



## WHITE PAPER

### Non-clinical Program with One-on-One Support Addresses

### Social Determinants of Health as It Reduces Hospital Readmissions by 33%

July 18, 2019

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#### Executive Summary

Innovative Healthcare Delivery (IHD) delivers high engagement post-acute care coordination using a non-clinical, hands on approach to reduce avoidable hospital readmissions. This paper describes two retrospective analytical approaches to determine the effectiveness of the IHD interventions during 2018 on Medicare Advantage (MA) and Medicare Fee for Service (FFS) populations. **IHD focuses on social determinants of health (SDOH), compassionate patient engagement and non-clinical coaching to motivate adherence to prescribed care plans that resulted in reducing hospital readmissions by 32% (15.9% readmission rate in non-intervention group vs. 10.8% readmission rate in intervention group) for a MA population. Additional analysis of the MA population demonstrated a 34.1% reduction in 2018 readmission rate to 8.5% compared to a baseline rate of 15.2% for a 12-month period in 2013-2014. The FFS population, using the same methodology, showed a 33.3% reduction from 15.6% to 10.4%.**

**Background:** Innovative Healthcare Delivery (headquartered in Las Vegas, Nevada) was founded in 2012 with the goal of addressing barriers to care and reducing costs by helping patients get the right care at the right time. One of Innovative Healthcare Delivery's (IHD) keys to success is initial engagement while the patient is in the hospital and ongoing face-to-face and telephonic contact throughout the 30-day program. This approach is validated to be effective through multiple published studies<sup>1</sup>. IHD provides a unique service that is currently unmet in most of the healthcare setting. By connecting directly with patients, IHD helps streamline their recovery using non-clinical support approaches. Literature suggests that no one single intervention reduces readmissions and a broader set of patient centered interventions are required<sup>2</sup>. IHD ensures patients understand and follow discharge instructions, have and take medications, and reduce time to follow-up appointments for effective transitions of care. IHD

identifies social determinants of health barriers and works to remove those barriers to improve quality of life and medical outcomes. Medicare patients typically readmit with the same condition problems approximately 20% on a national average.<sup>3</sup> Broader societal and community-based solutions such as nutritional support, housing security and transportation services<sup>4</sup> will be needed to further reduce readmissions. The IHD team educates and links patients to existing resources as part of the support they provide.

**Program description:** A lean and efficient team of non-clinical but carefully trained care coordinators/patient advocates provide the hands on, telephonic engagement and secure mobile texting to connect with patients during their care journey. The company drives their success through cutting edge IT infrastructure and software development, sophisticated data analytics with machine learning and proprietary Worry Score targeting of high-risk patients and continuously improving transitional care management workflow protocols. IHD provides three distinct programs to improve population health and reduce unnecessary healthcare costs by filling gaps that exist in the healthcare system to increase patient engagement, improve patient outcomes and reduce hospital and ED utilization. The Transition Care Program (described below) was the intervention set of activities that impacted the study population during 2018.

### **1. Transition Care Program (TCP)**

For patients transitioning from **hospital to home**, IHD works one-on-one, engaging with each patient, collaborating with the discharging facility and identifying social determinants of health and barriers to care to achieve better outcomes.

### **2. Care Assist Program (CAP)**

For patients before, during, and after an **outpatient procedure**. IHD ensures that the pre-operative needs are met, get patients' post-surgery prescriptions fulfilled, confirms in-network usage and engages patients with healthcare services post-surgery to promote continuity of care.

### **2. P. A. T. H. Program**

**Patient Advocacy Through Healthcare.** IHD identifies, guides, and promotes behavior changes for those with **complex chronic conditions**. IHD develops relationships and influences patients to create strong connections within the outpatient setting to establish and adhere to care plans. Patient populations vary in their unique needs, so solutions can be customized to best address clinical, operational, and financial goals.

**TCP Patient Support strategies:** Patients enter the program via direct notification when a hospitalization occurs. Once identified, IHD staff enters the individual's information into IHD's proprietary data management software platform that includes age, gender, diagnosis, etc. When the 'case episode' has been set up, the case is moved into active transitional care

management through automated or manual data assessment of initial information. The assigned Patient Advocate then conducts an encounter in the hospital or other setting to do additional assessments of social determinants of health.

Upon completion of the assessment, the Patient Advocate compiles a list of patient needs linked to specific interventions which becomes the basis for a personalized care plan. Interventions are then tracked within the automated transitional care management system to ensure follow-through. The Patient Advocate also identifies and addresses social determinants of health by connecting the patient directly to the appropriate resources during the program. There is regular communication between the IHD team, patient, caregivers and various clinical and community resources, for as long as the patient requires support for up to 30 days, post discharge. This continued high touch support includes on average 18 “touches” during the 30 day period, for the senior population.

