

# Global Health Care Perspectives: Unlocking the Potential of Self-administered Injectable Medicines for Improved Health Outcomes and Patient Satisfaction

**A Survey of Health Care Providers and Patients  
by APCO Insight**

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Sponsored by West Pharmaceutical Services Inc.

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# Introduction

## Overview

This study aims to better understand how patients and health care providers perceive and consider using patient-administered medicines to manage chronic conditions – specifically self-administered injectables and on-body delivery systems – in France, Germany, the United Kingdom and United States.

The paper addresses several key areas, including openness to using self-injectables and on-body delivery systems for administration of prescription medicines, concerns about using these options and resources patients need to increase confidence in starting to use self-injectables and on-body delivery systems to help manage chronic conditions. Additionally, we discuss opportunities to leverage consumer technology and wearable devices to facilitate information sharing between patients and health care providers.

The first chapter provides a comprehensive analysis focused on self-administered injectables, followed by the second chapter focusing on on-body delivery systems, and the third chapter dedicated to consumer technology and wearables. Appendices at the end of the paper offer country-specific findings as well as respondent demographics. Throughout, the term “prescription injectable medicines” is used to refer to both self-administered injectables and on-body delivery systems.

## Approach

APCO Insight, the research consultancy of APCO Worldwide that conducts independent opinion research around the world since its inception in 1998, conducted a poll of 587 health care providers and 2,000 adult patients, ages 18 and older, in four countries – France, Germany, the U.K. and the U.S. – from June 16 to July 20, 2023. The survey was offered in English, French and German. Survey results for the U.S. patient population were weighted to be representative of the U.S. adult population by race and ethnicity.

To qualify for the survey as a patient, adults (18 years or older) need to have been diagnosed with at least one chronic condition and be under the care of a health care provider for those illnesses. A chronic condition is an illness that persists for three months or longer, requiring ongoing medical attention and management, such as diabetes, heart disease and arthritis. Health care providers were required to have licensure as a physician, nurse, nurse practitioner, advanced practice nurse, physician assistant or physician associate, spend at least 50% of their work week providing direct patient care or treatment in a clinical setting, and have an active role in the diagnosis, prescribing, and/or management/counseling for prescription medicines. For the purposes of our analysis, we will use the term “mid-level health care providers” to refer to the subgroup that includes nurses, nurse practitioners, advanced practice nurses, physician assistants and physician associates.

West sponsored the survey. West’s Science Technology Advice & Review Panel, a physician-led advisory group, worked with APCO Insight to ensure the survey encompassed all appropriate topics and questions.

## Disclaimers

The responses in this report reflect the opinions of the survey respondents and do not necessarily represent the views of West.

If you have questions, you can contact Natacha Clavell, Senior Associate Director at APCO Insight, at [nclavell@apcoworldwide.com](mailto:nclavell@apcoworldwide.com).

# Device Definitions

The following devices will be referenced throughout the report

## Pre-filled syringe

A transparent, plastic tube filled with medicine and a needle that is covered by a plastic casing.



## Syringe

An empty, transparent, plastic tube with a needle covered by a plastic casing.



## Autoinjector

An autoinjector, a tube-shaped device that delivers a pre-measured dose of a medication through a spring-loaded syringe.



## On-Body Delivery System

An on-body injector delivery system is a way to give medicine to someone through a special device that they wear on their body. This device can be worn like a patch, a bracelet, or a small device that clips onto clothing. The device contains a small container that holds the medicine. When it's time to take the medicine, the person presses a button on the device and the medicine is released into their body through a tiny needle or through the skin.



# Executive Summary

## Summary of Findings

Patients and health care providers (HCPs) emphasize the need for innovative prescription medicine delivery methods, expressing significant interest in self-administered injectables and on-body delivery systems (OBDS). Both groups perceive these delivery options as vital for offering convenience and autonomy to patients, and for helping them adhere to drug regimens. While these technologies hold promise, patients have persistent concerns related to unfamiliarity and needle anxiety – worries that health care providers often overlook. Health care providers could play a pivotal role in alleviating these concerns by tailoring educational resources to the preferences of individual patients and, most importantly, by providing in-person training, which is widely cited as the most effective solution by both patients and providers.

## The Need for Innovation in Prescription Drug Delivery

Pharmaceutical innovations have significantly improved the treatment of many diseases, including cancer and chronic inflammatory diseases such as rheumatoid arthritis. By attacking the root biological underpinnings of disease, these treatments have greatly improved the prognosis for patients, bringing symptoms well under control, and in some cases, extending lives. But patients often must travel to hospitals or clinics to have these medications infused intravenously or injected by HCPs – an onerous process that can be time-consuming, costly and inconvenient. That's why both patients and HCPs express a strong need for alternative ways of receiving these medicines.

Among the most innovative drug-delivery options are self-administered injectable medicines and on-body delivery systems (OBDS). These technologies enable patients to administer the medicines they need themselves, whether they're at home, work or on vacation.

**42% of patients strongly agree** that prescription medications recommended by their doctors meet their needs, while **only 11% of HCPs strongly agree** that prescription medications available on the market today can meet their patients' health needs.

**71% of patients and 93% of HCPs agree** that there is a need for new drug-delivery options that make it easier for patients to take their prescription medications.

**76% of patients and 84% of HCPs agree** that they are interested in innovations resulting in medicines that only need to be taken twice a year to work well.

## Receptiveness to and Benefits of Self-administered Injectables and On-Body Delivery Systems

Both patients and HCPs express support for the use of self-injectable prescription medicines and on-body delivery systems. They especially value the convenience and autonomy these devices offer. Providers and patients alike cite the top two benefits of technologies as the time saved by not traveling to medical clinics and the ability to lead a more independent life.

The benefits of prescription injectable medicines extend far beyond the convenience of staying home. At least 9 in 10 patients and HCPs across markets agree that administering medicines at home helps patients stay on track with their treatment plans and be more involved in their health.

Patients who have experience using self-injectables and OBDS are more likely than patients without experience to say they would be willing to use those types of prescription medicines again.

**70% of patients** said they would be likely to use a self-injectable medicine, and **68% of HCPs** would be likely to prescribe one.

**61% of patients** said they would be likely to use an on-body delivery systems for prescription medicines, and **62% of HCPs** would be likely to prescribe one.

**93% of patients and 91% of HCPs believe** administering prescription injectable medicines at home helps patients stay on track with their treatment plans.

**92% of patients and 93% of HCPs say** administering prescription injectable medicines at home helps patients be more involved in their health.

**90% of patients and 96% of HCPs agree** that patients being able to administer prescription injectable medicines at home enables them to lead more independent lives.

