no longer have to wait for the nurse to come and help...My stress went down because I now have control of my environment”*  
(Turfhall Cheshire Home – paraplegic individual)

#### Impact Six: A reduction in loneliness and isolation

The impact of VoQoL project extend far beyond its operational functions. Many of the users reported an emotional connection with the VoQoL system and with it, it helps combat loneliness. VoQoL has being a social companion to many of the users who often use it to tells joke, stories and sing.

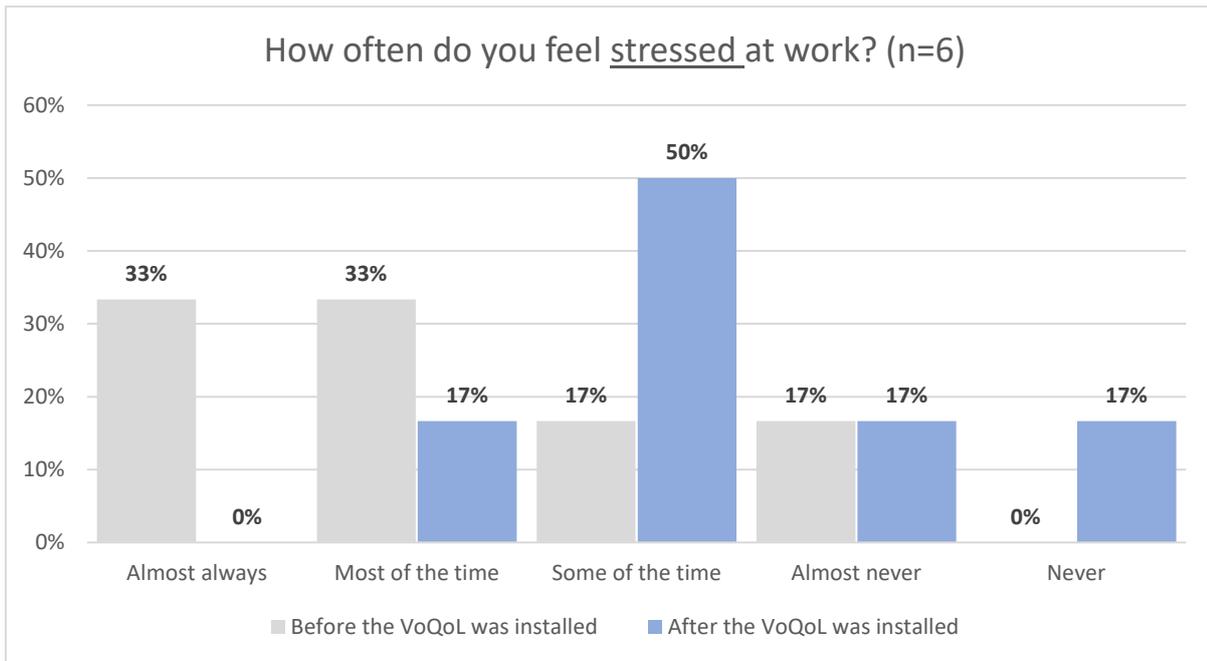
*“I have some friends from church who often visit. Their children often come because they enjoy VoQoL. They use it to tell jokes and play. These types of visits make me feel less lonely”*  
(Turfhall Cheshire Home – paraplegic individual)

*“There is so much information [on the VoQoL system] and I am able to use it for the news. I am now more connected to what is going on outside of the Home and overseas.”*  
(Turfhall Cheshire Home – paraplegic individual)

#### Impact Seven: A 23% reduction in stress reported among nursing staff and more time for nurses to compete their other day-too-day tasks and responsibilities.

The benefits of VoQoL extend beyond the PwD. The nursing staff also enjoy significant benefits.

- 100% (n=6), of the nurses believe that VoQoL saves them time to perform other duties they couldn't find time to do previously? The nurses estimate that VoQoL saves then 1-2 hours each day.
- 23% reduction in stress reported among the nurses.



*“There is always something that needs to be done - now [with VoQoL] we are able to get to more”*  
 (Turfhall Cheshire Home – Nurse)