Older people – Delayed transfer of care and tenancy support

New Charter Homes has co-created an initiative with Tameside hospital to pilot cost-effective solutions to the health challenges that affect older tenants.

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Welcome to issue 19 of Innov-age, focusing on the topic of home adaptations.

There are numerous benefits associated with adapting a home; it can aid in falls reduction, help individuals to perform tasks and reduce hospital and care home admission rates. Overall, modifications of the home environment can support older people to live independently for longer, despite their physical limitations. According to Care and Repair England, 90 percent of older people live in general housing and the suitability, condition and modification of all types of accommodation are imperative in an ageing society.

Leading this issue, Sarah Achterof and Emily Somerville, with backgrounds in occupational therapy, introduce the topic of home adaptations with themes revolving around older adults ageing in place and how modifications increase safety, security and independence.

Dr Ben Maruthappu, CEO of home care start-up Cera, talks us through how technology-enabled homecare can help support the elderly to stay independent.

George McCarthy and Ged Murphy discuss the U-drain technology; aiming to improve the lives of patients who use urine night drainage bags by simplifying the process. Justine Theaker, the clinical lead therapist for trauma and orthopaedics at Manchester University NHS Foundation Trust discusses her recent literature review on patient adherence to post-operative restrictions following total hip replacement.

To add to this issue, Dr Andrew Kingston, a chartered statistician based at Newcastle University’s Institute for Ageing, discusses understanding pathways of disability in older people. The article references age-related functional decline, characterising dependency and disability as well as charting and targeting interventions.

Tony Powell promotes the work New Charter Group are undertaking with older tenants and discusses the delayed transfer of care and tenancy support between health and social care.

This issue’s Cochrane Corner is authored by Professor Tracey Thompson of the Cochrane Collaboration. The piece discusses the home adaptations from the perspectives of falls, reduction in injuries and reduced physical activity. Can we also take this opportunity to congratulate Tracey on her appointment to the Board of Cochrane.

The Home Adaptations Consortium identifies the purpose of an adaptation being to modify the home environment in order to restore or enable independent living, confidence and dignity for individuals and their families; this focuses on identifying and implementing a personalised solution to facilitate a person living within a disabling environment to use their home more effectively.

This issue of Innov-age portrays a handful of work streams covering this topic, handpicked from the abundance of information available relating to home adaptations for the elderly.

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The links between healthcare & housing, research & practice

Sarah Achterhof is an occupational therapy student at University of Wisconsin-Madison. Sarah will graduate with her Masters of Science in Occupational Therapy in December 2017. Her clinical interests include helping rural-dwelling older adults age-in-place with home modifications.

Emily Somerville is an occupational therapist at Washington University in St. Louis. Her primary clinical and research interests include keeping older adults safe and independent at home and in the community. She has a particular interest in medication management in older adults who live at home and will complete her doctoral work on this topic in December of 2017.

When faced with the decision of where to live safely and independently, the majority of older adults choose to stay at home, or "age-in-place." Aging-in-place is defined as “the ability to live in one’s own home and community safely, independently, and comfortably, regardless of age, income, or ability level (CDC 2013).” Indeed the older adult population tends to spend the vast majority of their time at home, with those over 85 years old spending about 90% of their time at home (Donald, 2009). The home environment is closely linked to health outcomes, especially as one ages. Safe and accessible housing has been found to decrease incidence of chronic conditions such as heart disease, stroke, respiratory conditions, mental illness, and arthritis (The Housing and Ageing Alliance, 2013).

It is within many health care practitioners’ scope of practice to address concerns related to healthy aging-in-place and to be knowledgeable about the available resources and support. As the population of older adults continues to grow, this is becoming an increasingly relevant topic that health care practitioners should be prepared to address.

The most recent edition of the International Classification of Functioning (ICF 10), a framework adopted by the World Health Organization for describing and organizing information on functioning and disability, endorses the notion that it is not necessarily the person that needs to adapt to their environment, but rather the environment needs to be adapted to fit the person and their changing capabilities (World Health Organization, 2001). This idea has been further described by psychologists Lawton and Nahemow in their Ecological Model, as an individual’s performance is maximized when the demands of the environment match the individual’s abilities (Lawton and Nahemow, 1973). For example, a person who uses a wheelchair may not be able to fully participate in daily activities if key components of their environment are above wheelchair level. However, if the environmental demands are decreased by lowering objects such as light switches, thermostats, and shelves into reach range, the wheelchair user has the potential to perform optimally again. These changes to the environment are known as the home modification process.

Home modifications are defined as changes to a home that increase usage, safety, security, and independence. Home modifications include adaptive equipment, customized or off-the-shelf technology, hardware and controls, as well as complete architectural modifications (e.g. remodeling a bathroom to include a roll-in shower for a wheelchair user). Occupational therapists (OTs) are trained in recognizing how the environment affects the ability to perform desired occupations or activities of daily living (American Occupational Therapy Association, 2014). Current evidence supports home modifications to improve daily activity performance, reduce fall risk, and decrease demands on caregivers.
Comprehensive home modification interventions consist of an assessment of the individual’s personal abilities, assessment of the home environment, occupational goals, an intervention plan to remediate barriers, implementation of or support for the implementation of the plan, and training of the client or caregiver to complete their daily activities using environmental support. These are often more effective than less comprehensive interventions (Stark et al., 2017).