82% of patients who have used self-injectables before are likely to use one if recommended by their HCP, compared to 63% of patients who have never used a self-injectable. 75% of patients who have used an OBDS are likely to use one again, compared to 57% of patients who have never used an OBDS.

# Executive Summary

## Barriers of Self-administered Injectable Drugs and On-Body Delivery Systems

HCPs are largely unaware of the fact that patients are worried about potential side effects from self-administered injectable medicines, and that lack of understanding on the part of providers could be a significant barrier to adoption. There are other concerns about both self-injectables and on-body delivery systems that patients and HCPs cite, and those have a significant common thread – anxiety, much of which stems from a lack of experience and understanding of how these devices work.

**61% of patients cite anxiety or fear** of self-injecting as a top concern for self-administered injectables, while 91% of HCPs believe this would be a top concern for patients.

**60% of patients say they're concerned** about side effects from self-administered injectables, compared to 42% of HCPs who cite this as a top concern among patients.

**47% of patients cite concerns about OBDS being inconvenient or uncomfortable** to wear, and 42% of HCPs say this is a concern among patients.

**45% of patients say they would be afraid or anxious** that an OBDS is not working properly. Similarly, 49% of HCPs report this as a top concern among patients.

## Addressing Concerns Related to Self-Injectable Medicines and On-Body Delivery Systems

How can the anxiety over self-injectables and on-body delivery systems be addressed? Patients and HCPs are tightly aligned on the answer: in-person training. Both groups agree that the most effective way to build confidence among patients in using self-administered injectables or on-body delivery systems for prescription medicines is for health care professionals to take a high-touch approach to training.

**51% of patients and 70% of HCPs** cite in-person training from a health care provider as the top resource for instilling confidence in patients that they can use self-injectable medicines.

**49% of patients and 66% of providers** cite in-person training as the best way to get patients comfortable with on-body delivery systems.

**Just 35% of patients and 39% of HCPs believe** printed instructions would be a top resource for instilling confidence in patients in self-injectable medicines, while 32% of patients and 31% of providers say the same about on-body delivery systems.

**34% of patients and 19% of HCPs** are in favor of on-demand physician access for training in using self-injectable medications, while 34% of patients and 22% of physicians cite on-demand access as a top resource for instilling confidence in on-body delivery systems among patients.

## Role of Wearables in Managing Prescription Medicines

Over half of patients, 54%, report using wearable devices such as smart watches to track health information. Among those using wearables, 50% say they share the information they are tracking with health care providers. However, only 24% of patients are using wearables to keep track of their prescription medicines. In the quest to provide patient-centered care, these devices could be valuable tools to support patients with self-injectable medicines and on-body delivery systems, because the data can help HCPs tailor medication regimens to individual patient needs and enhance adherence. However, both patients and providers cite concerns about the security, accuracy and privacy of the information collected by wearables.

**66% of patients** say they would share health information tracked by wearables with their health care providers to help manage their chronic condition.

**53% of patients and 55% of HCPs** believe the most important benefit of sharing health information tracked by wearable devices with health care providers is that it could help identify health problems early.

**41% of patients and 32% of providers** cite the ability to match treatments with patients' needs as an important benefit of sharing health information tracked by wearables.

**40% of patients and 48% of providers** believe that sharing information from wearables could improve how well treatments work.

**47% of patients and 60% of HCPs** rank security and privacy of health information as their top concern when it comes to sharing information tracked by wearables.



## CHAPTER 1:

# Global Perspectives on Self-injectable Prescription Medicines

**About 7 in 10 patients and providers would consider prescribing or using self-administered injectable medicines.**

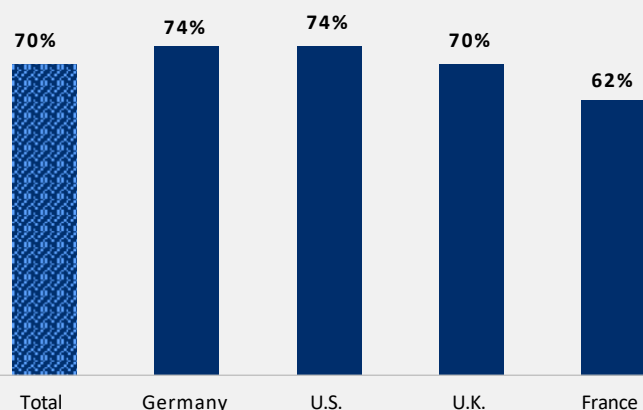
Patients and HCPs understand that the option of self-dosing many prescription medicines exists – and they're more than open to embracing these products. Most patients (68%) across markets are at least somewhat familiar with self-administered injectable medicines. And a majority (70%) say they would be likely to consider a self-administered injectable medicine if their doctors recommended it. HCPs are equally enthusiastic, with 68% reporting that they are likely to recommend a self-administered injectable option.

Patients who have used self-administered injectables are more likely to consider this form of medication, with 82% of past users saying they would consider it compared to 63% of those who have never used a self-administered injectable.

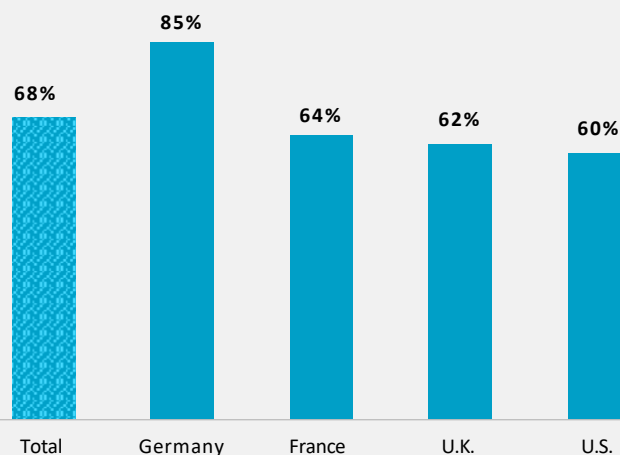
Patients in France are the least likely to consider a self-administered injectable medicine — 62% compared to 70% in the U.K. and 74% in the U.S. and Germany. Across the markets, 18-to-24-year-olds are less likely to consider a self-administered injectable medicine — 62% compared to an average of 72% for those who are 25 and older.

Providers in Germany are the most open to this option, with 85% saying they are likely to recommend self-administered injectables, as compared to 64% in France, 62% in the U.K. and 60% in the U.S. Providers who have practiced for five or fewer years are less likely to recommend self-administered injectables than those with longer tenures — 52% compared to an average of 69% or those who have been in practice for six or more years.

