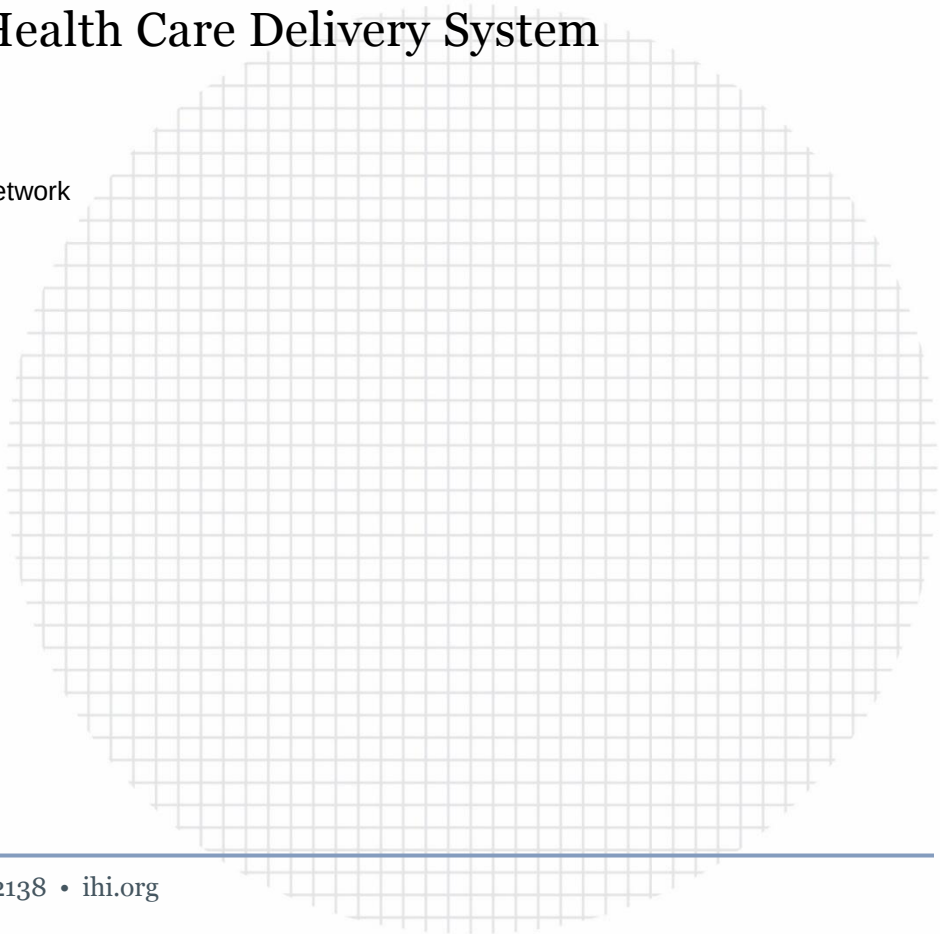
Institute for Healthcare Improvement

Discharge to Assess: "Flipping" Discharge Assessment from Hospital to Home

A Case Study for US Health Care Delivery System Innovation

IHI/Commonwealth Fund Innovations Network



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Contents

Summary

Discharge to Assess (D2A) is a redesign of the care process at Sheffield Teaching Hospitals in the UK that involves assessing a patient's needs after discharge in the patient's own home rather than in the hospital. Activities that traditionally happen at the end of a hospital admission are instead performed successfully and safely at home, thus enabling patients who are medically ready to go home earlier and spend less time in the acute care setting.

This innovation, also referred to as a "flipped" discharge, started with care of the frail elderly and is currently being spread to other patient populations. The service is now maturing and results to date suggest sustained improvement. The innovation facilitates reduced length of stay and the safe and timely discharge of patients with complex needs, with no increase in readmissions, a decrease in cost, and an increase in patient, family, and employee satisfaction.

At Sheffield Teaching Hospitals, a key mechanism for achieving the organizational culture change required for implementing this innovation was the *Oobeya* ("Big Room") process, which supported the generation of the concept of D2A, its testing, and its scale up to the entire health care system. In parallel, the Sheffield Teaching Hospitals provided intensive quality improvement training for their staff to create a culture of improvement and the capability for this innovation to be adopted.

Introduction

The problems that plague US health care systems are longstanding and many seem to be intractable. Yet, by studying health care systems in other countries, innovative solutions may be available globally to help solve or improve these problems. To this end, The Commonwealth Fund, in collaboration with the Institute for Healthcare Improvement (IHI), established the International Program for US Health Care System Innovation. This program aims to 1) identify promising frontline delivery system approaches to health care from abroad that might be transferred to the United States to improve quality of care, control costs, and increase value; and 2) test the innovations in the US health care systems to adapt for a US context.

