

A Two-Year Assessment of Home Infusion Patient Satisfaction

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ABSTRACT

BACKGROUND

In 2017, the National Home Infusion Foundation (NHIF) took the lead in the development and validation of the Uniform Patient Satisfaction Survey for Home Infusion Providers. From quarterly data collections, annual patient satisfaction benchmarks were determined and shared industry wide. To date, NHIF's data depository has 2 years of patient satisfaction survey data. To determine data trends, a comparison of 2019 and 2020 data was completed. Additionally, data was cross tabulated by age group to gain an in-depth look at the older adult experience with home infusion. Since anti-infective patients account for almost half of all home and specialty infusion patients, their satisfaction data was cross tabulated by "overall patient satisfaction" to describe this home infusion patient population.

METHODS

Two years of quarterly patient satisfaction survey data has been collected, benchmarked, and reported. The next step in the process was to publish 2020 composite

benchmarks and to compare 2019 and 2020 annual results. With a majority of home infusion patients receiving anti-infective therapy, additional analysis was conducted on this subcategory of data. Specifically, "Overall Patient Satisfaction" data was cross tabulated with "Age Group (0-64 and 65+)" and "Patient Status (Active versus Discharge)." The large data sets in 2019 (n=6,353) and 2020 (n=7,381) allowed for a robust multivariable analysis of the data.

RESULTS

The sample size of administered Patient Satisfaction Surveys in 2019 and 2020 was 32,921 and 36,129 respectively, with an average return rate of 19.3% and 20.43%. Overall, patients gave high marks to each aspect of their home infusion service with "patient instructions" receiving the highest ratings. A large majority (98.69%) of patients responded "yes" to questions about their understanding of how to wash hands, self-administer medications, and care for the IV catheter. To determine trends in the data, 2019 and 2020 results were compared. For the all-encompassing survey question, "I was satisfied



with the overall quality of the services provided," 81.77% of patients in 2019 and 82.15% in 2020 responded "strongly agree." This indicates a continued high degree of patient satisfaction with home infusion services. When comparing age groups (0-64 and 65+) on "Understanding of Instructions," the 65+ patients' top box percent was slightly lower than the 0-64 year old group. A comparison of anti-infective overall patient satisfaction shows the same consistency but with a slightly higher score of 83.16% in 2020 while in 2019 it was 83.03%.

DISCUSSION

The survey data answers questions about the home and specialty infusion industry through the eyes of the patient. High rates of patient satisfaction in both 2019 and 2020 are likely a contributing factor for the increased utilization of home infusion over the last decade, in addition to other benefits, such as convenience and lower costs for health plans. Overall, anti-infective patients comprised 69.66% of all surveys in 2019 and 75.12%

in 2020 and have satisfaction scores slightly higher than the aggregate top box percent. The high rates of satisfaction for the "Patient Instructions" composite score (98.36% in 2019 and 98.69% in 2020), is evidence of the effectiveness of the teaching methods utilized to promote patient independence. Having 2019 (n= 6,353) and 2020 (n=7,381) validated data to understand how patients perceive home infusion services will benefit providers, prescribers, payers, and regulators as they evaluate how to apply home-based services.

CONCLUSION

Providers have been administering the Uniform Patient Satisfaction Survey for Home Infusion Providers for 2 years. In 2019, 53 home infusion providers submitted de-identified data from a total of 6,353 completed surveys while in 2020, 49 providers submitted 7,381 surveys. Results from the data analysis demonstrates a consistently high degree of satisfaction with all aspects of home infusion services.