An example of an assessment designed to evaluate the older adult’s performance in the home environment is the In-Home Occupational Performance Evaluation (I-HOPE). This valid and reliable tool was developed by the Participation Environment Performance Lab (PEPL) at Washington University in St. Louis. The I-HOPE asks the older adult to prioritize difficult activities, and the OT observes the individual perform these activities in context. The OT also identifies and rates the impact of environmental barriers on the individual’s performance (Stark, Somerville, and Morris, 2010) (see Figure 1). This allows the therapist to begin to problem solve how those barriers can be removed and how to use the environment to support instead of hinder daily activities.

To contribute to the evidence-based home modification literature, PEPL conducts community-based research to promote the participation of older adults with functional limitations and reduce falls through the provision of intensive, tailored home modification interventions. The evidence shows that home modifications are effective in promoting participation in daily activities and decreasing falls. Therefore, PEPL works to translate these findings into everyday clinical practice by identifying and resolving barriers to implementation of home modifications. Members of the lab collaborate with colleagues from a variety of disciplines including Engineering, Pharmacy, Nursing, Physical Therapy, and Medicine. The lab has a strong network of community partners and many colleagues in the U.S. and internationally that collaborate on projects.

Recently members of PEPL have conducted two research studies that have helped to inform best practice. The first study, COMPASS, sought to determine the feasibility of implementing a tailored home modification intervention designed to increase community participation of older adult stroke survivors during their transition home after in-patient rehabilitation. Participants were assigned to treatment or control groups randomly. Participants in the treatment group received four to five 90-minute home visits with a home modification intervention prior to discharge, as well as training in community participation once they returned home. Participants in the control group received stroke education over the course of four to five 90-minute sessions. Participants in the treatment group who received home modifications experienced greater involvement in the community and had fewer environmental barriers in their home impacting their ability to complete daily activities. In addition, the more highly impaired participants who received the home modification intervention experienced meaningful changes in activity and participation scores on the I-HOPE.

PEPL also conducted a randomized controlled trial of home modifications for older adults who had experienced a recent fall. Participants in the treatment group received two to three 90-minute visits over the course of two to three weeks. The incidence of a first fall in the home in the first 260 days was increased to over twice the risk for those who did not receive home

Continued on next page.
modifications. Performance of a task or activity, satisfaction with performance, and environmental barriers to performance were significantly improved for the home modification participants compared with controls.

Additional evidence produced by PEPL further outlines how to make home modifications effective. First, home modifications need to be tailored to the individual needs and preferences of the individual. Tailoring includes considerations such as preference for aesthetics, who else is using the space, whether the individual is renting or owns the property, and the clinical course of the individual’s health.

Recommendations for home modifications must consider these factors, as well as others, to ensure that the modification will be acceptable and usable by the older adult (Stark et al., 2015). For example, some older adults might be opposed to grab bars because they can make a bathroom look institutionalized.

However, if the therapist presents the older adult with options that are designed to blend into the existing décor, the older adult is often more receptive to them and will take steps to implement them. Another example includes an older adult who rents their apartment and has grab bars that are slippery, but does not have permission to permanently alter the existing structure. Instead of recommending new grab bars or a spray-on adhesive that would alter the grab bars, the OT can recommend removable non-slip grab bar covers (see Figure 2). These eliminate the barrier of slippery grab bars, but are tailored to the client’s situation. Making sure the home modification recommendation is tailored to meet all needs and preferences will increase effectiveness by ensuring the lasting use of the modification.

Findings from PEPL’s research also indicate that the intervention must be intensive, or about 90 minutes in length, delivered once a week over the course of a month. Visits of this length and frequency allow for optimal comprehension, quick training on new equipment or architectural modifications, and increased ability to independently identify and solve new environmental barriers that might arise after the OT is finished with formal treatment. These principles are to be applied to a home modification intervention to increase ability to complete daily activities in the home as well as to prevent falls.

As the population continues to age, health care providers should continue to recognize the need for accessible housing to allow older adults to age-in-place safely and independently. Familiarizing oneself with the available resources and referring to an OT when necessary are all appropriate responses to this health care need. Making this a priority and providing these necessary services to older adults in the community has the potential to improve quality of life and functional abilities.

References:
How technology is transforming social care

Ben Maruthappu is a practising doctor and advisor to the NHS on over £100 billion of health spending, focusing on technology. He built the NHS Accelerator which scaled technology innovations to over 3 million patients in its first 6 months. Educated at Oxford, Cambridge and Harvard Universities, Ben was the first person from British healthcare included in Forbes’ prestigious 30under30 list. He recently ranked amongst the 100 most influential leaders in health technology globally.

While health and social care industries are often characterised separately, their common goal is to fulfil the overwhelming demand for patient care, both in hospitals and at home. Inevitably then, attempts have been made to more overtly unify these two sectors in recent years. In April 2016, for example, local authorities in Greater Manchester merged the organisation of health and social care through a reform dubbed “Devo Manc” after taking control of the area’s £6bn healthcare budget.

Better collaboration between health and social care via cutting-edge technology, specifically in the homecare space has also begun to be witnessed. From achieving greater economies of scale and efficiency to ensuring greater transparency and empowerment of care workers, technology is already making great strides to improve how homecare is delivered up and down the country.