**Figure 1. Likely to Use Self-administered Injectable Patient**



**Figure 2. Likely to Prescribe Self-administered Injectable HCP**



## Patients and providers agree that a major benefit of self-injectable prescription medicines is that they offer the ability to receive treatments at home.

Patients highly value the comfort and convenience of treating themselves in their own homes. Most patients (65%) would prefer to self-inject prescription medicines at home instead of needing to travel to a medical facility for treatment. In fact, among patients who have ever used a self-administered injectable medicine, 93% say the ability to treat at home is important.

Most patients (65%) would prefer to self-inject prescription medicines at home instead of needing to travel to a medical facility for treatment. In fact, among patients who have ever used a self-administered injectable medicine, 93% say the ability to treat at home without having to go to a medical site is important.

## Self-administered injectable medicines enhance care and quality of life across multiple domains – including patient centricity, adherence and autonomy.

Patients and HCPs cite the same two top benefits of self-injectable medicines: Patients can spend less time traveling to medical clinics for treatment and they can lead more independent lives. More than a third of patients and providers also value the ability to continue treatments while traveling.

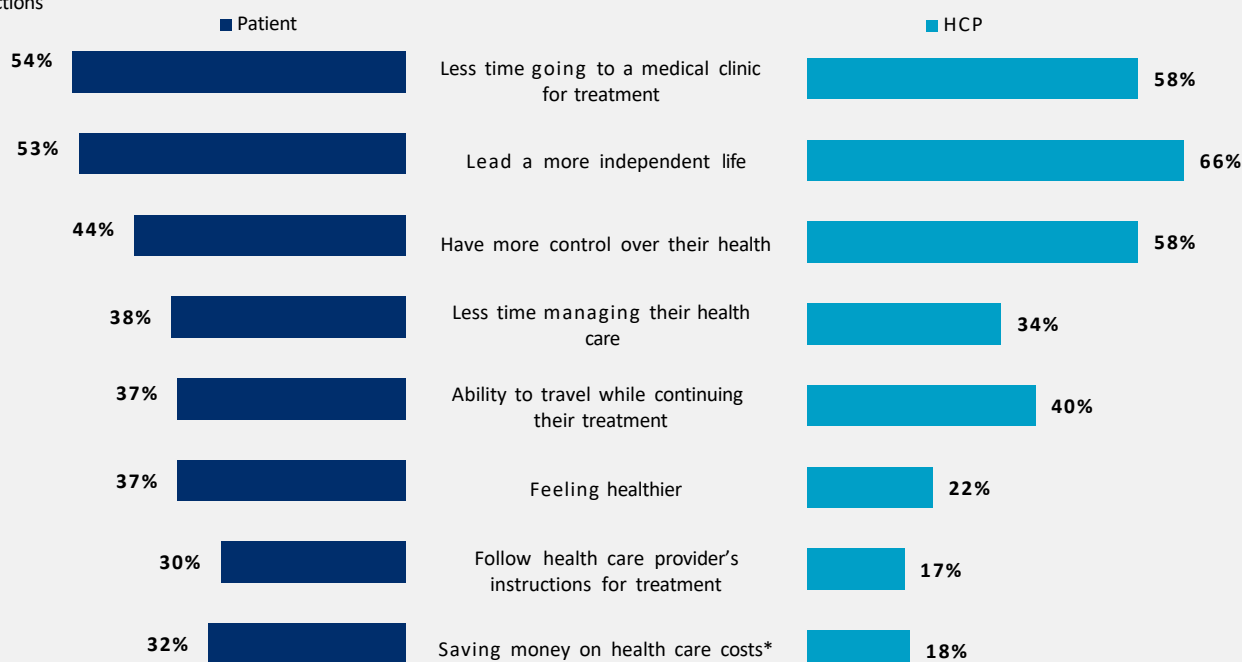
Patients in France rank that benefit in second place (47%) behind the ability to lead a more independent life (59%). Similarly, patients who self-report having poor health rank leading a more independent life as the top benefit (59%) and spending less time going to a medical clinic as the second top benefit (52%).

Patients in the U.S., Germany and U.K. (56% across the board) all note spending less time going to a medical clinic for treatment as the top benefit of taking a self-administered injectable medicine.

While HCPs and patients rank the benefits similarly, there are a couple of notable differences. Patients are more likely than health care providers to say feeling healthy and being able to follow their health care provider's instructions for treatment are top benefits of self-administered injectable medicines.

**Figure 3. Benefits of Self-administered Injectable Medicines**

In order of patient preference  
Top three selections



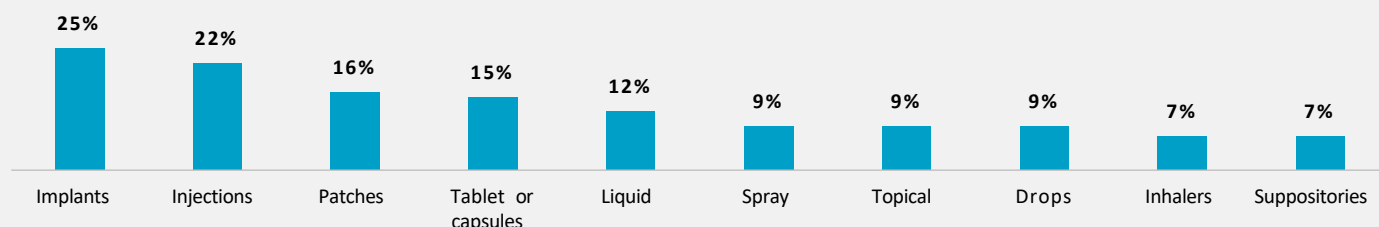
\*Only shown in U.S.



For health care providers, adherence is a top priority. HCPs note that patients taking injectable medicines (22%) are the second most likely to always take their medicines exactly as prescribed, only behind implants (25%).

Providers who have been practicing for at least 11 years are more likely than those with less tenure to say patients taking injectable medicines are always compliant, with an average of 25% and 17% respectively.