The program established an Innovations Network of 15 leading US-based health care systems to identify and prioritize four intractable problems in the US delivery system. An international panel of experts scanned industrialized countries outside the US for innovative solutions to the intractable problems, evaluated the feasibility and transferability of the innovations, and selected four of the most promising solutions for site visits to gain a firsthand understanding of how the "solution" works in the local context.

This case study presents one of the four selected innovations for which a site visit was conducted, describing the innovation in the local context and discussing considerations for implementing the innovation in the US health care system. A team of four researchers from the Institute for Healthcare Improvement and eight health care leaders from the IHI/Commonwealth Fund Innovators Network conducted a three-day site visit in Sheffield, UK, in May 2016. The team met with developers, researchers, trainers, and implementers of the Flipped Discharge method; documented conversations in detailed notes; and audio-recorded most interviews. After each day, the team discussed findings and unanswered questions and prepared for upcoming discussions. Common themes were identified, and supported by quotes and literature. The case study was written by the primary author, and reviewed by all site visitors and Flipped Discharge experts. The research and initial written summary of this innovation were completed in August 2016.

Overview of the Innovation

Sheffield Teaching Hospitals NHS Foundation Trust in north-central England includes five teaching hospitals with 1,920 beds, 16,000 staff, and serves a population of 560,000 people. NHS hospitals traditionally assess patients' post-hospitalization needs when acute care is complete, sending information to community services and discharging patients when the requested resources are in place at home. In going from assessment to discharge, patients sometimes spend more time in acute care settings than medically necessary. In Discharge to Assess (D2A), older patients on the Frailty Unit are discharged home immediately when medically ready, and the community health and social care support staff meets them at home to assess and provide immediately needed services within two hours.[1]

Two types of patients are served by D2A:

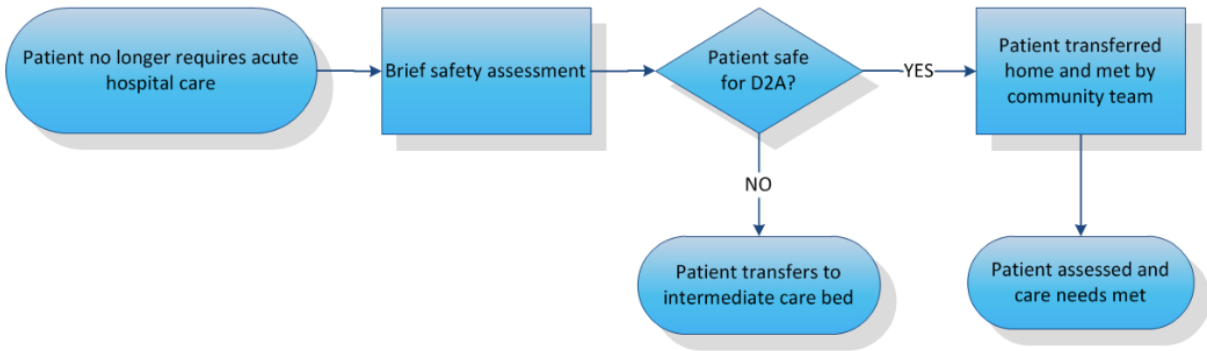
- Frail elderly patients, including elderly with dementia; and
- Other patients exhibiting similar characteristics, such as elderly patients who have had orthopedic surgery and non-elderly patients with dementia.

D2A includes three care pathways:

- Inpatients who are transferred home with social services in place;
- Patients arriving at the emergency department (ED) who are treated and assessed upon arrival and transferred directly home with appropriate care and services in place, eliminating the need for admission to the hospital; and
- Preventing admissions of frail elderly through a single point of contact for general practitioners to social services and specialty care, eliminating the need for an admission or ED visit.

The goal is to return hospitalized patients home as soon as possible, or keep them well and safely at home. Planning for discharge begins at the start of a patient's hospital stay, with a staff focus on discharging the patient as soon as acute care is not medically necessary (see Figure 1).

Figure 1. High-Level Flowchart of Discharge to Assess (D2A) Process



The sequence of activities when a patient is medically ready to go home is described below.

- A clinical safety screen in the hospital ensures that a patient is "fit for discharge."

- Ambulance service transports the patient home.
- The patient is met at home by a specially-trained team of nurses and occupational and physical therapists, which performs a needs assessment in the patient's home.
- Patients and families are engaged in the assessment process; the patient's own goals are central to the assessment.
- Arrangements are made to provide needed support services immediately, or as soon as possible, through the Active Recovery Service. The care plan may include equipment, home care for activities of daily living, mental health care, physical and occupational therapy, medication review, and other support services.