Technology-enabled homecare provides a win-win scenario for various parties. It enables a faster transfer of patients from hospital beds to the comfort of their own home; it alleviates existing strains on hospitals and patients, who are in need of essential provisions like beds and care workers; it facilitates a wider range of social care service provision and flexibility; and it also supports relatives of patients who might take on additional caring responsibilities out of necessity. Home adaptations serve to alleviate these pressures.

An acknowledged medical reality is that elderly patients are more susceptible to multiple conditions that can subsequently require multiple care visits in a day, quite feasibly of a varying nature in each instance. At Cera, for example, an ‘on-demand’ service is provided, where users can request a care visit as and when required, tailored to the their specific needs. Through Cera’s technology platform, each patient can be matched with the right carer, at the right time, within 24 hours. With hundreds of care homes closing, it is clear that this model of quick and reliable social care is set to stay.

Social care has long been living in the past, and it is up to innovative providers to bring cutting-edge technology to the sector, with the view of bringing greater independence to the elderly, and helping them make the most of their later years. This hyperconnectedness – joining the dots between health and social care – is part of a wider phenomenon taking place around the world called ‘The Internet of Things’ (IoT).

The principle of IoT is to embrace technology and connectivity on a universal scale, with the potential to pervade every aspect of daily life. In a social care context, IoT has advocated the synchronisation of household appliances with predictable routines. For example, a member of the elderly community might wake up every morning and use their kettle. One morning, they slip and hurt themselves and don’t use the kettle. IoT proposes a system of integration that would note the failure to adhere to a typical routine and take progressive action. Notifications would be sent to nearby family members or carers, prompting them to investigate (Maiden, 2016a).

This is just one hypothetical scenario in which increased integration of technology into the typical domestic setting can benefit consumers. IoT also envisages refrigerators which track stock of fridge contents, as well as expiration dates, and take on the responsibility of ordering replacement items via the internet – an appliance that restocks itself (McKim, 2017). The scope for this is even more feasible considering the delivery capabilities of drones that are becoming more commonplace around the world. Again, visions such as self-stocking refrigerators all serve to alleviate excessive errands for the elderly, improving their levels of independence (Maiden, 2016b).

When it comes to joining the dots between health and social care, the application of this level of interconnectivity is already gaining traction. Artificial Intelligence such as Cera’s ‘Martha’ – the UK’s first-ever social care chatbot – helps not only the patients using Cera but also the carers. Very soon, Martha will also be capable of answering questions that a care worker may have based on a patient’s digital care records, and provide crucial advice if something causes concern. For example, if a care worker notes that “Mrs. Taylor seems quite feverish,” Martha might respond with “Mrs. Taylor had a cough recently, you may want to check her temperature and take note of her other symptoms.”

Of course, technology is not a standalone solution. Many existing tech solutions in the health industry are aimed at young and healthy smartphone users, ignoring those who attend A&E most frequently and use the most healthcare resources - the elderly. In order to really experience change, it is time to start focusing on those with multiple health needs, who could benefit the greatest from technology, with the potential to deliver the greatest savings to the health and care system.

References:
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http://uk.prnewswire.com/releases/2015/03/prweb12602535.htm
George McCarthy and Ged Murphy’s friendship began 30 years ago whilst working together at BT. Since that day both have enjoyed successful employment in varying fields. George became Managing Director of a European fibre optics company and then a successful property developer. Ged also worked in Europe testing fibre optics links until he returned to University and received a first class degree in Physics and Biology and went on to teach science at a local secondary school. The various skills accumulated would prove extremely beneficial in the U-drain story.

Twelve years ago George broke the shattering news that he had colon cancer. He would undertake radiotherapy, followed by surgery leaving him with a colostomy and a urostomy. Whilst recuperating in The Christie Hospital Manchester, George was advised by his stoma nurse that there was not an alternative to night drainage bags (NDB’s). NDB’s are two litre plastic bags that collect excess urine from the urostomy pouch throughout the night (Black, 1997). Once home, George became “psychologically challenged” with using the NDB’s, hindering his rehabilitation (Roe, et al 1987). He was horrified by the urine spills (Suman et al, 2016), the bedroom smelling of urine, the morbid chore of carrying, emptying and cleaning them. They became a constant reminder of his illness. George desperately needed an alternative to NDB’s.

Family and work commitments meant that the invention of a novel urine drainage system was confined to Friday night meetings between George and Ged. A simple socket located close to the bed, plumbed into the household waste system, all drained by gravity, was to be the answer. At night patients would connect their urostomy pouch to the socket, via an extra long connecting tube (now on prescription in the UK). Urine would flow away throughout the night, into the household waste system. In the morning the patient would uncouple the tubing from the urostomy pouch and flush the system with U-drain disinfectant. At last, no more NDB’s!!!!

A patent was applied for in the UK, US, Australia and EU, and granted four years later. Trialists came forward from across the world and their testimonials were so positive and humbling, that U-drain Ltd was born. A local business man Gerry Mason, founder of Morson Group, invested in the company and the NHS awarded U-drain a framework to supply the system to patients across the UK. It was not long before health and social care professionals and care home developers saw the benefits of U-drain leading to it being installed in to many assisted living and extra care developments across the UK.

As well as the obvious patient benefits, time saving, urine free smell, discreet and increased patient dignity, maybe there were more benefits to be gained both for patients and the NHS financially?