Figure 4. According to HCPs, the Percent of Patients who Always Take Medications Exactly as Prescribed, by Medication Type



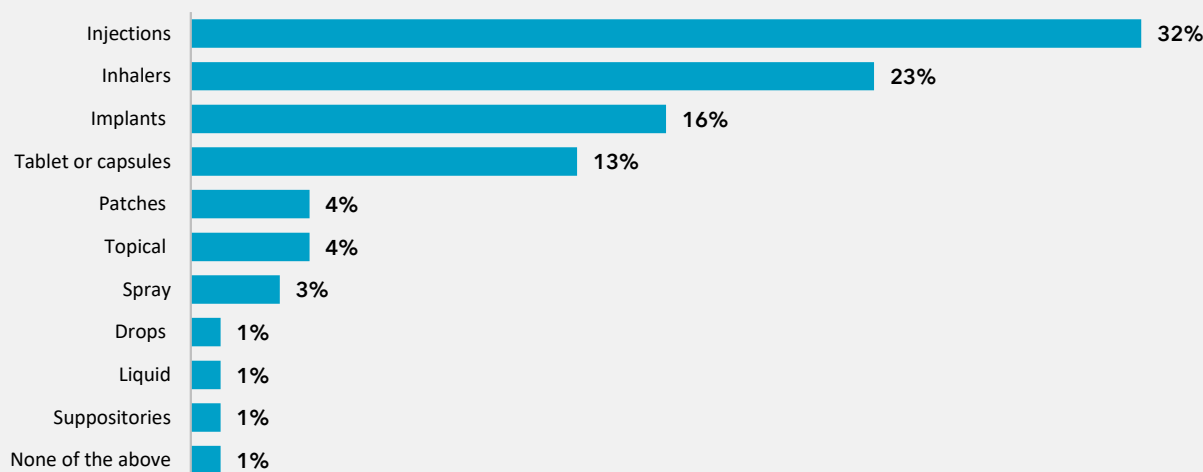
### There is an opportunity for developers of self-injectable medicines to work with providers to improve patients' confidence.

Across markets, only 27% of providers strongly agree with the following statement: "When patients are prescribed a self-administered medicine, they have access to information that helps them feel confident in administering the medicine to themselves."

According to HCPs, injectables are the prescription medication type patients need the most help understanding. Mid-level health care providers (39%) are more likely than physicians (25%) to say injectables are the type of medicine patients need the most help understanding. 77% of HCPs say patients show some or a lot of hesitancy when they recommend a self-administered injectable medicine.

To maximize the full advantages that self-injectable medicines offer for patient care, providers will need better assurance that patients can easily access comprehensive training and reference materials that will make self-injecting medicines second nature. The WHO noted in a report on adherence that patients' motivation to continue taking prescription drugs is largely influenced by the degree of confidence they have in their ability to follow treatment regimens. The organization named confidence-building as a behavioral treatment target that needs to be addressed to improve adherence rates.

Figure 5. According to HCPs, the Type of Prescription Medication Patients Need the Most Help Understanding



## Fear and lack of confidence are barriers to consideration of self-injectable medications.

Patients' top three concerns when considering a self-injectable prescription include fear and anxiety about injecting themselves, concerns about side effects of the medication and not receiving training on how to administer the injectable.

Patients in the U.K. are more likely to note anxiousness about injecting themselves —72% compared to an average of 58% in other countries. Concerns about side effects of the medication are more significant among patients aged 35 years and older —63% compared to 52% among those younger than 35.

The top two factors HCPs consider when deciding whether to prescribe self-injectable prescription medicines (Figure 7) are related to that fear: patients' concerns about being able to administer medicine themselves (43%) and aversion to needles (43%).

This shows that health care providers aim to deliver patient-centered care. However, there are significant differences in how providers and patients rank the top concerns (Figure 6). HCPs overestimate how afraid or anxious patients are about injecting themselves, and they underestimate the concerns patients have about side effects of the medication and the treatment not working well.

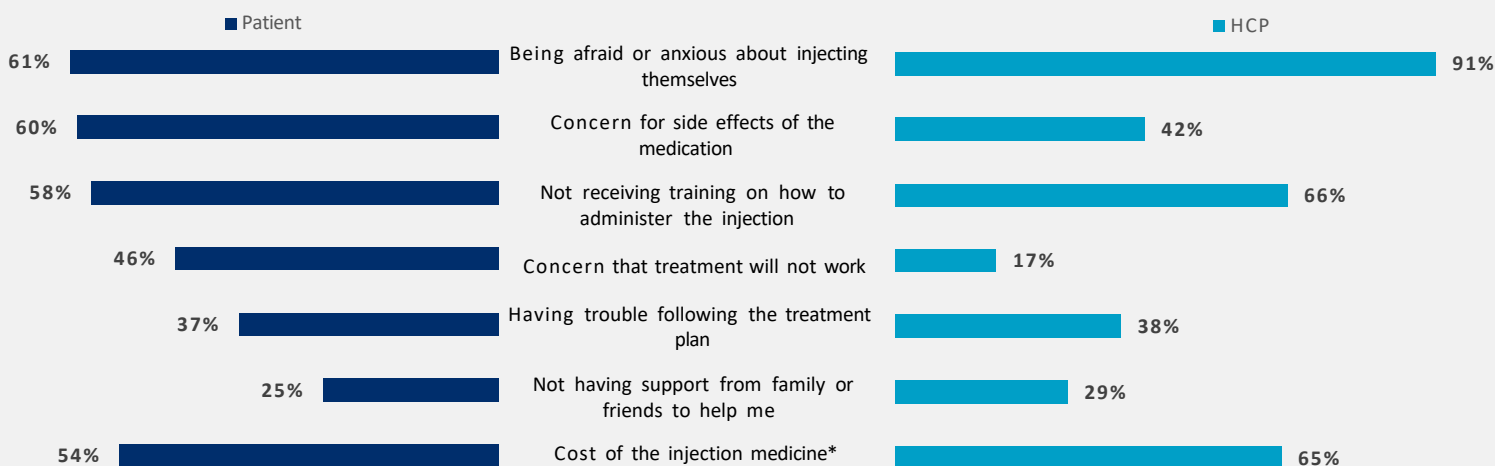
In the U.S., the ability to secure insurance reimbursement is the top factor considered by HCPs (44%). The cost of the injectable medicine is also a top concern for patients in the U.S. (54%).

However, HCPs are more likely than patients to note cost of the injectable medicine as a top concern —65% and 54% respectively.