BACKGROUND

The home and specialty infusion industry has experienced significant growth in the past decade, evident by a jump from 829,000 patients serviced in 2010 to 3.2 million in 2019.¹ Anti-infective therapies account for 49.4% of all home infusion patients and have seen the most dramatic growth in patient numbers in addition to specialty therapies, including biologics. Understandably so, patients in need of infused medications were selecting the home setting over other sites of care citing improved quality of life, convenience, and less risk of health care-acquired infections (HAIs).^{2,3} These health care advantages are just a few of the reasons why the home and specialty industry has grown rapidly and evolved in the last decade warranting even greater need to understand the patient's level of satisfaction with the services provided. This understanding will be of particular interest to patients and physicians considering home and specialty infusion for the first time due to COVID-19 and the need to reduce the risk of exposure. Furthermore, data from this survey can be used to support and advance home and specialty infusion services, determine best practices, and identify performance gaps.⁴

In 2017, the National Home Infusion Foundation (NHIF) took the lead in the development of the Uniform Patient Satisfaction Survey for Home Infusion

Providers (Patient Satisfaction Survey) using Delphi methodology.⁵ The validated 12-question, 22-data point survey includes questions about the patient's understanding of instructions, communication with staff, the condition of equipment, overall satisfaction with the services provided, and the courteousness and helpfulness of staff. As noted in Appendix A, the survey incorporates a variety of response options. Questions with a Yes, No, or NA response option were 1, 2, 4, 6, 7, and 10. Questions using a 5-point Always-Never scale were 3, 5, 8, and 9. A 5-point Strongly Agree – Strongly Disagree scale was used for questions 11 and 12. This survey was made available to pharmacy-based providers of home and specialty infusion services in late 2017 with NHIF establishing quarterly benchmark results starting in Quarter 1 (January – March) of 2019. With the second anniversary of the Patient Satisfaction Survey and 2 large annual data sets comes the ability to track trends in patient satisfaction. This analysis will shed light on the consistency of patient satisfaction scores and if the top box percent improved from 2019 to 2020.

In addition to comparing 2 years of home infusion patient satisfaction data, this report will also provide an in-depth analysis of anti-infective patient satisfaction. With a majority of home infusion patients receiving anti-infective therapy

Patient Satisfaction

With 2 years of Patient Satisfaction Survey data analyzed and reported quarterly, the next step in the process was to compare the 2019 and 2020 data.

it's felicitous to focus on this patient population. Furthermore, a survey of 221 home infusion providers conducted by the National Home Infusion Foundation (NHIF) in 2019 revealed that approximately 1.4 million patients annually receive home-based anti-infective therapies from infusion pharmacies who work in collaboration with the patient's physician to provide the service.¹ Finally, the importance of the patient's understanding of home infusion instructions is essential to the patient outcomes. Therefore, the results from survey questions pertaining patient instructions will be cross tabulated by patient age group (0-64 and 65+).

METHODOLOGY

Patient Satisfaction Survey data was provided by individual, pharmacy-based home and specialty infusion providers. To participate, the providers were required to use the NHIF validated and standardized Uniform Home Infusion Patient Satisfaction Survey tool to collect data. Additionally, providers were also required to validate their sample populations, which ensured that survey data was only collected for a defined population of patients who received infused therapies at home. This was necessary because most providers sample a much broader mix of patients, such as patients who use self-injectable or enteral products, who may not meet the home infusion patient criteria. Patients represented in the analysis were either: 1) discharged patients who were active to the home infusion provider for 7 or more days and received at least 1 infusion treatment at home, or 2) active home infusion patients who had been on service for at least 6 months.

To ensure that provider data was deidentified and confidentiality was maintained, NHIF partnered with Strategic Healthcare Programs (SHP) to serve as a data intermediary and recipient of returned surveys and/or survey data files. The Patient Satisfaction Survey was either administered by mail by SHP, or by the individual home and specialty provider via mail, phone, or electronically. Upon receiving the completed survey, SHP entered the data into an Excel file with no attached patient identifiers.



With 2 years of Patient Satisfaction Survey data analyzed and reported quarterly, the next step in the process was to compare the 2019 and 2020 data. This objective was met by pooling the quarterly data and analyzing the annual data. The large data sets allowed for a more robust multivariable analysis of the data, more accurate results, and the ability to compare 2 sets of annual results.

DATA ANALYSIS

The Patient Satisfaction Survey data analysis involved top box scoring which is the percentage of respondents who selected the highest-rated option for the given survey question. For example, if the survey response option included Strongly Agree, Agree, Uncertain, Disagree, and Strongly Disagree, the top box would be Strongly Agree and the presented score would be the percentage of patients who chose this option.

