

## A Rationale for Increasing Physical Activity in Chronic Kidney Disease: Quality Insights Renal Network 3's Learning and Action Network's Campaign

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*Individuals diagnosed with chronic kidney disease (CKD) are often reluctant to engage in physical activity. Research has demonstrated myriad physical and psychological health benefits of regular exercise in this population. The challenge for many renal care providers has been translating these benefits for patients in a manner that engages them in the process. Quality Insights Renal Network 3 (QIRN3) worked with in-center hemodialysis providers to promote increased physical activity with patients within the network. These patients were provided with education about the benefits of increasing physical activity and were asked to sign pledge cards indicating their goals in this regard. The final results of this campaign showed 42.3% of patients in the targeted facilities signed pledge cards indicating their plans to increase their physical activity and well-being.*

It is well established that physical inactivity is a leading cause of non-communicable disease and mortality in the present-day society (Mokdad, Marks, Stroup, & Gerberding, 2004). Physical inactivity is prevalent among chronic kidney disease (CKD) patients, who report activity levels that are 25% of age-matched sedentary healthy individuals (Johansen et al., 2000). Reductions in cardiorespiratory fitness and physical function become evident around Stage 3 CKD (Johansen & Painter, 2012; Padilla et al., 2008) and continue to decline as kidney function worsens (Odden et al., 2006). When patients reach end-stage renal failure, high levels of exercise intolerance are reported, with patients having to work at up to 75 percent of their maximum capacity just to carry out activities of daily living (Ip et al., 2006; Koufaki, Naish, & Mercer, 2001). It is therefore unsurprising that one third of these patients are unable to carry out activities of daily living unassisted (Ifudu et al., 1994). Furthermore, the incidence of frailty (defined as the presence of three or more of the following conditions: unintentional weight loss, weakness, exhaustion, slow gait, and inactivity) among middle aged and younger CKD patients is double that of aged healthy individuals (Roshanravan et al., 2012). This decline in physical activity and physical capacity and the increased prevalence of frailty is noteworthy, because these factors independently predict hospitalization, comorbidity, quality of life, and mortality in this patient population (Howden et al., 2014; Johansen, Chertow, Jin, & Kutner, 2007; Pagels, Soderkvist, Medin, Hylander, & Heiwe, 2012; Painter & Roshanravan, 2013).

Increasing physical activity levels is therefore a pertinent aspect of a healthy lifestyle in CKD patients. The National Kidney Foundation Kidney Disease Outcomes Quality Initiative (NKF KDOQI™) Clinical Practice Guidelines recommend that hemodialysis patients be counseled and encouraged to increase their physical activity levels (National Kidney Foundation, 2005). Yet, despite these guidelines, regular physical activity and exercise rehabilitation remains to be established as part of routine care in this patient cohort. Previous research has reported myriad

health benefits resulting from regular exercise in hemodialysis patients. Significant increases in cardiorespiratory fitness and muscular strength have been reported following both aerobic and strength exercise training carried out inter- and intra-dialytically (Heiwe & Jacobson, 2011; Konstantinidou, Koukouvou, Kouidi, Deligiannis, & Tourkantonis, 2002). In addition, regular exercise has shown benefits pertaining to blood pressure control (Miller, Cress, Johnson, Nichols, & Schnitzler, 2002), inflammation (Cheema et al., 2007; Viana et al., 2014), muscle wasting (Kirkman et al., 2014), cardiac function (Howden et al., 2013), dialytic phosphate removal (Kirkman et al., 2013), and quality of life (Jhamb & Weiner, 2014) in CKD patients.

Importantly, improvements in cardiac function and endothelial function have been observed following low-volume, voluntary physical activity. Furthermore, physical function, cardiovascular, and anti-inflammatory improvements have been reported following daily walking programs in this patient population (Kosmadakis et al., 2012; Viana et al., 2014). In this respect, simply increasing daily habitual physical activity levels or taking part in lower intensity activity can be a beneficial and pragmatic starting point for patients who perceive structured exercise to be daunting, unrealistic or unobtainable.