## **Methods**

**Study Design:** This analysis used two different retrospective approaches to calculate an estimate of the reduction in hospital readmission rates and avoided hospitalization costs as a result of IHD services. The first study examined the rates of readmission for calendar year 2018 (CY2018) for a group of patients eligible for the IHD services compared to a group of patients without access to IHD services. The second study examined the rates of readmission during calendar year 2018 (CY2018) for a larger group of patients eligible for IHD services compared to a baseline readmission rate prior to IHD program implementation (July 2012 – July 2013).

**Study Population:** Both analyses were performed on participants enrolled in either Medicare Advantage plan or Medicare FFS in a western state with a Metropolitan Statistical Area population of approximately 500,000, both rural and urban. In both analyses, patients had admission dates between 1/1/2018 and 12/31/2018. Patients were excluded from the data if they left the hospital against medical advice, expired during the program period or transferred to a step-down facility, as examples.

**Outcome measures:** Primary outcome of the Medicare Advantage plan measures in the first analysis were: hospital inpatient utilization and claim costs, DRG cost weight, risk of readmission and days to readmission. In the second analysis of Medicare FFS and Medicare Advantage, outcome measures included: inpatient utilization, days to readmission, number of IHD team interactions, patient engagement, appointment compliance, time to primary care provider (PCP) appointment, time to specialist appointment, and types of interventions provided to patient.

**Data Analysis:** The first analysis calculated total admits, readmissions, average hospital claim, DRG cost weight (DCW), Index admit (risk of readmit) and average days to readmission. Two control groups were set up to control for the variance in DRG cost weight, and risk of

readmission (i.e. there is no significant difference in DRG cost weight, or risk of readmission, between the two controls; see distribution analysis). 'Control IHD' defined as admits with IHD services that had DCW between 1.337 - 2.666. 'Control Non IHD' defined as admits without IHD services that had DCW between 1.337 - 2.666. Distribution analysis for the two groups used basic statistical measures of mean, median and mode, standard deviation, variance and ranges. Tests for location used Student's t test, sign and signed rank methods. Basic confidence limits were calculated. Definitions for measures include DRG Cost weight: the relative costliness of specific DRGs, by estimating the use of resources per DRG. Higher DRG cost weight = more hospital resources required. Higher value = higher risk of readmission. The data source for this group were acute inpatients for two hospitals CY2018, Readmissions dataset; 30 day all cause readmissions using CMS logic.

The second analysis measured hospital readmissions and calculated readmission rates for CY2018 and compared that rate to a baseline rate for 12 months 2012-2013 prior to any IHD intervention activities. To evaluate activities and interventions, a series of operational metrics were measured. Client touches are based on patients IHD successfully established contact with. Patient interactions include inpatient bedside visits, in-person visits to the home, in-person visits in the community, and non-face-to-face interactions. Patient engagement was measured as those patients with whom IHD was able to speak with or meet with. Appointment compliance was defined as successful appointments within 30 days of discharge and include counts of number of appointments over the 30-day timeframe when patient is enrolled in IHD program. Time to primary care provider (PCP) and specialist appointments were measured from the date of discharge to the date of the appointment. Lastly, the types of interventions provided to patients were documented and included services such as assisting with timely follow up appointments, redirection of care, referral to community resources, etc.

**Results:** The first approach was conducted by an independent group of investigators at a client hospital system. Total IHD admits were 2,590 and readmits were 279 for a readmission rate of 10.8%. In the group without IHD interventions, the total admits were 778 and readmits were 124 for a readmission rate of 15.9%. The average hospital cost for IHD intervention group was \$9,325 and for the non-intervention group \$10,474. The 5.1% reduction in admissions resulted in \$1,240,225 in claim savings (2,590 total admits x 5.1% reduction = 133 avoided readmission x \$9,325 per admission cost). Assuming the same impact for the non-IHD group, this avoidable readmission savings would have been an additional \$418,960 (778 x 5.1% = 40 avoided readmission x \$10,474 per admission cost). In total, if IHD intervened on total admissions, potential savings equals \$1,659,185. The average days to readmission were 12.2 in the intervention group and 13.7 in the non-intervention group. DRG cost weight (DCW) were different (1.839 vs 2.40) as were the Risk of Readmit values (0.16 vs 0.20). In order to adjust for these latter two differences, two control groups were constructed that matched DCW (1.831 vs. 1.838) and Risk of Admit (0.171 vs 0.188). The 95% confidence intervals for the two groups

overlapped for both adjustments that indicate no significant difference between groups. In these two subgroups, the readmission rate was 9.8% in the IHD intervention control and 18.8% in the non-intervention control. Average claims for the two groups were \$10,181 vs \$10,276 and average days to readmission were 11.9 vs. 13.9.