**Figure 6. Concerns about Self-administered Injectable Medicine**

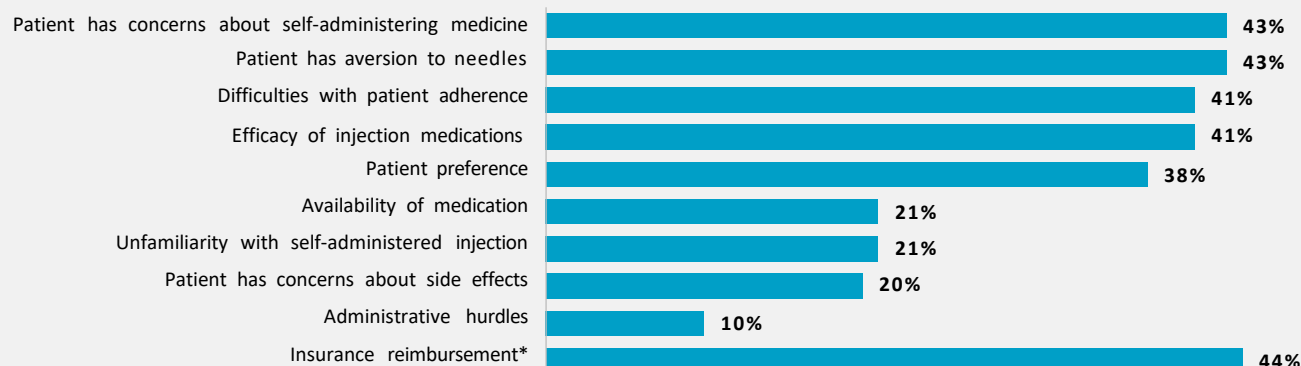
In order of patient preference

Top three selections



\*Only shown in U.S.

**Figure 7. According to HCPs, The Most Important Factors Considered When Prescribing a Self-administered Medicine**



\*Only shown in U.S.

## HCPs and the pharmaceutical industry should develop a multifaceted approach to addressing all of the barriers that prevent adoption of self-injectable medicines.

Survey responses demonstrate that patients need access to a variety of resources so they will be comfortable using self-injectable medications.

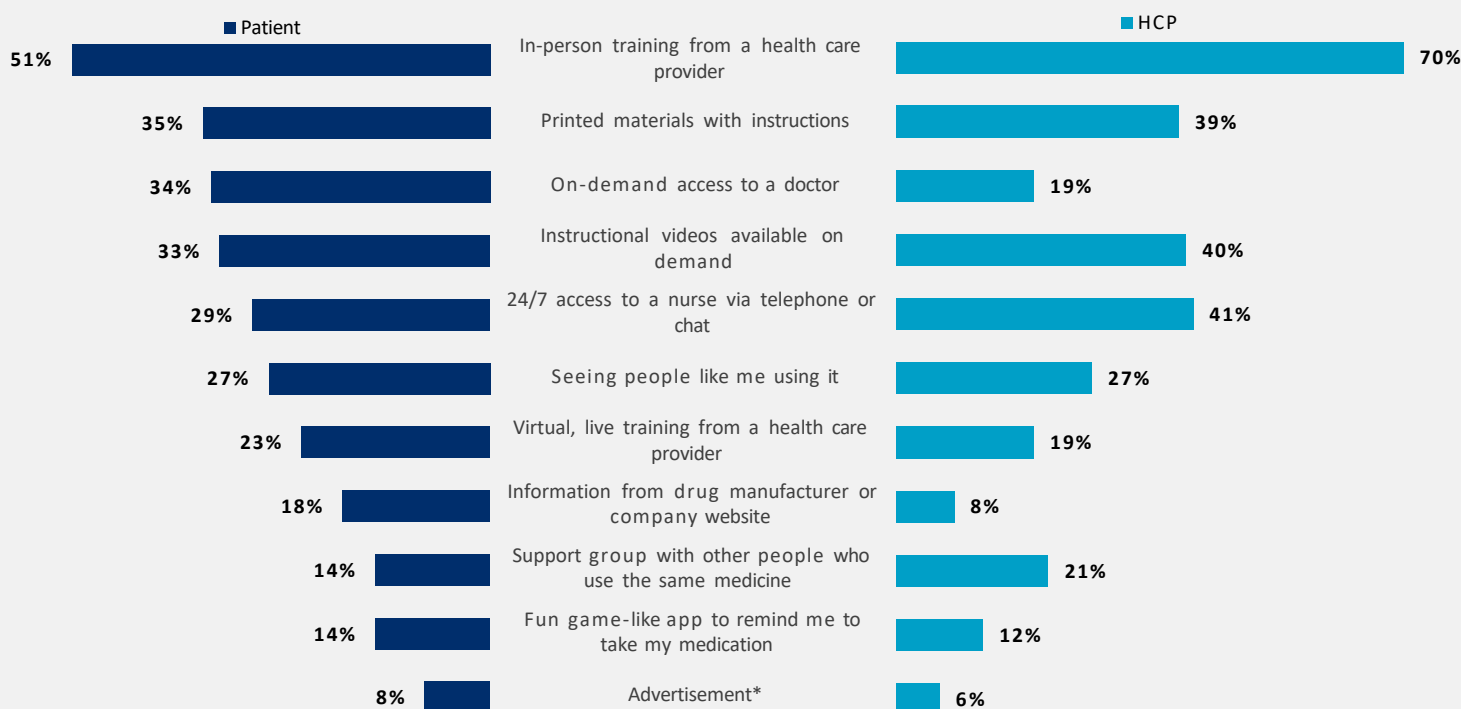
In-person training from a health care provider is the most popular resource cited by patients (51%) and health care providers (70%) for boosting patients' confidence in the use of self-injectable medicines.

Patients in all markets also want on-demand access to a doctor, printed materials with instructions and instructional videos, while HCPs rate both 24/7 access to a nurse via telephone and chat and instructional videos as the most helpful resources aside from in-person training.

Patients who are 35 years old and older are more likely to prefer in-person training from a health care provider than those who are 34 years old and younger (18-24, 39%; 25-34, 40%; 35-54, 49%; 55 years or older, 63%). Patients who are 18 to 24 years old prefer on-demand access to a doctor (42%), while those who are 25 to 34 years old prefer instructional videos available on demand (42%).

Generally, health care providers and patients agree on the most effective resources to instill confidence in patients for using a self-administered injectable medicine. However, there are some incongruencies. HCPs underestimate patient preferences for on-demand access to a doctor and information from a drug manufacturer or company website. HCPs overestimate patient preferences for instructional videos on demand, 24/7 access to a nurse via telephone or chat and support group.

**Figure 8. Resources to Instill Confidence in Patients for Self-administered Injectables**  
In order of patient preference  
Top three selections



\*Only shown in U.S.

## CHAPTER 2:

# Global Perspectives on On-Body Delivery Systems for Prescription Medicines

**Awareness is low but interest is high for on-body delivery systems. About 6 in 10 providers and patients are likely to consider prescribing or using on-body delivery systems for prescription medicines.**

On-body delivery systems (OBDS) are wearable devices applied directly to patients' skin that automatically deliver drugs subcutaneously on a programmed schedule. Awareness of this option is quite low: 54% of patients across markets report that they are not familiar with OBDS. Most providers, 72%, say their patients show some or a lot of hesitancy when an OBDS is recommended. That said, 61% of patients would try one if their HCP recommended it, and 64% would prefer this option over going to a medical facility for drug treatment.