The key components of D2A (detailed in Appendix A) are as follows:

- A systematic approach to innovation, change, and learning.
- Active Recovery Service with generic medical and social service assessment capability to meet the medical and social needs of a patient after discharge.
- Front Door Response Team meets patients upon their arrival at the hospital.
- Assessment of post-discharge needs occurs in the patient's home once acute hospital care is complete.
- Home help, self-directed goals, and care, including integrating support from friends and family into the plan.
- Transport, access, and toileting are recognized as enablers of discharge to home.
- Providing wraparound care for patients who need more intense home support (still in the testing phase).
- Single point of contact access (via telephone) to the Active Recovery Team, a comprehensive and coordinated team for service and support — the goal is to have all support activities coordinated via a single point of access to services, creating a shared purpose among services and a system that works "as one" for patients.

Below is a brief patient example to illustrate how the D2A approach works.

> An 83-year-old man is admitted to the hospital after going to the emergency department (ED), following a crisis at home one morning. He has new presentation of dementia at a relatively advanced stage. The patient transfers from the ED to the Frailty Unit and undergoes medical assessment by the physician to determine he is medically ready to be discharged to home. At Sheffield Teaching Hospitals, this medical assessment includes a medical history, exam, mobility assessment, and screens for confusion or dementia.
>
> In the afternoon, a physician and care team meet with the patient and his niece to discuss the plan for discharge to assess (D2A).
>
> The patient is transferred home and assessed in real time. The necessary equipment and home care are put in place to meet the patient's needs, initiated on the same day as the patient is discharged to home. The hospital team makes a referral to a community-based memory service for ongoing medical model input.
>
> The patient continues to live independently and is not readmitted to the hospital.

Contextual Factors Leading to Development of the Innovation

Creating the culture of improvement at Sheffield that facilitated the creation and implementation of the D2A innovation began when the improvement team at Sheffield Teaching Hospitals began working on patient flow in 2010. The team focused first on frail older emergency patients because a review of geriatric medicine wards showed that only half of the patients were receiving acute medical, nursing, or therapy care; the other half were awaiting discharge. Waiting for separate assessments from post-discharge providers of intermediate and social care services could add weeks to hospital stays, and all services needed once the patient was back at home might still not be in place at time of hospital discharge.

The additional time in the hospital created risks for patients, frustrated patients, their families, and staff, and added costs. Also, assessments done in the hospital sometimes identified needs that were no longer present when the patient returned home, while other important needs might not have been identified.

The improvement team sought to address delays in discharge without raising the risk of mortality and/or hospital readmission.[2] Through multiple Plan-Do-Study-Act (PDSA) cycles, sufficient knowledge was accrued to initiate large-scale redesign of the frail older patient's pathway.[3] The required resources were then put in place, including the creation of D2A. The Sheffield team continues to refine the process.[4]

The team that created D2A included geriatricians, residents, nurses, pharmacists, occupational and physical therapists, and clerical staff, with expert clinical systems engineers as facilitators. The team has met weekly for one hour for more than four years.

Key to the improvement process was the creation of a dedicated space called the *Oobeya*, Japanese for "Big Room," a Lean technique adapted from the Toyota Production System in which the walls of the room are covered with visual representations of a project (such as schedules, diagrams, drawings and metrics). There is no hierarchy of staff in the "Big Room."[5]

Each week, staff would meet to review patient outcomes, create process maps of patient pathways, and redesign care processes to meet the needs of patients and family members.[6] Each meeting began with a patient story. All participants were trained in the quality improvement methodology known as the Model of Improvement.[7] The improvement process began with small tests of change using the Model for Improvement and PDSA tests of change, and lessons learned were openly shared.

Table 1 lists the "building blocks" of D2A — the key methods that enabled the innovation to be implemented and sustained.

Table 1. Discharge to Assess Key Components and Enablers

Discharge to Assess Components	Methods Enabling Discharge to Assess
• Active Recovery Service • Front Door Response Team • Assessment in the home of post-discharge needs • Home help and support • Transport from hospital to home • Wraparound care for those patients who need more intense in-home support • Single point of access to support services team	The team at Sheffield used elements of three methodologies to test, and ultimately spread, the Discharge to Assess innovation: • The Model for Improvement; • Lean principles, particularly *Oobeya* project management; and • Dartmouth Institute Microsystems Coaching. Throughout testing and spread, leadership provided consistent support across the macrosystem and mesosystem.

Steps in the Improvement and Implementation Process

The improvement process to develop and implement D2A occurred in eight key stages, as described below.