Table 1: First Analytical Approach Results

Group	Readmits	Admits	Readmit %	Average Claim	DRG cost weight (DCW)	Index admit: Risk of Readmit	Avg days to readmit
Treatment - IHD	279	2,590	10.8%	\$9,325	1.839	0.160	12.2
Non IHD	124	778	15.9%	\$10,474	2.400	0.200	13.7
Total	403	3,368	12.0%	\$9,682	1.952	0.173	12.7
<b>Control IHD (DCW 1.337 - 2.666)</b>	<b>111</b>	<b>1,132</b>	<b>9.8%</b>	<b>\$10,181</b>	<b>1.831</b>	<b>0.171</b>	<b>11.9</b>
<b>Control Non IHD (DCW 1.337 - 2.666)</b>	<b>54</b>	<b>287</b>	<b>18.8%</b>	<b>\$10,276</b>	<b>1.838</b>	<b>0.188</b>	<b>13.9</b>

The second approach using IHD captured data demonstrated an overall readmission rate of 9.4% on the population covered in the MA and FFS plans on 5,825 patients during CY2018. Subset analysis showed the MA readmission rate of 8.5% and FFS of 10.4 % on 2,989 MA patients and 2,632 FFS patients.

Table 2: Second Analytical Approach net results

Plan	Medicare Advantage	Medicare FFS – ACO	Combined Totals
Patient Episodes	2,989	2,632	5621
Patient Episode Readmissions	254	274	528
Readmission Rate	8.5%	10.4%	9.4%

Compared to the baseline readmission rates of 15.2% and 15.6% in the MA and FFS groups, respectively, IHD program reduced readmission rates 34.1% in MA and 33.3% in FFS. The IHD program consists of proactive engagement activities resulting in 53,762 contacts or ‘touches’ with average number per patient of 18.3. Of the patients seen in the hospital bedside for an initial encounter, 94.7% continued their engagement with IHD staff. One of the goals of IHD transitional care team is to assure scheduling and adherence to outpatient provider appointments. Within 30 days of discharge, 91.4% had more than one appointment attended, 45.5% with 3 or more and 14.8% with 5 or more appointments scheduled and kept. Appointment volume and type were captured and a total of 12,879 appointments occurred with the top specialty types being Cardiology (25.2%), Orthopedics Surgery (9.7%), Pulmonary

(7.8%), General Surgery (7.2%) and Hematology/Oncology (7%). Percent of patients who saw a provider from the date of discharge to the date of the appointment showed that 27.1% of patients saw a PCP within 5 days and 23.3% saw a specialist within 5 days. Interventions of the following types were provided to the patients: assistance with booking a follow-up appointment sooner than the patient planned, redirection of care, referral to community resources, eliminated barriers to DME and/or home health services, eliminated barriers to medication compliance, coordinated with specialists, medication reconciliation, referred to case management, facilitated transportation to follow-up appointments, coordinated patient contact with nurse hotline, facilitated delivery of medication to patient, establish patient with a new PCP, eliminated duplicate testing/imaging services, diverted patient away from an Emergency Department visit and encouraged patient not to leave the hospital against medical advice.

### **Conclusions – First Analysis**

1. **The independent validation of a Medicare Advantage population hospital readmission reduction of 32% demonstrates the impact and effectiveness of the IHD Transition Care Program.** The sample size of 3,368 is a reasonably large data set to draw conclusions during a very recent (2018) time frame. The positive financial savings results are significant for the hospital system's MA risk contract performance. There was direct, calculated savings of \$1,240,225 and a missed opportunity of an additional \$418,960 in savings had all patients been included in the IHD program.
2. The average days to readmission were 12.2 in the intervention group and 13.7 in the non-intervention group but there is insufficient information to draw actionable conclusions about this observation.
3. This retrospective study also included a control group subset analysis to adjust for differences in DRG Cost Weight as well as Risk of Readmission using federal standards and validated methodologies. When both of those variables were matched, the 95% confidence intervals for the two groups overlapped for both adjustments indicating no significant difference between groups. In this subset, the readmission rate was 9.8% in the intervention control and 18.8% in the non-intervention control. This represents nearly 50% hospital readmission reductions in a smaller but more closely matched cohort of Medicare Advantage patients as a result of the IHD interactions. Again, the average days to readmission were very similar to the larger total population without any clear indication as to the significance of this result.