Patients who have used OBDS are more likely to consider this form of medication, with 75% of past users saying they would consider it compared to 57% of those who have never used a self-administered injectable medicine. Patients in France are the least likely to consider OBDS, at 51%. As for providers, 62% across markets say they would be likely to recommend OBDS options to their patients, provided they were confident the devices are equally safe and effective as other forms of drug delivery, such as tablets or liquids. HCPs in France are the least likely to consider prescribing OBDS, at 50%.

Figure 9. Likelihood to Use OBDS  
Patient

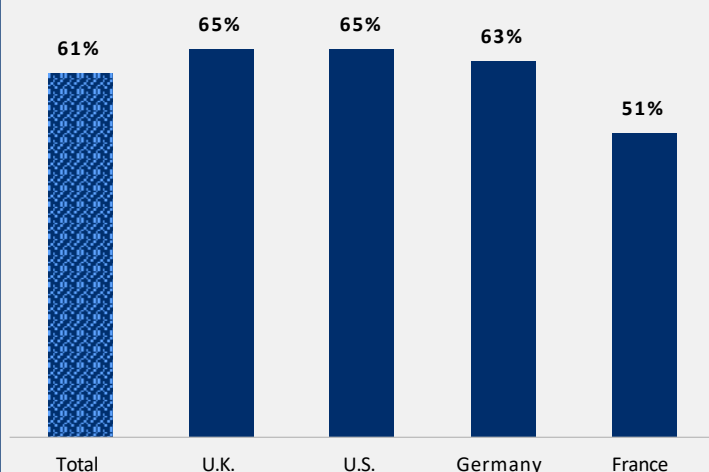
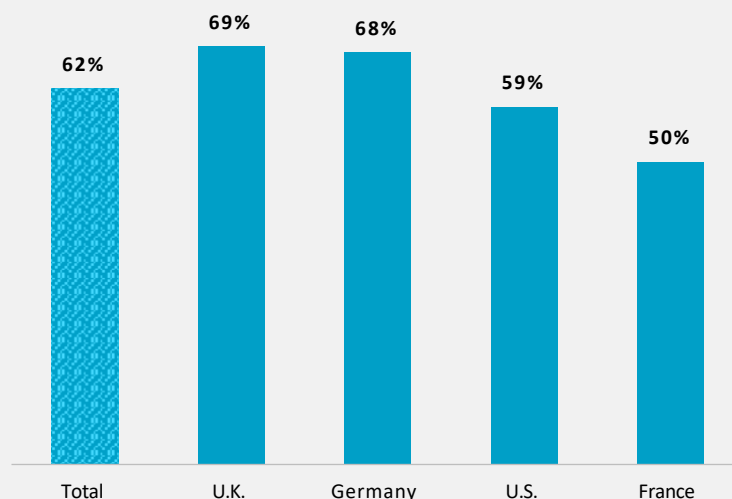


Figure 10. Likelihood to Prescribe OBDS  
HCP



## Patient convenience and autonomy are top benefits of using OBDS to manage chronic conditions.

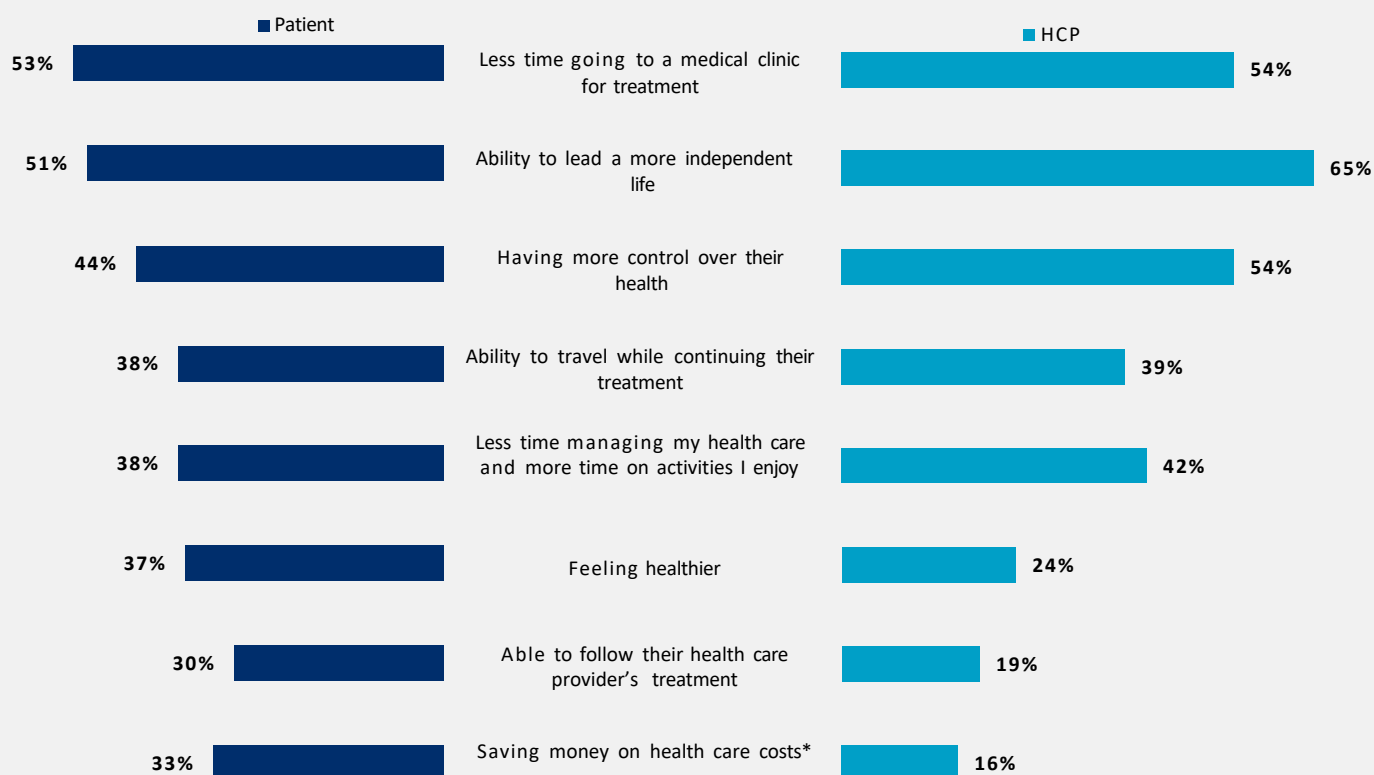
When asked to rank the top benefits of OBDS in managing chronic conditions, patients and physicians agree that convenience is key. Both groups cite the ability for patients to spend less time traveling to medical clinics for treatment and being able to lead more independent lives as the top two benefits. Both groups also place high value on the belief that using OBDS would help patients feel like they have more control over their health.