To assist in summarizing the data, 7 composite categories were formed from the survey's 22 data points. This involved combining data from questions that have similar themes. For composite categories that include more than 1 survey question, the percentage of patients selecting the top box score for each survey question was totaled and divided by the number of survey questions in the composite. Composite scores assisted in determining overall industry strengths and weaknesses. Cross tabulation analysis was conducted to show relationships within the data that might not be readily apparent when analyzing total survey responses. The most consistently used patient satisfaction rating question used in health care surveys is "I was satisfied with the overall quality of the services provided." Accordingly, this survey question (Question 11) was used in the cross-tabulation analysis along with 3 patient demographic variables; age grouped into 2 categories (0-64 and 65+), active versus discharged patient status, and anti-infective patients. Age grouped into 2 categories was used to delineate older-adult patients (65+). To determine if a significant difference existed between the overall quality of the services provided and the patient demographics, a 2-tailed Chi square test was used with significance set at $p \leq .05$.

EXHIBIT 1

2019 vs. 2020 Patient Satisfaction Survey
Return Rates

Year	Sample Size	Returned Surveys	Survey Return Rate
2019	32,921	6,353	19.30%
2020	36,129	7,381	20.43%
TOTAL	69,050	13,734	19.89%

RESULTS

Return Rate

Fifty-three home and specialty infusion providers contributed Patient Satisfaction Survey data during 2019 and 49 in 2020. As shown in Exhibit 1, the sample size of administered Patient Satisfaction Surveys in 2019 was 32,921 with 6,353 of the surveys completed and returned for a return rate of 19.30%. In 2020 the return rate was 20.43%.

Patient Demographics

The mean age of the responding home and specialty infusion patient was 62.07 (SD=16.86) in 2019 and 62.83 (SD=16.27) in 2020. The percentage of males and females was 55.32% and 44.68% respectively in 2019 and 55.13% and 44.87% in 2020. The active versus discharged patient status was relatively even in 2019 with 48.10 and 51.90% respectively. In 2020 there were 38.18% active patients while 61.82% were discharged. The most common therapy type administered was anti-infectives which accounted for 69.66% of the patients in 2019 and 75.12% in 2020.

Composite Results

Overall, all composite scores are high with most in the 90% range, as shown in Exhibit 2. The top composite score in both 2019 and 2020 was "Patient Instructions" which included the patient's understanding of home infusion instructions, such as how to wash hands, self-administer medications, care for the IV catheter, and more. This composite received the highest average percent of top box scores with 98.36% in 2019 and 98.69% in 2020. This score provides evidence that patients do understand home and specialty infusion instructions. Much of the success of home and specialty infusion hinges on this patient understanding in order to become independent with their care. This data supports that home infusion clinicians are highly skilled at providing quality education and training to the patients they serve. Interesting to note is that all composite top box percent scores improved from 2019 to 2020. Even though the improvements were slight, they were evident across the board. The annual composite scores below 90% in both 2019 and 2020 included "General Communication," which included phone calls for help, communication about medication side effects, and explanation of financial responsibilities, "Overall Satisfaction," and "Would recommend this home infusion company."

Two patient satisfaction questions most often asked and benchmarked in health care are Question 11 (Composite 6), "I was satisfied with the overall quality of the services provided" and Question 12 (Composite 7), "I would recommend

EXHIBIT 2

2019 and 2020 Industry Benchmarks for Home Infusion Patient Satisfaction

Composite Category	Survey Question(s)	2019 Results (n = 6,353)	2020 Results (n = 7,381)
1. Equipment and Supplies	1-3	95.28	95.50
2. General Communication	4-7	89.51	89.66
3. Staff Courtesy Questions	8a, b, c, d	92.59	93.35
4. Staff Helpfulness Questions	9a, b, c, d	91.48	92.21
5. Patient Instruction Questions	10a, b, c, d, e	98.36	98.69
6. Overall Satisfaction	11	81.77	82.15
7. Would Recommend	12	79.06	80.84

All composite
top box percent
scores improved
from 2019
to 2020.