Whilst undertaking a literature review for CE mark registration, it was found that NDB’s may be an important potential source of Pseudomonas for nosocomial infection (Montgomerie & Morrow, 1980; Nash, 2003). Beetz (2003) and Lin (2013) postulated that patients who increased their fluid intake had lower rates of urinary bacterial infections. Maybe these were the reasons that all U-drain urology customers found the number of UTI’s had significantly fallen once they started using U-drain. U-drain patients believed their incidence of urinary tract infections had decreased due to them confidently consuming a lot more fluid than they dared to previously, using night drainage bags. A decrease in patient UTI’s would certainly amount to astronomical Health Care Provider savings. Data, obtained by a Freedom of Information request by the Medical Technology group found that “NHS in England spent £434 million in 2013/14 on treating 184,000 hospital admissions for a urinary tract infection” equating to £2,359 per patient (Medical Technology Group 2015).

As a result of U-drain’s urology success many clinicians advised U-drain to go into the field of Automated Peritoneal Dialysis (APD). APD is a form of peritoneal dialysis (PD) used to treat patients with End Stage Renal Disease (ESRD) another being Haemodialysis (HD). Clinicians believed U-drain would be even more advantageous in this field. Patients currently have to carry and dispose of around 15 Kg of waste fluid each morning as well as large volume of waste plastic and use a substantial amount of water. Patients would
simply plug the APD machine’s waste line into the U-drain socket and the 15 litres of waste APD fluid would drain away throughout the night.

U-drain also secured a Greater Manchester Academic Health Science Network Innovation Nexus Momentum grant to fund a trial at Salford Royal’s Peritoneal Dialysis Unit. The system was installed into the homes of 15 automated peritoneal dialysis patients and data collected was evaluated by Dr David Lewis senior PD Consultant.

Dr Lewis reported that 100% of patients would recommend U-Drain to another person on dialysis: “makes life a lot easier”, “much more convenient than using large drain bags”, “it saved a lot of time and you don’t struggle with heavy drain bags”. He also revealed that 100% of clinicians found benefit in not carrying the full drainage bags around a patient’s house and all would recommend the system to other patients.

U-drain was successful in an application to the NHS Sustainable Development Unit and Carbon Footprint Ltd was commissioned and found the emissions footprint of the U-Drain system to be 99.1% lower than current APD practice with cost benefits realising approximately £1000 per patient per year (Forsyth, 2017). Scaling this up over five years would equate to NHS savings of:

- **£16.6 million**
- **23 million KgCO2e**
- **6,500 tonnes waste plastic**
- **87 million litres water**

Although cheaper, Oliver et al (2007) and Dimkovic & Oreopoulos DG (2008) found uptake of PD to be declining in many countries, particularly among the elderly. Brown (2005) agreed but adds despite the fact that older patients cope as well as, if not better than, younger patients on PD. There are many barriers preventing the uptake of PD. One in particular documented by Oliver et al (2007) showed 43% of patients were unable to undertake PD as they had decreased strength and were therefore unable to lift PD bags. Tait (2017) reports that without U-Drain, “the patient would have had to return to hospital Haemodialysis, due to being too frail to carry drain bags”. Lewis (2017) also concluded that “nurses noted a time saving in their role from 5-20 minutes per home visit” when U-drain was installed, considerably reducing healthcare provider costs.

This simple device borne out of necessity has so much to offer including increased patient quality of life, possibility of lowering UTI’s, huge financial savings, decrease staffing time and astronomical environmental savings. Adoption of innovations by the NHS is notoriously difficult. Help from partners including GM AHSN, TRUSTECH, NHS Sustainable Development Unit and renal units, such as North Cumbria and Salford Royal, will help to secure U-drain’s future as the first line urine/APD drainage system across the globe.

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**References:**


Public Health and Social Care

Disabled people face delays in home adaptations from councils

Disabled people risk being left in unsuitable accommodation because of delays with grants from councils meant to help individuals adapt their homes, a report from the Local Government Ombudsman warns. Research from Leonard Cheshire Disability found that 62% of councils are not funding agreed adaptations with disabled facility grants within set timescales. Research from the home improvement agency, Foundations, shows that adaptations funded by a grant can help elderly people stay living in their own homes for an average of four years longer.

To find out more visit... http://www.publicsectorexecutive.com/Public-Sector-News/disabled-people-face-delays-in-home-adaptations-from-councils

Keeping people out of care homes

The push in recent years has been to keep people out of care homes by providing support in their own homes

It is an unlikely setting for a revolution in care, but the former disused warehouse on the New Dock industrial estate close to the centre of Leeds is being seen as the future of support for the elderly. The warehouse has undergone a £2.1m refurbishment to make it into Leeds City Council’s assisted-living hub, acting as a one-stop shop for care needs. It houses all necessary home adaptation equipment as well as being the application centre for blue badge holders.

For more information visit... http://www.bbc.co.uk/news/health-30922483

Only 1 in 10 MPs in England believe the social care system is fit for purpose for the UK’s ageing population

10% of MPs in England believe the current social care system is suitable for the UKs ageing population and 86% of MPs in England believe a cross-party consensus is needed for lasting settlement on health and social care. That’s according to a new poll of 101 MPs of all parties representing constituencies in England commissioned by Independent Age, the older people’s charity. The new poll by ComRes finds there are strong majorities across both major parties who believe funding for social care is inadequate.