Despite published clinical guidelines in favor of exercise, physical activity counseling behavior of health care providers has not increased (Delgado & Johansen, 2010). Recent surveys suggest that the majority of patients state an interest in physical activity, yet this is not translated into true increases in physical activity (Delgado & Johansen, 2012). Thus, the barriers to implementing physical activity into routine care, faced by both patients and healthcare providers, need to be addressed. Previously, it has been suggested that tools, training and encouragement need to be made available to both healthcare providers and patients in order to increase physical activity assessment, counseling, and recommendation (Delgado & Johansen, 2012).

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Based on these recommendations, in the Spring of 2014, Quality Insights Renal Network 3 (QIRN3) created a Patient Learning and Action Network (LAN) educational campaign, aimed to educate patients about the importance of increasing physical activity and well-being. This campaign was established by patients of the LAN, for patients in the Network 3 community. A campaign plan outlining the number of facilities that would be incorporated into the project was created and presented to the Centers for Medicare and Medicaid Services (CMS) for approval. Once approved, QIRN3 staff members, in conjunction with LAN Subject Matter Experts (SMEs), developed educational materials for use by staff members at the selected facilities during their educational interventions with patients. The goal of the campaign was to get at least 10 percent of patients, in the targeted facilities, to sign pledge cards indicating their goals for increasing their physical activity and well-being.

### FACILITY SELECTION

QIRN3 is the renal network with a territory that includes New Jersey, Puerto Rico, and the U.S. Virgin Islands. Its patient population in February 2014 was 18,060. The campaign incorporated 20 percent of hemodialysis patients in the Network, or 3,612 patients. The facilities were randomly chosen throughout QIRN3; the only exclusions were facilities that had participated in a QIRN3 LAN campaign in 2013. Ultimately, 37 hemodialysis facilities were chosen to participate in the educational campaign. Hospital-based facilities, large dialysis organizations (LDOs), small dialysis organizations (SDOs) and independents made up the selected facilities. The facilities were located in all 3 of the geographic areas covered by QIRN3: 27 in New Jersey, 9 in Puerto Rico and 1 in the U.S. Virgin Islands.

QIRN3 determined the campaign would be best managed by the social workers at the facilities. Social workers were selected because they typically have an understanding of each patient's lifestyle and needs, enabling them to assist and encourage patients to make appropriate pledges. The social workers and facility administrators for the selected facilities were notified by the Network of their selection in April 2014. These facilities were randomly selected by the Network, and there was no opportunity for facilities to volunteer for this campaign. On April 29, 2014, a webinar was conducted by QIRN3 staff for participating social workers and facility administrators. The project plan was reviewed with the facility staff and their roles and responsibilities were presented. Timelines for data submission were also provided to the staff members. Strategies and ideas for gaining patient participation in the campaign were addressed. QIRN3 recognized that buy-in from the selected facility staff was paramount to the campaign's success. This webinar was utilized as a tool to create excitement and develop a mutually beneficial relationship between QIRN3 staff and the facility staff.

### CAMPAIGN IMPLEMENTATION

The campaign materials included a booklet outlining the benefits of increased physical activity. This booklet was made available in both English and Spanish to ensure patients in

Puerto Rico would benefit from the material. A PowerPoint slideshow of the booklet, with voice-overs in English and Spanish, was created for illiterate patients. Pledge cards were included with the booklets. The educational material was discussed with patients in relation to their current activity levels, after which they were given the option to sign a pledge card indicating the changes they planned to implement to increase their activity level. Renal healthcare providers play a pivotal role in the education and encouragement of adopting physical activity as part of a healthy lifestyle. Therefore, direct contact between dialysis facility staff and patients was integral to distributing the Network-developed educational materials to patients. In order to avoid bias, healthcare providers encouraged patients to take part in the campaign without coercing them; signing pledge cards was optional and not a requirement.

The social workers were asked to meet with all patients at their facilities during the implementation months of July, August, September, and October. For measurement purposes, it was suggested they divide their patient census by four and meet with one quarter of the patients each month. The meetings could be conducted individually or in groups. "Lobby Days" were suggested as a means of reaching a group of patients at one time. This strategy was utilized by numerous facilities and proved very successful in generating interest in the campaign.