1) Analyze the Process

Since 70 percent of older patients enter the hospital through the emergency department, the first step in the improvement process was to analyze the entire ED pathway for this population for one year (from April 1, 2009 through March 31, 2010). A key concept in improving patient flow is understanding the bottlenecks in the system. Two flow improvement opportunities were identified:

- Excess time between patients' arrival at the hospital ED and when they were assessed and given a care plan by a geriatric medicine physician; and
- When patients were medically ready for discharge, awaiting assessment of post-discharge needs before they could be discharged to home.

2) Match Capacity to Demand across the System

To address the first flow improvement opportunity, the process was changed so that patients could see a physician on their arrival at the hospital ED instead of being batched for lead physician attention. This process change required scheduling and staffing changes — changes that addressed another key concept in improving flow: matching capacity to demand. A dedicated "Front Door Response Team" was created to meet older patients as they arrive to provide clinical input focused on getting patients home as soon as possible. This team is composed of cross-trained nurses, physical and occupational therapists, and a physician. By early 2012, all 16 geriatric medicine physicians had changed their work schedules to match their capacity with patient demand. The

involvement of medical staff in the *Oobeya* process was key to achieving their ownership of these changes.

3) Discharge Patients When Medically Ready

To address the interval between when patients are medically ready to leave as determine by their care team, and actual discharge from the hospital, a multidisciplinary team assessment for the discharge process was put in place, replacing the separate assessments by various support care providers. Using small tests of change, Sheffield brought together occupational therapists, physiotherapists, social workers, general and mental health nurses, and medical staff to work on Active Recovery Teams to develop discharge plans when a physician determined a patient was medically ready for discharge. Since the Front Door Response Teams had already been developed, common terminology and interdisciplinary collaboration were already present.

4) Establish a Frailty Unit

The Sheffield team also opened a Frailty Unit in 2012 to better meet the needs of the frail older adult patient population, enabling multidisciplinary staff to work in the same location and facilitating communication among care teams. The Frailty Unit accepted older patients who were identified in the ED or after being admitted to other units.

5) Assess Post-Discharge Needs in the Home

The next step was testing how to move the multidisciplinary assessment of needs from within the hospital to within patients' homes. Starting with a test with one patient and one team, the patient was taken home with a hospital therapist and assessed in her home environment, where team members reported that she "came alive." Further cycles of testing demonstrated that being assessed at home was more effective and efficient.

6) Create the Context for Successful Implementation of the Innovation

Knowing details of an innovation does not enable an organization to recreate it. Successful implementation requires leadership support, good relationships among multidisciplinary teams and key stakeholders, real-time measurement capability and feedback loops, and staff time and improvement expertise.[8] D2A requires a shift in mindset (see Appendix B) to focus on the right care, at the right time, in the right place, and by the right providers and caregivers. It involves fostering a culture of interdisciplinary collaboration, focusing on the patient's experience.

7) Plan for Sustainability and Spread

The hospital developed an educational curriculum to enable the nurses and physical and occupational therapists on the Active Recovery Teams to expand on and blend their core skills, creating greater capacity to assess patients and provide care. The educational component was developed in conjunction with Sheffield Hallam University.

8) Develop Improvement Coaching Capability

Sheffield Teaching Hospitals, in partnership with the Dartmouth Institute for Health Policy and Clinical Practice in the US, created the Sheffield Microsystem Coaching Academy, a nonprofit entity with the mission to share knowledge about system change and train improvement coaches to enable spread. Thus far, seven cohorts of improvers have been trained. The Academy's focus now includes training mesosystem-level coaching skills as used in the *Oobeya*. The improving flow and coach training courses for staff, supported by The Health Foundation, have spread to Warwick and Bath, England.[9]

Findings

Through a methodical, iterative process using improvement methods and successive Plan-Do-Study-Act (PDSA) cycles to test the approach, starting with one discharge from one ward, Sheffield Teaching Hospitals has refined the D2A approach to early discharge and assessment at home over several years. Once D2A was successfully implemented with frail elderly, the team then scaled up the approach to expand it to other patient populations.

Key Measures

An article co-authored by Sheffield's Tom Downes, published in February 2017 in the Royal College of Physician's *Future Hospital Journal*, provides an overview of the Discharge to Assess methodology and data on some key measures (for the period of April 2012 through June 2015):[10]

- Two significant reductions in the weekly average wait for patients between hospital referral and being at home with community-based support services:
    - Average wait time decreased from 5.5 days to 3.6 days as a result of better collaboration between the health and social care teams involved in the hospital discharge process; and
    - Average time to transfer a patient from the hospital to Active Recovery decreased from 5.2 days to 1.2 days (equating to an average decrease of 4 hospital bed days per patient, at an estimated cost of £300 per hospital bed day).
- Balancing measures for readmission rate and mortality rate for the elderly patient population, to ensure that the Discharge to Assess process did not have any unintended negative impact on patients, showed no observed changes.