Patient Satisfaction

EXHIBIT 3

Top Box Percent by Age Group and Year

Q7. I understood the explanation of my financial responsibilities for home infusion therapy.	2019		2020	
	Age 0-64	Age 65+	Age 0-64	Age 65+
	91.41 (n=2,914)	88.50 (n=2,956)	91.14 (n=3,497)	89.30 (n=3,820)
<i>p</i> -value	<i>p</i> =.001		<i>p</i> =.005	

this home infusion company to my family and friends." The 2019 annual results for Composite 6 were 81.77% and 79.06% for Composite 7. The 2020 percent for these 2 composites were 82.15% and 80.84%, as shown in Exhibit 2. To be in-line with other health care providers and to allow for comparisons to other professions, only top box is now used in calculating composite scores. However, when both "Agree" and "Strongly Agree" are considered in assessing the rate of overall satisfaction with home infusion, the score is 97.53% and 97.85% for 2019 and 2020 respectively.

It can be inferred from these scores that home infusion patients are very satisfied with their overall patient experience which encompasses intake and patient service representatives, interdisciplinary clinical teams, delivery personnel, and other ancillary staff.

Survey Questions Results

All 22 data points in the Patient Satisfaction Survey received their own annual analysis. Within each survey question, the 2019 and 2020 annual top box percent scores are consistent, which supports the reliability of the survey instrument. Overall, patients gave high marks to each aspect of their home infusion service. From the data, it is determined that home infusion providers perform exceptionally well at providing instructions, ensuring that the infusion pump works and is clean when delivered, and informing patients who to call when needing help. Areas that were rated lower than most, but still very respectable, included medications and supplies arriving before the patient needed them, the response the patient received to phone calls for help on weekends or during evening hours, and being informed by the nurse or pharmacist of the possible side effects of the home infusion medication. Even though the scores are good, these areas might be considered for a continuous quality improvement plan.

Age Group (0-64 and 65+) Comparison

To gain a better understanding of home infusion Medicare patients, age data was recoded into 2 age groups: 0-64 and 65 and older. Analysis of the overall satisfaction data (Q11) revealed a significant difference between the groups (2019: *p*=.023, 2020 *p*=.001), with 65 and older patients being slightly less satisfied. To understand the variance, further investigation of patients' understanding of their home infusion instructions and financial responsibilities was performed to determine if these might be driving factors for the difference (see Exhibit 4). It was hypothesized that difficulty understanding instructions, or the fragmentation of home infusion coverage by payers (i.e. Medicare) might result in lower rates of satisfaction. Overall, the results did not show a significant difference between age groups for understanding instructions (Survey Questions 8a-e). However, a significant difference was noted in the question about the

Exhibit 4 Comparison of 2019 and 2020 Scores for 0-64 and 65+ to Q7, Understanding of Financial Responsibility

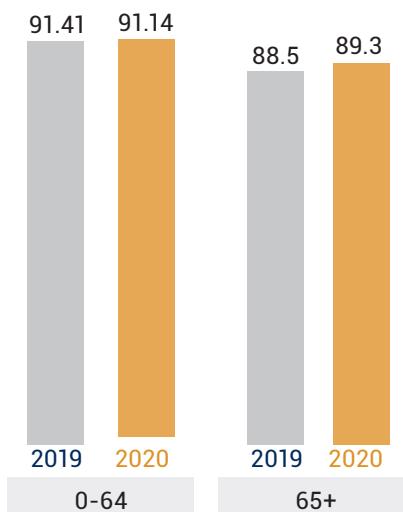


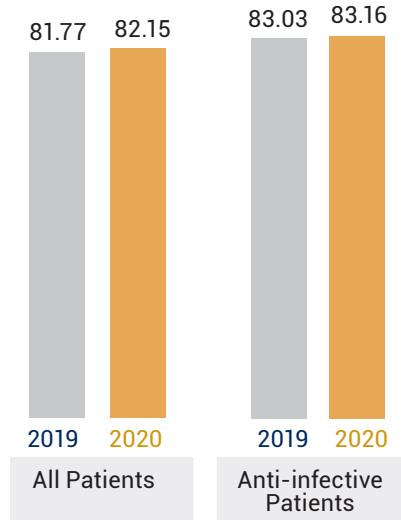
EXHIBIT 5

Anti-infective Patients: "Overall satisfaction with the quality of the services provided" (Strongly Agree %)