To find out more visit... https://www.independentage.org/news-media/press-releases/only-1-10-mps-england-believe-social-care-system-fit-for-purpose-for-uk's
Cohousing: ‘It makes sense for people with things in common to live together’

Housing scheme offering older people the chance to live independently but in a shared community

Cohousing is a pioneering housing scheme where members would move together into a custom-built housing development, in which each would have their own self-contained apartment and front door, but where they would share communal facilities, commit to eating together regularly and in the words of one of its members, “sign up to be neighbourly”. Their homes would be ‘future-proofed’, allowing them to make mobility adaptations in later years if they needed to and thus to live independently for as long as possible. However crucially, unlike standard sheltered housing, the development would be designed and managed by the community itself, and the residents would choose each other.

To learn more about this innovative scheme visit https://www.theguardian.com/society/2015/feb/16/co-housing-people-things-common-live-together-older-people

Upcoming Events...

Occupational Therapy Show
22nd November 2017 – 23rd November 2017
The Occupational Therapy Show is the UK’s largest dedicated CPD education and trade event for Occupational Therapists. The conference programme covers clinical areas such as physical, mental health, children and families, innovation in practice and shaping the future and research in practice. The exhibition will feature leading suppliers displaying practical new equipment, products and services.
http://www.theotshow.com/

British Geriatrics Society (BGS) Autumn Meeting
22nd November 2017 – 24th November 2017
The BGS Autumn meeting will cover the latest scientific research and the best clinical practice in the care of the older people. Our ageing population is stimulating extensive NHS service redesign to deal with the challenge of caring for larger numbers of older people both in and out of hospitals. The conference will cover core areas of interest to all specialists responsible for the health care of older people in the United Kingdom.
http://www.careengland.org.uk/british-geriatrics-society-autumn-meeting

The Future of Ageing 2017: Transforming Tomorrow Today
29th November 2017
The conference will aim to reinvigorate those of us already convinced of the importance of ageing. They need businesses, entrepreneurs, people managers, and marketing professionals to work with the charity sector and policy makers and politicians to deliver change. The event aims for everyone to come away having learnt something new and with a plan to act on it.
http://www.futureofageing.org.uk/

Occupational Therapy Adaptation Conference
13th December 2017
This is an opportunity to gain valuable knowledge around adaptations and equipment not only for personal development and reflection but to also to enable you to showcase the value an Occupational Therapist or individual specialising in adaptations for the disabled can bring within housing adaptations regardless of your working environment.
https://www.otac.org.uk/events/edinburgh/
Do patients adhere to post-operative restrictions following Total Hip Replacement?

Justine Theaker is the Clinical Lead Therapist for Trauma and Orthopaedics at Manchester University NHS Foundation Trust. Justine has 13 years’ experience working in orthopaedic and fracture clinics as an Extended Scope and Advanced Practitioner. She is currently studying for a PhD exploring the impact of prescriptive post-operative restrictions following total hip replacement.

Hip replacements are now one of the most common operations in the UK with the National Joint Registry of England and Wales reporting 76,274 primary Total Hip Replacements (THR) in 2013 compared with 14,413 in 2003 (Hunt et al., 2013). THR is reported make a significant contribution to improving the quality of life of individuals (Quintana et al., 2006).

Before surgery extensive patient education and preparation of the home environment with appropriate aids and adaptations is required. Patients are also advised to follow rigid post-operative restrictions that support their normal daily function after surgery. These are now common practice to reduce the risk of hip dislocation (see table 1) (eg Smith et al., 2016; van der Weegen et al., 2016).

In order for patients to adhere to these restrictions aids and adaptations are required to support activities of daily living. These include the provision of mobility aids, high seat chairs, perching stools, toilet frames, grab rails, second stair rails, devices to raise the bed and armchairs, kitchen trolleys and small dressing aids. Equipment however is reported as burdensome and unsightly with patients preferring not to use them for the recommended periods of time. This has a direct impact on adherence to restrictions following THR, with some patients complaining they were not able to return to driving, return to work, resume sexual activities and exercise until at least 6 weeks after surgery (Hippychic, 2014; DePuy, 2016b).

Emerging evidence now casts doubt on the impact of post-operative restrictions on incidence of dislocation, which is reported as the main driver for their imposition low dislocation rates are now reported to be a result of combined factors such as improved surgical techniques, large femoral head sizes, and hip joint capsule repair alongside restriction of patient activities following surgery (eg Mikkelsen et al., 2014; Smith et al., 2016). The impact of patient adherence to the restrictions following surgery on dislocation incidence is therefore unknown. A review of evidence exploring adherence to the restrictions was undertaken therefore to allow contextualisation of the impact this may have on dislocation rates.

**Results**

**Assessment of studies**

Only five selected studies were relevant to THR patients.

**Driving**

Kelly et al., (2013) studied adherence of time to resume driving. Although this would indicate a return to independence, it is a restricted activity for a minimum of 6 weeks due to the risk of inability to perform an emergency stop safely and effectively and the subsequent risk of hip dislocation (Pataky et al., 2009). Using telephone interviews 18 months following THR they found that 19% of patients resumed driving less than 6 weeks post THR.

**Elbow crutch use**

Kelly et al., (2013) explored adherence to use of elbow crutches following THR. A telephone interview was conducted 18 months after surgery. Of the patients able to recall their adherence, 26% reported they had stopped using elbow crutches before 6 weeks, despite being advised to continue with their use until then.