Average length of stay declined by more than 4 days following implementation of the Frailty Unit in the geriatric medicine department with no increase in readmissions.[11]

Notably, the authors of the 2017 article state that the Active Recovery Service received a significant increase in funding in 2014, in the amount of £1.4 million, that enabled the team to better match capacity to demand for the service. "This resulted in a highly stable system with a mean transfer time from hospital to support at home of 1.2 days. We estimate that approximately 10,400 patients transferred from hospital to Active Recovery in the year 2015."[10]

Costs

Delay in discharge incurs significant expense, as the marginal cost of an acute geriatric bed in the UK is approximately £300 per day. The D2A improvement resulted in reducing bed use in Sheffield Teaching Hospitals by approximately one-fourth.[12] The formation of the Active Recovery Service to deliver D2A required an extra £1.5 million investment; however, the 15,000-bed reduction shows (conservatively) at least a £4.5 million hospital cost reduction. The initial rearrangement of community resources into the initial Active Recovery Service demonstrated a similar cost reduction.[13] An additional benefit was freeing up of hospital capacity for other income-generating health service demands.

Patient and Provider Satisfaction

Although no formal research has been done, Sheffield Teaching Hospitals staff members report the following benefits as a result of an interdisciplinary care team assessing older patient needs in their own homes versus in the hospital setting:

- A better understanding of safety issues within the home and precautions that can be taken (e.g., stairs, rugs, access to toilet, appropriate storage for medications);
- Increased acceptance by patients of their need for ongoing care, after appreciating difficulties they may have in their own home environment;
- Greater ability to involve patients and family in decision making about care; and
- In-home patient assessment is more accurate for determining ongoing support needs, which is generally less support than predicted by in-hospital assessment.

Clinicians and staff alike find increased satisfaction in the work. One staff member said of the new process, "There is a focus on creating virtual circles instead of vicious cycles."[14]

Lessons and Implications for US Health Care Organizations Adopting the Innovation

At the Sheffield Trust, community social care is integrated collaboratively with community health care, with a single health commissioning (purchasing) organization and a single set of social care entities serving a population. This structure makes it easier to coordinate services in the UK than in the US. However, Sheffield's focus on community support and having a register of agencies and self-support groups that can provide needed services is also feasible in the US.

Discharge to Assess could be a useful care process redesign for the following types of US health care systems:

- Systems participating in accountable care organizations that wish to reduce the overall cost of care across settings;
- Systems seeking to reduce use of skilled nursing facilities could adopt D2A plus wraparound care provision at the same or less cost;
- Systems seeking to support independent living for frail elders as long as possible; and

- Systems seeking to reduce hospital readmissions.

A group of innovators from the US and the UK participated in a site visit to Sheffield Teaching Hospitals in May 2016 to investigate the D2A innovation in its native context. Several site visit participants were from health care systems that have the ability to deliver integrated care across settings, including from hospital to home. They concluded that D2A could be implemented in the US if there is the will and focus by leadership to make it happen.[15]

For systems that have thus far made little progress in integrating care across settings, the challenges will include aligning supply and demand for services at each point in the process, integrating medical and social services, clarifying roles and mindset shifts regarding traditional roles, and fostering closer coordination and partnerships with community services. Such changes also require conditions such as measurement expertise and a culture of, and capacity for, improvement.

Key lessons from Sheffield Teaching Hospitals' experience with developing and implementing D2A are described below.

- "On the surface, the intervention of Discharge to Assess appears simple… However, it is a considerable system design challenge due to the need for assessment and resource intervention in real time… The Sheffield team emphasise that this is not a solution that can be simply rolled out, as local context and ownership is fundamentally important."[16]
- It is possible to discharge hospital patients to home as soon as medically feasible.
- Assessment of post-discharge needs at home makes it possible to observe and address relevant problems rather than seeking to predict them in the hospital.
- Components in the health care continuum can work together as a system to achieve the goal of avoiding unnecessary hospital and skilled nursing care.
- Leadership, improvement capability, and use of data for learning are key in care process redesign.

In conclusion, the Sheffield team gives the following guidance for those interested in implementing the D2A innovation: "Don't take the solution; take the journey to develop improved processes." Creating the context for improvement is as important as knowing the key components of the innovation.