	2019 (n=1,874)	2020 (n=3,683)
Top Box %	83.03%	83.16%

EXHIBIT 6

Comparison of Overall Satisfaction in Anti-infective Patients to All Patients Surveyed (Strongly Agree %)



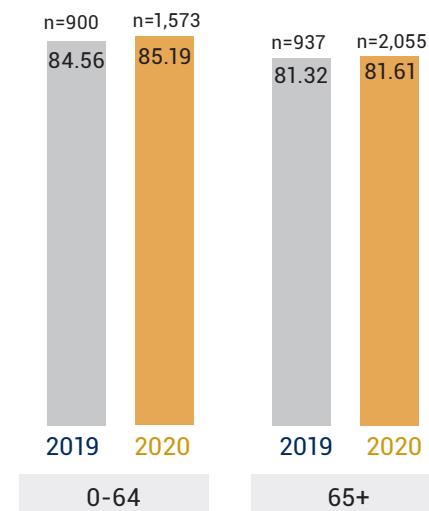
patients' understanding of their home infusion financial responsibility. Fisher's Exact Test showed significant difference in 2019 ($p=.001$) and 2020 ($p=.005$) between the 2 patient age groups (0-64 and 65+) on their "Understanding of financial responsibility." Even though the scores are high, patients 65 and older have less of an understanding of their financial responsibility, which may reflect the lack of straightforward home infusion coverage for the older-adult population.

Anti-infective Patient Satisfaction

Anti-infective therapy patients account for almost three-fourths of the Patient Satisfaction Survey respondents. Furthermore, anti-infective home infusion patients have seen the most dramatic growth in patient numbers within the past 10 years.¹ For this reason, anti-infective patient satisfaction is highlighted in this publication. Overall, anti-infective patient satisfaction top box percent is higher (83.03% in 2019 and 83.16% in 2020) than what is shown in the aggregate data (81.77% in 2019 and 82.15% in 2020). See Exhibits 5 and 6.

EXHIBIT 7

Anti-infective Patients: Age Group by "Overall satisfaction with the quality of services provided" (Strongly Agree %)



Chi-square analysis of anti-infective patient's "Overall satisfaction with the quality of the services provided" by "Age Group (0-64 and 65+)" reveals a significant difference by age group in both 2019 ($p=.001$) and 2020 ($p=.001$). Even though both groups are very satisfied with the overall quality of services provided, patients 0 – 64 years of age are significantly more satisfied than those who are 65+, as shown in Exhibit 7. Finally, when "active" and "discharged" patients are compared on "Overall satisfaction with the quality of the services provided," very little difference is observed as shown in Exhibit 8. Since active patients are defined as being on service for at least 6 months, this result ensures there is no bias from the more experienced patients.

EXHIBIT 8

Anti-infective Patient Status (Active/Discharged) by "Overall satisfaction with the quality of services provided" (Strongly Agree %)

2019 Patient Status		2020 Patient Status	
Active (n=685)	Discharged (n=1,116)	Active (n=1,384)	Discharged (n=2,194)
82.48	83.51	82.44	83.41

Anti-infective therapy patients account for almost three-fourths of the Patient Satisfaction Survey respondents.

Project Limitations

The *Uniform Patient Satisfaction Survey for Home Infusion Providers* is proven to be a valid and reliable instrument, however, there are limitations to survey methodology. First, due to a response rate of 19.30% in 2019 and 20.43% in 2020, there is the possibility of nonresponse error. Specifically, it is not known if the respondents' results would be similar to the non-respondents'. Furthermore, respondents may not be 100% truthful with their answers for a variety of reasons. Even so, survey methodology is the most commonly used method to measure patient satisfaction and a 10-15% return rate for external surveys is deemed acceptable. Due to the representativeness of the providers who contributed Patient Satisfaction Survey data, the results can be generalized to the population of home and specialty infusion providers.