**Supine sleeping (sleeping on the back)**

Only one study (Modi et al., 2012) investigated whether patients adhered to the post-operative sleeping restriction. 98% of patients recalled being advised to sleep supine for 12 weeks following their THR. Despite this advice the mean period of supine sleeping was only 9.6 weeks with 53% patients reporting sleeping supine for the full 12 weeks.

**Partial weight bearing**

Three studies explored training for partial weight-bearing after THR using a combination of physiotherapist training...
and, or biofeedback to train patients. In the initial partial weight bearing training phase following THR, patients were able to reduce weight bearing across all studies by varying amounts.

Schaef er et al., (2015) used bathroom scales and biofeedback to evaluate the patient’s ability to partial weight-bearing as evidenced by a significant reduction from pre-operative baseline when measured on an even floor. This reduced further to 53% when patients ascended stairs.

Patak et al., (2009) used biofeedback and bathroom scales training by a physiotherapist and was able to establish significant improvements in the ability of patient to weight bearing following training with a physiotherapist. However patients were not able to maintain this level after repeated testing and weight bearing increased 2 days after initial testing.

H urkm ans (2007) illustrated the limited effect of ongoing supervision of patients following the initial partial weight bearing training period after THR. By the time patients reach 2 weeks after discharge there were 0% of patients being able to achieve the ≤10% body weight restriction and 37.5% of patients achieving ≤ 50%.

Discussion

There is limited evidence of patients’ adherence to post-operative restrictions and use of assistive devices following THR. However all studies alluded to the possibility that patients following THR did not comply with recommended restrictions.

The findings of the review concur with clinicians’ observations in current practice. Firstly some patients do not have the physical ability to adhere to medical recommendations following THR, even with assistive devices (Hippychic; 2014; DePuy, 2016a) and secondly that of the proportion of patients that are able to adhere to the recommendations many choose not to do so.

Despite the lack of adherence to post-operative instructions and restrictions, the incidence of dislocation following THR remains unchanged for the last 30 years at 2 - 2.5% (Khan et al., 2006, Dargel et al., 2014). If dislocation risk was the primary reason for enforcement, this could call into question the value, necessity and benefit to patients of burdensome assistive equipment and restrictions. The study does however call into question the quality of data to challenge this question.

Conclusion

Historical practice has shaped post-operative recommendations and restricted functional activities of patients following THR. However, it is becoming apparent that the benefits of current practice to reduce the risk of post-operative dislocation lack a robust evidence base. Enforcement of restrictions may be unnecessarily causing discomfort and inconvenience for those patients that adhere to them with potentially no influence on risk of dislocation.

The available evidence confirms that patients are unable to adhere to some post-operative restrictions following THR, although the proportion is unknown. Further research is needed to better define patient adherence to the recommendations and the impact of adherence on overall quality of life and on the risk of post-operative THR dislocation.

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Research

Understanding pathways of disability in older people – live longer, die shorter

Andrew Kingston is a Chartered Statistician with a PhD in the epidemiology of health in very old people (85+) and is based at Newcastle University’s Institute for Ageing. Andrew’s main research interest is understanding pathways to disability in older people. His vision is to understand how age-related functional decline can be compressed into the shortest duration possible, leading to better quality of life for older people.

Age-related functional decline

From the perspective of individuals who are currently experiencing (and those who will at some point move into) older age, uncertainty about what their remaining lifetimes have in store can be a daunting prospect. One of the greatest fears (notwithstanding concerns about ill-health) is a loss of independence. A study by the Disability Living Foundation in December 2009 indicated that 68% of older adults feared a dependence on others more than death itself (29%) and 44% had concerns about moving into a care home (Disability Living Foundation, 2009). In addition, the loss of independence is linked with, and often exacerbates age-related diseases and drives increased health service use (Jagger et al., 2011; Kingston et al., 2014).

This is coupled with the potential demand for an additional 71,000 care home places over the next eight years due to dependency (Kingston et al., 2017). Therefore, efforts must be channelled to understand how a person’s functional ability unfolds with age, how it is shaped by lifestyle factors and disease and, moreover, how it can be altered such that age-related functional decline is compressed into the shortest possible window before death.

Characterising dependency and disability

Fifty-four years ago, Sidney Katz developed an index of ageing containing items that have become known as basic activities of daily living (BADL) or sometimes simply ADL (Katz et al., 1963). His five activities: feeding, dressing/undressing, bathing or showering, using toilets, and transferring from bed to chair, were those which, when not performed, indicated a high dependence on others. Although the Katz index was useful, it could not detect milder, yet still important, levels of disability.

So, in 1969 Powell Lawton and Elaine Brody developed an additional scale, Instrumental ADL (IADL), focused on the ability to perform household care activities and functioning in the wider society (Lawton and Brody, 1969). This IADL index consisted of eight items: cooking, shopping, laundry, housework, using public transport, using the telephone, taking medications and managing money, though subsequent research has found the two latter items have a cognitive component, tapping a different construct to the other ADL items.

Disability, often defined in terms of the ability to carry out activities related to daily tasks, is a forerunner of numerous important outcomes such as health service use, institutionalisation and mortality and it has been used to assess levels of dependency (Isaacs and Neville, 1976). When combined to measure disability, ADL and IADL are good predictors of outcomes indicating older people’s vulnerability.