Appendix A: Site Visitor Detailed Notes on the Discharge to Assess (D2A) Process

Oobeya: "Big Room" for Planning and Implementation

- Identify the "burning platform" for change by clearly describing why change is needed, and why the organization must transition to a new way of working. For Sheffield, the burning platform was that their length of stay was the highest in the NHS.
- The "Big Room" teams have two coaches/facilitators and data support. One coach is a team manager who doesn't have operational responsibility for the care in that clinical area. The second coach is an "emotionally engaged clinician."
- Coaches have skills in improvement science, meeting management, and facilitation. Sheffield has partnered with the Dartmouth Institute for Health Policy & Clinical Practice to create a training program, the Sheffield Microsystem Coaching Academy.
- Now that the D2A improvement is being spread to other areas, the coach with improvement science skills aims to complete the engagement in 12 to 18 months. (This is a prediction of the likely timeframe that is being tested.)
- Teams complete a "compact," a practice borrowed from Virginia Mason Health System in Seattle, Washington.
- Weekly meetings are held in the *Oobeya* room. Sheffield teams meet for one hour at lunch time and they start every meeting with a patient story.
- Review data that is tracked over time on run charts and control charts.
- In addition to process and outcome measures, include balancing measures across the whole system of care (hospital and home).
- Map the process as it actually is, not how it is supposed to be, and take a systems perspective.
- Coaches send out notes out after each team meeting.
- Team fills out Plan-Do-Study-Act (PDSA) forms for each test of change. Start with small tests of change and then scale-up effective changes.
- No hierarchy; everyone's opinion is valid.
- Questions are explored with an attitude of humble inquiry. The approach is that solutions are discovered, not decided and delivered from the top down.
- Be hypothesis-driven, then test them.
- Block and tackle with experienced staff, then standardize so new practices can be carried out by staff with lower scope of practice.
- Create a community of practice, create meaning and joy in work, foster a just culture, celebrate wins, celebrate "failures," and include families in the process.

During Hospital Stay: Focus on Addressing Acute Care Issues, Then Discharge as Soon as Medically Possible

- Comprehensive assessment is completed by a multidisciplinary team, including a geriatrician, as patients arrive (not batched). The flow of patients (demand) and the availability of providers (supply) has been matched through previous flow improvement work.
- The pharmacist completes medication reconciliation upon admission and discharge.
- Inpatient providers can see outpatient records.
- Education and planning for discharge begins on Day 1 of the hospital stay, not on the last day.
- Providers are focused on assessment and discharge planning from the patient's first moment in hospital (whether admitted, in observation, or in the ED).
- The physician, in collaboration with the nursing team and therapists on the ward, decides when the patient is medically ready for discharge at the earliest possible moment.
- A multidisciplinary team conducts daily meetings about patients.
- The Short-Term Intervention Team (STIT) from social services may provide additional home support for patients who have no health care needs or to support the Active Recovery Team. This approach enables wraparound care and higher levels of care for those at home, precluding them from having to stay longer in the hospital or from needing to be discharged to a community bed.
- The Stroke Pathway is not directly part of the D2A innovation since stroke care has been carefully enhanced through attention to the Stroke Audit process and the 12 provisions of care that are a gold standard for stroke care within the NHS and against which services are assessed.

Discharge to the Active Recovery Team: A Warm Handover

- The Active Recovery Team assesses the patient's needs in the home following hospital discharge.
- The Active Recovery Team consists of a core team member (i.e., a cross-trained, experienced physical therapist, registered nurse, or occupational therapist) with additional skills that enable them to undertake a physical and physiological assessment and appropriate nursing, occupational therapy, and physiotherapy care for immediate and ongoing support to keep the patient at home.
- A generic assessment is performed by the occupational therapist (OT), physical therapist (PT), or registered nurse (RN), who are cross-trained. The team accompanying the patient to home for the needs assessment consists of two people: one OT/PT/RN, who has been cross-trained so they can undertake all the main nursing, PT, and OT assessments, in addition to specializing in their own area; a junior support worker, who provides support to the OT/PT/RN and obtains necessary items (e.g., equipment) to ensure immediate attention to the patient's safety, feeding, mobility aids.