DISCUSSION

The annual Patient Satisfaction Survey data answers many questions about the home and specialty infusion industry through the eyes of the patient. To begin, home and specialty infusion clinicians wanted to know how they were performing so they could learn and improve. Quality describes the patient experience, from the instructions that are given to the patients by nurses and pharmacists to the helpfulness and courteousness of the staff. Overall, the 2019 and 2020 annual data shows an industry-wide commitment to serving the home infusion patient. A comparison of annual data shows consistency and improvement in scores across the board from 2019 to 2020. It is surmised that the improvement is due to providers having their own survey results. Providers who submitted at least 15 surveys in a quarter received individualized *Provider Patient Satisfaction Survey Reports* showing their top box percent, top box ranges, composite scores and benchmarks. Each participating provider is aware of their company's strengths and possible weaknesses and can use this information when setting provider location goals.

It was concluded that the 0-64 age group is significantly better at understanding their home infusion financial benefits than the 65+ age group. When comparing anti-infective therapy patient age groups, the 0-64 group was significantly more satisfied in both 2019 and 2020 with their home infusion services. Even though both age groups had high top box scores for these survey questions, additional research needs to be conducted to determine why the scores for the 65+ age group are lower and the interventions that can be used to improve the scores.

Industry-wide there is a high proportion of anti-infective patients, thus data analysis specific to this population was justified. When "Overall satisfaction with the quality of the services provided" was cross tabulated by "Therapy Type," results showed that anti-infective patients were more satisfied in both 2019 and 2020 than the overall established benchmarks for those years.

CONCLUSION

Home and specialty infusion providers need to continue to create a culture that fosters a high-quality patient experience. Every person involved in the home and specialty infusion process needs to understand the important role they have in making a difference in the life of a home and specialty infusion patient; from their behavior to their performance, it all makes a difference. Survey results show that home and specialty infusion staff are helpful and courteous and the equipment they receive is clean and works. The survey findings provide overwhelming support for quality of the services the industry provides, and the way care is delivered to patients.

The home and specialty infusion industry has experienced significant growth over the last decade. High rates of patient satisfaction in 2019 and 2020 are likely a contributing factor for the increased utilization of home infusion, in addition to other benefits such as, convenience and lower costs for health plans. It is common knowledge that COVID-19 has impacted health care and can be surmised that substantial growth in the home site of care will be one of the outcomes of the pandemic. As health care trends toward services that emphasize reduced health care-associated infections, value, convenience, and flexibility for both the patient and provider, the use of home infusion is likely to continue to expand. Having validated data to understand how patients perceive pharmacy-based home infusion services will benefit providers, prescribers, payers, and regulators as they evaluate how to expand home-based services.

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APPENDIX A

Uniform Home Infusion Patient Satisfaction Survey

Q1.	The home infusion pump was clean when it was delivered.
Q2.	The home infusion pump worked properly.
Q3.	The home infusion medications and supplies arrived before I needed them.
Q4.	I knew who to call if I needed help with my home infusion therapy.
Q5.	The response I received to phone calls for help on weekends or during evening hours met my needs.
Q6.	The home infusion nurse or pharmacist informed me of the possible side effects of the home infusion medication.
Q7.	I understood the explanation of my financial responsibilities for home infusion therapy.
Q8a.	The delivery staff was always courteous.
Q8b.	The billing staff was always courteous.
Q8c.	The pharmacy staff was always courteous.
Q8d.	The nursing staff was always courteous.
Q9a.	The delivery staff was always helpful.
Q9b.	The billing staff was always helpful.
Q9c.	The pharmacy staff was always helpful.
Q9d.	The nursing staff was always helpful.
Q10a.	I understood the instructions provided for how to wash my hands.
Q10b.	I understood the instructions provided for how to give home infusion medication(s).
Q10c.	I understood the instructions provided for how to care for the IV catheter.
Q10d.	I understood the instructions provided for how to store the home infusion medication(s).
Q10e.	I understood the instructions provided for how to use the home infusion pump.
Q11.	I was satisfied with the overall quality of the services provided.
Q12.	I would recommend this home infusion company to my family and friends.