Patients are more likely than HCPs to consider feeling healthier and being able to follow HCP's instructions for treatment as top benefits of using OBDS. In the U.S., patients are more likely than HCPs to believe that OBDS will save them money on health care. There is less variance in the rankings between patients and HCPs in France; they are well-aligned on opinions of benefits that come from using OBDS.

The ranking of benefits of OBDS cited by patients and HCPs is very similar to the ranking of benefits for using self-administered injectables. Across the board, convenience and autonomy are believed to be the most important benefits patients can expect when using these technologies.

**Figure 11. Benefits of OBDS**

In order of patient preference  
Top three selections



\*Only shown in U.S.

## Even though decisions to prescribe on-body delivery systems for prescription medicines are driven by cost in the U.S., patient-related concerns are prevalent across markets.

Patients' top two concerns about using OBDS include devices being uncomfortable or inconvenient to wear and being afraid or anxious that the device is not working properly. Patients who are 55 years of age or older are more likely to cite concerns about a device being inconvenient or uncomfortable to wear (56%) and concerns about the device working properly (53%) compared to those who are 54 years of age or younger. Patients in the U.K. are also more likely to cite concerns about the device working properly (52%).

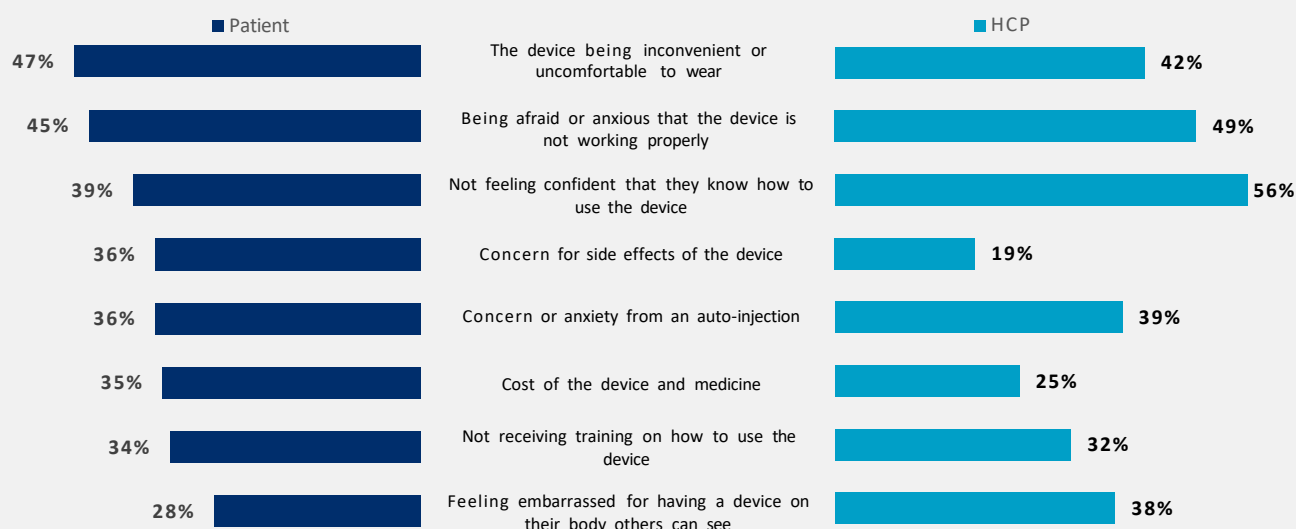
HCPs note that they factor in patient preference and concerns when considering prescribing an OBDS (Figure 13).

However, health care providers overestimate patient concerns about feeling confident in using the device and feeling embarrassed for having a visible device on their body. HCPs underestimate patient concerns about the device being inconvenient or uncomfortable, side effects of the device and cost of the device and medicine.

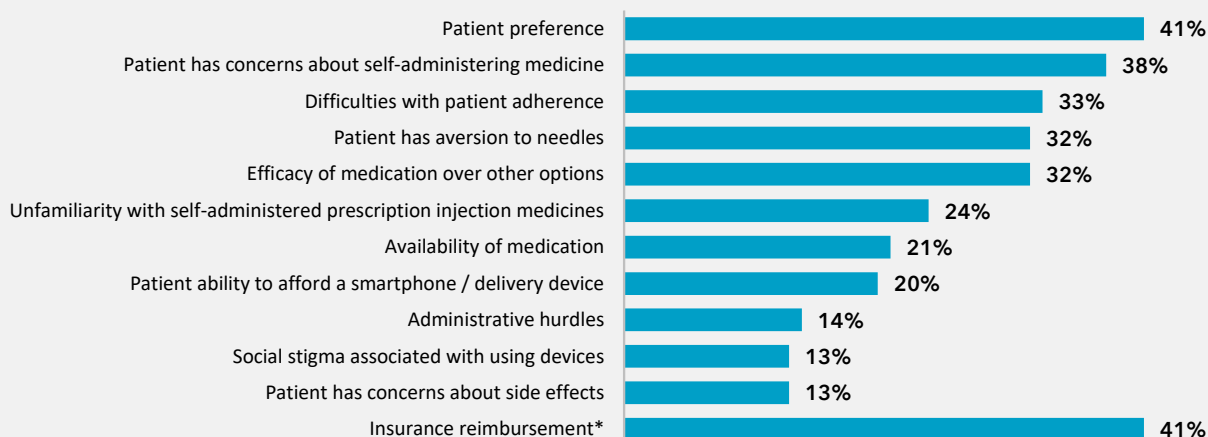
There are also serious cost concerns in the U.S., where 41% of providers say insurance reimbursement is the top barrier they consider. U.S. patients also express concerns about the cost of the devices and medicine. In total, 45% of U.S. patients and 58% of U.S. providers cite the cost of OBDS as a concern.

**Figure 12. Concerns about OBDS**

In order of patient preference  
Top three selections



**Figure 13. According to HCPs, Most Important Factors Considered When Prescribing OBDS**



\*Only shown in U.S.