- An assistant role was created to support assessment by reviewing home safety, determining needed home aids, and sourcing and fitting these home aids swiftly to avoid latent risks to patients.
- The acquisition of these generic assessment skills is supported by a six-day development course using the case study approach in a multidisciplinary team to discuss and learn, so as to increase their core skills and competences.
- Some patients live in their own home, with about 4 percent in long-term care and not many in assisted living facilities. Active Recovery in Sheffield refers to home as the "usual place of residence."
- A standardized form is used to refer the patient when medically ready for discharge to Active Recovery. This has been developed from the historical professional documents so it is shorter, more focused, and avoids needless repetition.
- Patients are segmented. Patients who can manage on their own or with only the help of their family caregivers can go home without being met at home by the Active Recovery Team.
- The majority of patients return home having had a comprehensive geriatric assessment, commenced in the hospital and completed at home. Clinical and social care needs are assessed at home and well-designed wraparound care enables safe discharge.
- On discharge to home the patient receives a holistic Active Recovery assessment for health and social care needs. The Active Recovery service is then canceled if the patient is able to manage independently at home without this additional support.
- The Active Recovery Team includes clinical providers and providers of social care. In the UK, social care and support services might typically include equipment, home care, community support and activities, day centers, home adaptations, residential care, financial support, information and advisory services, advocacy, support for caregivers, and other care support. See: http://www.nhs.uk/conditions/social-care-and-support-guide/pages/what-social-care-services-are-available.aspx
- Specially trained dementia care providers assess and address the needs of patients with dementia.
- Prescriptions and the patient's medication record can be viewed electronically at the hospital and by community providers.
- Simple and easy to understand discharge instructions are provided to the patient and family caregivers.
- There is a Single Point of Access (SPA) for patients to receive help by phone (a help line). SPA receives 350 calls per day and is staffed by clerical coordinators who triage the calls.
- Documentation among all involved in D2A has been streamlined.
- The home assessment can be viewed by the floor nurse and the general practitioner who receives the discharge documents. A detailed discharge summary is immediately available on the IT system, or is sent directly to the primary care physician (for the 30 percent of physician practices that are not on the IT system). The SPA has the records available 24/7 to enable accurate assessment if there is a call to SPA about or by the patient.
- When Sheffield first began testing the D2A innovation, they held open the patient's hospital bed in case they had to return immediately after being discharged. It took three weeks to build trust in the new process.

- The Active Recovery Team service is available to the frail elderly as well as frail patients who are younger than age 65. The process works well for this population also.
- The Active Recovery service is available seven days per week from 8 AM to 8 PM. The referral and assessment process is the same on the weekend as during the week. The normal working week for clinical and other staff is five days per week. Medical assessment occurs seven days per week using the same principle of early assessment. The community team works from 8 AM to 2 AM, every day of the year.
- The Front Door Response Team (FDRT) helps assess patients who come to the ED.

Transport Home

- For patients ready for hospital discharge, the ambulance service takes the patient home, where they are met by an Active Recovery Team assessor.
- Transport, Access, Toileting (TAT): This is how the ward team describes their approach to "Safe to Go Home." The ward team is focused on the patient's transport (i.e., can the patient and the transporter gain access to the home, are there any stairs, do they have the key?). Once inside the home, is the patient able to safely access the bathroom while they wait the one or two hours before the Active Recovery Team members arrive to conduct the in-home assessment?

Active Recovery Team Meets the Patient at Home

- The team is competent to assess risk factors in the home, barriers to healing, services required to support the patient at home, and also has strong relationships with community services. Assessment is performed within two hours after the patient arrives home. Assessment includes vitals, wounds, safety, mobility, food safety, and home security.
- The assessment is performed by OT, PT or RNs who are cross-trained. They have developed a new curriculum in partnership with Sheffield Hallam University that expands the core skills of the three main clinicians (e.g., PT can check pulse, blood pressure, etc.; RN can assess patient mobility getting into bed). An initial mental health assessment is also undertaken using a screening tool for mood, early confusion, and dementia. If any concerns are identified a mental health nurse follows up separately.
- The team is composed of providers who can practice independently, not newly qualified nurses, OTs, or PTs.
- The team includes health and social care in the community; home health and rehabilitation; specifically includes pharmacy and clinical leadsRNs, PTs, OTs. Health and social care are two separate services, but work in partnership. Two Active Recovery Team members go to the home: an OT/PT/RN with the enhanced core assessment skills, and a health care assistant also trained to support in the assessment. The health care assistant collects the necessary equipment and other home aids for safe ongoing care. They go to the patient's home in separate cars so they can work flexibly and responsively.
- The supporting team may include registered pharmacists (RPh), technicians, rehabilitation assistants, community geriatricians, dieticians, mental health providers, and podiatrists. However, support at home is mainly functional support.

- Social workers are not on the hospital ward now because their advice and skills around income or care support is provided in the patient's home following discharge.
- Mental health services are coordinated by the Active Recovery Team.
- A key component of the D2A process is real-time access to equipment (e.g., hospital bed, other equipment), although there was an issue with reliability during flu season.
- If a patient is declining at home, the Active Recovery Team is called by the GP via SPA. The team will assess the patient and may treat in place at home or admit the patient to the hospital.
- Any member of the team can make the decision to admit a patient, although usually it is a physician. The physician retains overall clinical responsibility for the patient, but any member of the Active Recovery Team can flag the need for step-up or step-down care. As an interprofessional team there are strong relationships, respect, and shared purpose. There is team trust and knowledge of each other's role.
- The team uses the terminology "advance life planning" instead of "advance care planning."
- Good communication is required among team members and physicians, and with the patient and family.