The Renal Center of Juncos, Puerto Rico, created a poster with a soccer field drawn on it to display the pledge cards. The entire interdisciplinary team worked to educate patients about the program. They culminated their interventions with a patient and family outing to a local park with food and activities for all. Atlantis Mayaguez, Puerto Rico, had an exercise day in their lobby, and trainers came to the facility to work with patients. Fresenius Medical Care (FMC) Yauco, Puerto Rico, brought an exercise bike in to the lobby, which was utilized by patients waiting to enter the treatment area. In New Jersey, FMC Philipsburg conducted a lobby day set up with a summer beach theme to promote activity. The staff utilized a Nintendo Wii game console as a tool to encourage physical activity with patients in the lobby area.

QIRN3 staff participated in several lobby days at dialysis facilities in New Jersey. Exercise physiologist support was provided from the Vascular Physiology Lab at the University of Delaware. Patients were provided with education about the overall benefits of increasing physical activity in a way that was specifically related to their renal disease and cardiovascular functioning.

### CAMPAIGN OUTCOMES

The number of patients who signed pledge cards in July, the first measurement month, was 383, exceeding our 10 percent goal for the project. In August, there were an additional 564, followed by 445 in September, and 136 in October. The cumulative total was 1,528, equaling 42.3 percent of patients in the targeted facilities.

As a result of this success, QIRN3 determined this campaign should be replicated in additional facilities, beginning in April 2015. Plans are in place to educate facilities about the successful strategies used by participating facilities in 2014. The goal will be to achieve greater than 42 percent of the newly-selected patients signing pledge cards, indicating their plans to increase their physical activity and improve their well-being.

QIRN3's goal was to initiate a campaign that would stimulate patients to increase their physical activity level. Initiating and maintaining physical activity is a complex behavior change that involves many stages. Behavioral interventions to adopt or maintain physical activity may differ depending on an individual's motivation and readiness for change. This pragmatic campaign allowed staff to interact individually with patients, providing education and setting specific goals that were relevant to each patient's current stage of behavior change. The campaign sought to initiate the first step in implementing physical activity as part of routine care in the CKD population through awareness, providing educational materials and resources regarding the benefits of physical activity in this patient cohort. Future research is required to further investigate the efficacy of such an intervention on translational adherence to increasing physical activity and the subsequent hypothesized benefits relating to hard outcome measures, such as quality of life, mortality, and morbidity.

#### **Patient and Healthcare Provider Resources for Physical Activity Used in this Research:**

- QIRN3 “Increasing Patient’s Physical Activity and Well-Being” English brochure: [http://qirn3.org/Files/Patients-and-Families/Patient-Focused-LAN/IncreasingActivity\\_Booklet.aspx](http://qirn3.org/Files/Patients-and-Families/Patient-Focused-LAN/IncreasingActivity_Booklet.aspx)
- QIRN3 “Increasing Patient’s Physical Activity and Well-Being” Spanish brochure: [http://qirn3.org/Files/Patients-and-Families/Patient-Focused-LAN/IncreasingActivity\\_Booklet\\_Spanish.aspx](http://qirn3.org/Files/Patients-and-Families/Patient-Focused-LAN/IncreasingActivity_Booklet_Spanish.aspx)
- The Importance of Exercise for Chronic Kidney Disease Patients (Kirkman, Lennon-Edwards, & Edwards, 2014) PDF article: <http://www.jrnjournal.org/article/S1051-2276%2814%2900144-7/pdf>
- National Kidney Foundation “Staying Fit with Kidney Disease” web page: <http://www.kidney.org/atoz/content/stayfit.cfm>
- British Renal Society TIME package PDFs: <http://www.britishrenal.org/AboutUs/Time/Exercise.aspx>
- Medical Education Institute “Exercise: A Guide for People on Dialysis”: <http://lifeoptions.org/catalog/pdfs/booklets/exercise.pdf>

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