IADL/ADL items are usually self-reported but studies have clearly shown a gap between what older people think they can do and what they do. Disability or vulnerability information may be required on performance (do you...) rather than self-reported...
ability (can you...). There may be an argument for collecting both performance and capacity data as discrepancies may represent compensations or reflect gender-specific tasks such as cooking. The original index had response categories: without aids or help (independent); with aids; only with the help of another person. Later an extra category of independent with difficulty was added. Difficulty is more a characteristic of the person and less affected by social support and therefore more appropriately indicates disability.

**The order of age-related functional decline**

Recent research has also illuminated that items that make up the IADL indices tend to unfold in an order. Research conducted at Newcastle University, using data from the Newcastle 85+ Study, has shown that the order in which people encounter difficulty with IADL is largely consistent for both sexes (Kingston et al., 2012). For both men and women, cutting toenails is the first activity with which people have difficulty, and feeding the last. The order of loss of ability to perform activities can be classified in terms of four domains, with each domain containing multiple activities that are similar in terms of their need for specific functional integrity combinations of dexterity, balance, strength and upper or lower extremity involvement. For example, the first abilities lost require complex manual dexterity and balance and the last upper rather than lower limb control.

**The hierarchy of tasks that underpin age-related functional decline can predict patterns of loss in capability in IADL and the subsequent need for short and long-term care.**

Moreover, an ordered scale that can accurately forecast functional decline has important predictive value in terms of identifying people at high risk of disability and progression from early to advanced stages. This opens potential for significant and novel ways to prevent/decelerate and compress the progression of disability, therefore maximising the independence of individuals. It could also aid the recovery from more severe stages through targeted use of care/support/rehabilitative services, depending on a person’s location in the hierarchy. Additionally, an ordered scale provides a common metric that health professionals and patients understand thereby providing potential for a synergistic health professional/patient partnership in the management of age-related functional decline.

**Charting and targeting interventions**

Using the hierarchical property, a system of managing disability has potential to be developed. At an individual level, it would allow for targeted interventions dependent upon where a person currently is within the hierarchy on their disability.
‘journey’. Those at the beginning, and those at risk of joining the hierarchy of disability, are targets for therapies that focus attention of strengthening body structures that maintain balance and complex manual dexterity; thereby decelerating decline, or bringing it to a standstill, or even re-enabling abilities that were once lost. People mid-journey are those for whom interventions would target long-distance mobility, upper limb control and balance and it is at this juncture that assistive technologies and environmental modifications could play a part to help maintain function. Later stages of the process (where people are likely to have difficulty with ADL specifically), would be the likely point at which the use of formal care is used to aid people in their day-to-day lives. It is an important caveat, that use of technologies or interventions that assist a person rather than allowing autonomous completion of tasks, are a last resort, as overcompensation is likely to accelerate age-related functional decline.

Conclusion

The hierarchy of decline has utmost potential in its capacity to provide a metric with which we can target interventions tailored to individuals using their location in the hierarchy of disability.

It is beyond the scope of this article to discuss such interventions and their type, but it provides a solid basis upon which their efficacy can be evaluated. Furthermore, this process is readily understood by health care practitioners and older people alike, thereby nurturing a partnership in health care planning and delivery.

References:

Older people – Delayed Transfer of Care and tenancy support

Tony Powell is Deputy Chief Executive at New Charter Group – a medium size housing association, which operates in Tameside, Greater Manchester and Nottinghamshire. Tony has over 40 years’ experience in Local Authorities and Social Housing. He brings extensive experience of housing management, housing advice, supported housing, and community regeneration to the Greater Wellbeing Board, and has developed close working partnerships with health organisations including Tameside Hospital and local GPs. Tony is a Director of the Great Academy Education Trust and a Chair of Governors at a local primary school.

In every locality, commissioners of health and social care services for older people increasingly need to invest in integrated, collaborative ways of working that enable them to balance the twin pressures of decreasing resources against an ageing population where research suggests rates of multi-morbidity increase with age.

In Greater Manchester, New Charter Homes (a housing association) has co-created an initiative with Tameside Hospital, a local GP practice and Tameside Public Health to pilot cost-effective solutions to the health challenges that affect older tenants’ quality of life while reducing the demand their poor health places on hospitals and primary health care services.

In the first phase of this pilot, New Charter Homes has recruited a Tenancy Support Officer who works with clinicians and health professionals to develop personalised, solution oriented programmes of support that address the housing and support needs of up to 10 older people at any one time. The subjects in the pilot are drawn from two groups:

- Older tenants who are clinically fit to be discharged from hospital, but where assessment has identified them as being likely to experience difficulties living independently and managing their tenancy on their return to the community.

- Older tenants where GPs at the participating practice have identified them as being at risk of admission to hospital because a chronic health difficulty is associated with day-to-day difficulties in living independently and managing their tenancy.

It’s intended for this way of working to provide the basis for a self-financing, sustainable service by April 2018. The business model is based on attaching a time limited ‘Intensive Housing Management Charge’ against New Charter tenants who are eligible for Housing Benefit - for the duration of the intervention by the Tenancy Support Officer.

In the medium/long term, future development of this pilot initiative will be based on a formative evaluation, which is intended to enable New Charter Homes to more accurately calculate the scale of charge that will be necessary to ensure full-cost recovery.