Care at Home

- Sheffield is testing Enhanced Active Recovery that includes wraparound services for one to five days post-discharge that includes a personal care assistant and 24-hour nursing service.
- A folder containing patient care information is left in the home so community support staff can write down services provided.
- Rehabilitation at home has proven to be more effective than in the hospital.
- The patient and family decide when self-directed support begins (i.e., when Active Recovery Services are no longer needed).
- The average patients stays in Active Recovery for 21 days.

Financial Considerations

For the patient and family:

- The UK government pays for 70 percent of care and services provided via the National Health Service (NHS). Within the UK all health care is free at the point of care and paid for via a central tax based system. Related social care is provided for six weeks at no cost to the patient. But at six weeks a "means test" is undertaken and persons with assets of more than $30K (US) are required to pay toward the costs of home help, daily living support, etc.
- In Sheffield the socioeconomic situation is such that many patients in the groups covered by the Discharge to Assess innovation will fall below the means test limit, so reducing overall need in these groups reduces costs to the social care system (which is much needed when budgets are being centrally cut due to ongoing austerity).

Additional Notes

- D2A patients live no further than 15 miles from the hospital; the 15-square-mile geographical area has a population of 580,000.
- Technology is not a key component of the D2A innovation.
- Interpersonal interactions and individual and team reasoning within the hospital and between the hospital and social services (warm handovers) are key to this innovation.

Appendix B: A Shift in Mindset from Traditional Care to Discharge to Assess

Traditional Care Mindset	Discharge to Assess and Active Recovery Mindset
The hospital is the safest place to be.	The hospital is the safest place for high-acuity illness.
Home is where you go when you are well.	Home can be a suitable place for healing and recovery, and services can be brought into the home to accelerate the healing process.
The health care team member with the lowest level of training has the first patient assessment contact.	The health care team member with a breadth of training has the first patient assessment contact and determines the team needed to provide care delivery.
The physician makes the determination about patient readiness for discharge.	The physician makes the determination about whether a patient is medically ready for discharge; OT, PT, and others provide equally important input on patient readiness for discharge.
Assessment and discharge planning begins when the patient is in improved health.	Assessment and discharge planning begins as soon as the patient enters the hospital (through the ED or admitted to an inpatient unit).
Hospital personnel can adequately assess patient capabilities and needs.	Home is the most accurate place to assess patient capabilities and needs.
Hospitals can send people home with everything they need to recover.	Patient confidence in their recovery improves when they are as independent as possible in their own home.
Therapy in the hospital is primarily rehabilitative.	Rehabilitation is best completed at home; assessment start in the hospital and is completed once the patient is at home.
Hospitals can successfully handoff care to a multitude of caregivers and support services	Hospital handoffs are more effective when they are to a single caregiver, who leads a team of supportive services and personnel.
Home-based social services are put in place over days, weeks, and months.	Home-based social services are put in place with the immediacy that reflects the frailty of the patient population.
Hospitals' relationships with many community resources are sufficient for post-acute care.	Community service organizations are most effective in mobilizing community assets and resources.

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[2] *Improving Patient Flow: How Two Trusts Focused on Flow to Improve the Quality of Care and Use Available Capacity Effectively*. London: The Health Foundation; April 2013. http://www.health.org.uk/publication/improving-patient-flow

Provides a detailed description of the different approaches by Sheffield Teaching Hospitals NHS Trust and South Warwickshire NHS Foundation Trust to address patient flow, noting similarities and differences. Sheffield's D2A innovation emerged as a key improvement from the Sheffield flow improvement work.

[3] Institute for Healthcare Improvement. "What If We What If We Flipped the Patient Discharge Process?" http://www.ihi.org/education/IHIOpenSchool/resources/Pages/AudioandVideo/Tom-Downes-What-If-We-Flipped-the-Patient-Discharge-Process.aspx

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[7] This process is also referred to as the A3 process, a name that comes from the paper size used. The A3 process, like the Model for Improvement, is an iterative process for analyzing problems and developing solutions. (The Health Foundation 2013 publication, Improving Patient Flow, refers to A3 as a key methodology used by Sheffield. The Age and Ageing 2014 article co-authored by Sheffield's Tom Downes says the team used a combination of the Model for Improvement, Toyota's Lean methodology, and statistical process control.)

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[11] Results regarding reduced time in the hospital, mortality, and overall length of stay were reported by Tom Downes in his plenary at the IHI/BMJ International Forum for Quality and Safety in Healthcare, Gothenburg, Sweden, April 2016. http://livestream.com/IFQSH/Gothenburg2016

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