### **Conclusions – Second Analysis**

1. **The IHD program reduced readmission rates 34.1% in MA and 33.3% in FFS compared to the baseline readmission rates of 15.2% and 15.6% in the MA and FFS groups, respectively,** demonstrating the impact and effectiveness of the Transition Care Program. IHD program success was a result of ensuring that patients receive the right

care at the right time. The high-touch approach included connecting patients to outpatient physicians, assisting with medication compliance and addressing social determinants of health. These interventions help ensure patients have their basic needs met and improve the continuity of care which in turn, reduce readmissions. Other intensive clinical and hospital staffed care management programs have achieved similar reductions in readmissions<sup>5,6</sup> but are more expensive to deliver.

2. The IHD program consists of proactive engagement activities resulting in 53,762 contacts or 'touches' with average number per patient of 18.3. Of the patients seen in the hospital bedside for an initial encounter, 94.7% continued their engagement with IHD staff. IHD's model using face to face interactions coupled with high-touch communication brings successful patient engagement and improved outcomes. A June 2016 article looking at patient perceptions after they have been readmitted unexpectedly noted that 28% were not feeling ready for discharge, had poor pain control or symptom resolution and concerns about self-care<sup>7</sup>. IHD continuously monitors, communicates and supports patients as they experience these concerns.
3. One of the goals of IHD care coordination is to assure scheduling and adherence to outpatient provider appointments. Within 30 days of discharge, 91.4% had more than one appointment attended, 45.5% with 3 or more and 14.8% with 5 or more appointments booked and completed.
4. Appointment volume and type were captured and a total of 12,879 appointments occurred with the top specialty types being Cardiology (25.2%), Orthopedic surgery (9.7%), Pulmonary (7.8%), General Surgery (7.2%) and Hematology/Oncology (7%). These types of specialty care services and frequency of occurrence parallels overall cost spend categories in the Medicare population.
5. Percent of patients who saw a provider from the date of discharge to the date of the appointment showed that 27.1% of patients saw a PCP within 5 days and 23.3% saw a specialist within 5 days. One small study from Denver, Colorado identified a 10-fold increase in readmission when a patient lacks timely primary care follow up<sup>8</sup>.

## Limitations

Limitations in these two study methodologies include the lack of prospective, randomized cohort selection to enhance the statistical validity. But retrospective studies are common and important for understanding impacts of interventions in a real-time and real-world environment. Specific limitations also include potential for patients to have been readmitted to non-study hospitals and outside of the knowledge and data capture of the researchers. The second analysis methodology used the IHD information system and staff knowledge of each patient's 30-day course of post-acute care. There is the potential that some patient data and readmission events may have been missed due to lost follow-up in homeless and mental health disability issues. The IHD information system continuously improves in the creation of more standardized intervention definitions, measures of value and specific actions conducted by the

Patient Advocates to provide detailed statistics that would enable additional validation and understanding of which exact interventions lead to the readmission reduction success. This data was not available during 2018 but will be in future studies.

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### **About the Author**

James “Woody” Woodburn, MD, MS, is one of the founders of the Blue Cross Association’s National Medical Management forum and former leader at United Health Group/Optum Health where he was part of the joint venture with Cisco systems, in charge of integrating TeleMedicine and IT platform for clinical users across the U.S.

Currently, he is a healthcare consultant and affiliate faculty member at University of Minnesota’s School of Nursing, in Minneapolis-St. Paul. A former emergency physician, he helped start or expand several organizations and currently provides consulting services for fast growing entrepreneurial companies. He has a medical degree and two engineering degrees in electrical and biomedical engineering, all from the University of Wisconsin-Madison.

### **About Innovative Healthcare Delivery**

Founded in 2012 by Shelli Lara, Innovative Healthcare Delivery (IHD) uses proprietary technology to bring the medical and social aspects of post-hospitalization care coordination into one system, resulting in improved recoveries at less cost. The company is considered a pioneer in tackling Social Determinants of Health (SDoH) as part of its patient care.

Now in more than 30 states and covering 750,000 lives, IHD partners with organizations and healthcare providers to deliver its programs. The growing company headquarter in Las Vegas NV, has health plan clients such as Anthem INC. for both their Medicaid and commercial lines of business, as well as hospitals systems, and self funded plans.

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