The formative evaluation will include:
- Analysis of estimated levels of demand for this way of working
- The throughput of cases which is viable with older people with chronic health difficulties
- The impact – the difference - made by this way of working with older people
- Ratification by Tameside Council’s Housing Benefit team of an agreement in principle to accept the addition of eligible Intensive Housing Management charge; and, agreeing to pay Housing Benefit for eligible customers referred to the service

A long-term goal, should this way of working prove to be effective in reducing ‘Delayed Transfer of Care’ and non-elective admissions to hospital, is for New Charter Homes, Tameside Hospital and Tameside Council to engage local health and social care commissioners in identifying funding that would enable older people in Tameside who aren’t New Charter tenants to benefit from any improvement in their capability to live independently and quality of life provided by this way of working.
Household adaptations

Injury in the home environment is an extremely common event, accounting for around a third of injuries in all age groups. The majority of injuries in people aged 75 and over occur in the home. In particular falling in and around the home is a significant concern for an ageing population, and as such is of interest to a wide audience including health and social care practitioners and researchers.

Household adaptations to try and prevent injury or falls can include improvement of lighting in halls and stairways, installation of grab rails or ramps and the removal of trip hazards. Reviews have looked at the effectiveness of household adaptations to determine whether modification of the home environment reduces injuries and falls in the home.

Reduction of injuries - physical hazards, poor design and layout may contribute to events leading to injuries in the home. However there is little high-level scientific evidence to suggest that home modifications do actually reduce the number of injuries. This may be due to the fact that many injuries are a result of a number of factors and modifying the home is tackling just one of these factors.

Falls - assessing and modifying the home environment has been identified as having a positive impact on the effectiveness of falls prevention. Evidence from 13 studies (incorporating over 8200 participants) suggests that both the risk of falling, and the actual number of falls was reduced through interventions where the household is assessed and adapted.

Household adaptation is a core concern for Occupational Therapists, and research has shown that the most effective home environment interventions have been led by an Occupational Therapist.

Reduced physical activity - those who have visual impairment may be fearful of engaging with physical activity around the home due to a fear of falling. Home adaptations are frequently used as an intervention to address this fear of falling, and health and social care professionals such as Occupational Therapists routinely implement modifications such as introducing contrasting visual cues on stairs, or removing rugs.

However, the effectiveness of these modifications has not been robustly concluded. There is currently a notable gap in research focused on the physical activity limitations of people who have visual impairments.

Given that household adaptations are a key intervention, researchers and clinicians are urged to consider this gap, and to conduct trials that can be used to inform and underpin this specific area of practice.

References:
What is your current position and what was your career path that took you there?
I was always interested in health and fitness which led me to Physiotherapy. I currently have two roles as Clinical Lead Therapist for Trauma and Orthopaedics at Manchester University NHS Foundation Trust (MFT). My second role is as a Clinical Academic Fellow at the University of Manchester where I am just starting the third year of my PhD.

What challenges do you face in your current position and which has been the greatest one?
Both my positions have the capacity to become full time jobs. This creates my greatest challenge, knowing when to stop to make room for ‘life’.

In your opinion, what are the top three issues affecting the care of older people?
- One issue that concerns me is as the older population grows, the field of specialists in medicine for older people appears to be shrinking. If this issue is not addressed, the demand will far outweigh capacity in future years.
- A further issue I see at the coal face of healthcare is the impact of Major Trauma Centres (MTCs) on the care of older people. The redesign of services present challenges for clinical teams in terms of prioritisation of care.
- Another key issue in my opinion is engagement and empowerment of older people. This is essential to ensure access to the benefits of devolved health and social care budgets which are increasing across the UK.

What changes in elderly care do you anticipate in the next few years?
Healthier Together work is shaping Single Site Hospitals across the UK. The proposed benefits of the partnerships include reducing healthcare inequalities and service gaps, standardising care pathways, recruitment of more specialist staff for future healthcare improvements. Although this will have a positive impact on specialist care it will have implications for patients which may need to travel further to access care.

If you hadn’t become an Epidemiologist what might you have done?
I would have loved to be a pilot. I have had an enduring love of anything resembling flying, fuelled by 10 years in the Air Training Corps as a Cadet and also as a staff member.

What experience has influenced your career the most?
When I returned to education as a mature student, I did not hold high aspirations, I was just curious to see what I could achieve. At the bottom of my first assignment the concluding read;
‘Justine, you can, and will achieve your dream. Just believe.’
I’m still going and I still believe.

What advice would you give to someone contemplating following in your footsteps?
1. Learn how to make friends and influence people.
2. Do favours but expect nothing in return, they will be returned but when you least expect it.
3. My mantra of ‘make peace with imperfection’ is not easy to adopt, however it has served this perfectionist well.

What do you enjoy doing when you are not working?
I love being outdoors socialising with family and friends. That could mean anything from walking to the local watering hole or up a high peak for a better peek.

What do you do in a typical working day?
Last week was a pretty average week; I presented at a national conference, I worked in Orthopaedic clinics, wrote a research proposal and a business case, presented a new spinal fracture pathway for hospital ratification, attended a planning meeting for a university visit, and met with the research design service about methodology for a study proposal.

If you were stranded on a desert island what would be your one luxury?
A memory foam mattress.
In our next quarterly issue of Innov-age we will be looking at respiratory issues.

It is noted that the effects of ageing on the respiratory system are similar to those that occur in other organs, i.e. maximum function gradually declines. As a result of changes in the body due to age, older people are at increased risk of lung infections such as pneumonia and bronchitis, shortness of breath, and abnormal breathing patterns which can result in problems such as sleep apnoea.