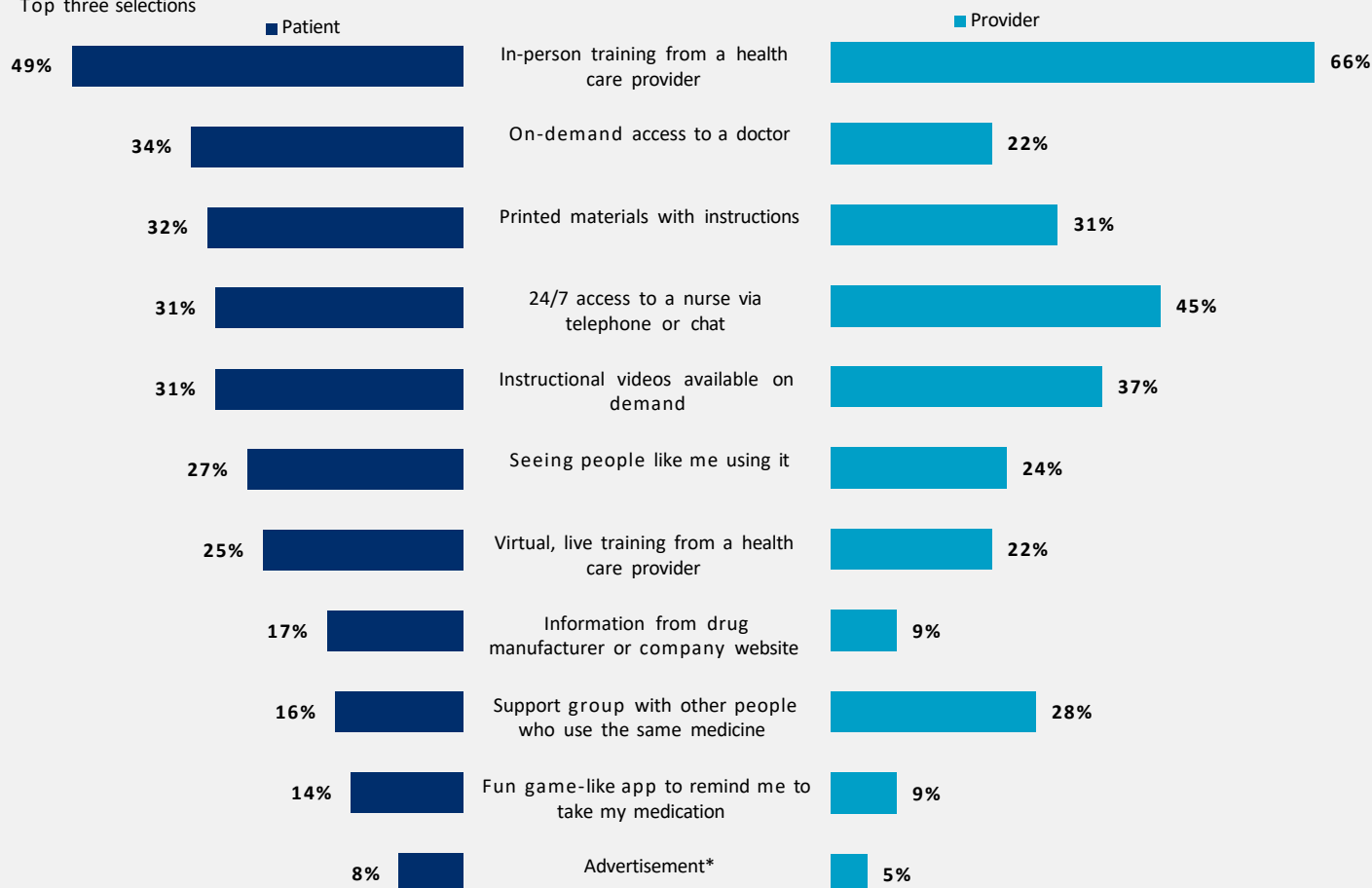


## Patients and HCPs agree that in-person training on OBDS is a priority, but they disagree about the best methods for delivering that training.

As is the case with self-injectables, in-person training from a health care provider is the most valued resource cited by patients and HCPs for boosting confidence in OBDS. But patients also rank on-demand access to a doctor and printed materials with instructions as the most helpful resources. By contrast, providers cite 24/7 access to a nurse via telephone or chat as a top resource for getting patients comfortable with OBDS, along with patients seeing people like them using the devices. This demonstrates that patients feel the need to not only continue the dialogue with their physicians as they learn to use OBDS, but also to have educational materials on hand to boost their confidence.

In-person training is the top resource preferred among patients 25 years of age and older (18-24, 34%; 25-34, 40%; 35-54, 48%; 55 or older, 61%). Patients 18-24 years of age cite 24/7 access to a nurse via a telephone or chat as their top resource. HCPs underestimate patient's preference for on-demand access to a doctor, information from drug manufacturer or company website, and gamified apps. HCPs overestimate patient's preference for in-person training, 24/7 access to a nurse via telephone or chat, and support groups.

**Figure 14. Resources for Starting OBDS Among Patients and Healthcare Providers**  
In order of patient preference  
Top three selections



\*Only shown in U.S.

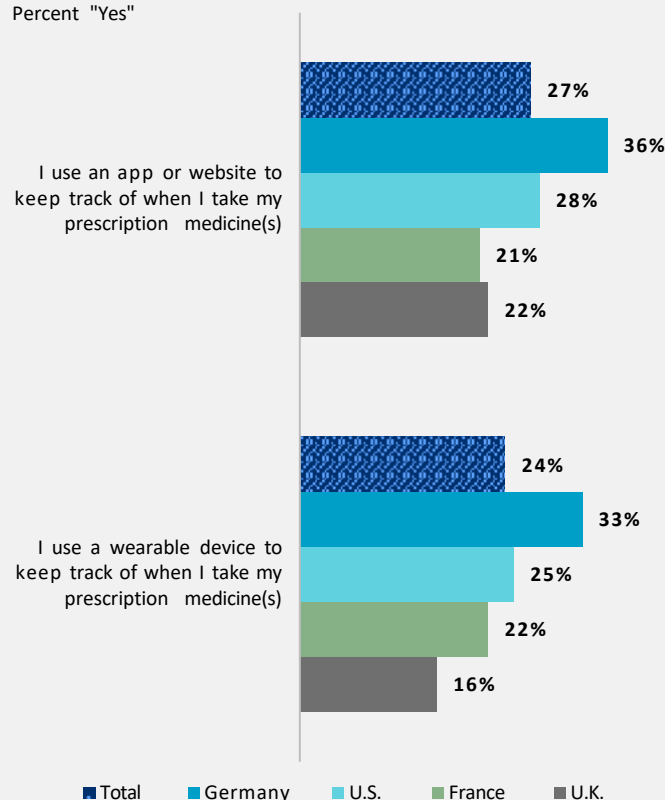
## CHAPTER 3:

# Use of Wearable Health Trackers to Help Patients Manage Medications

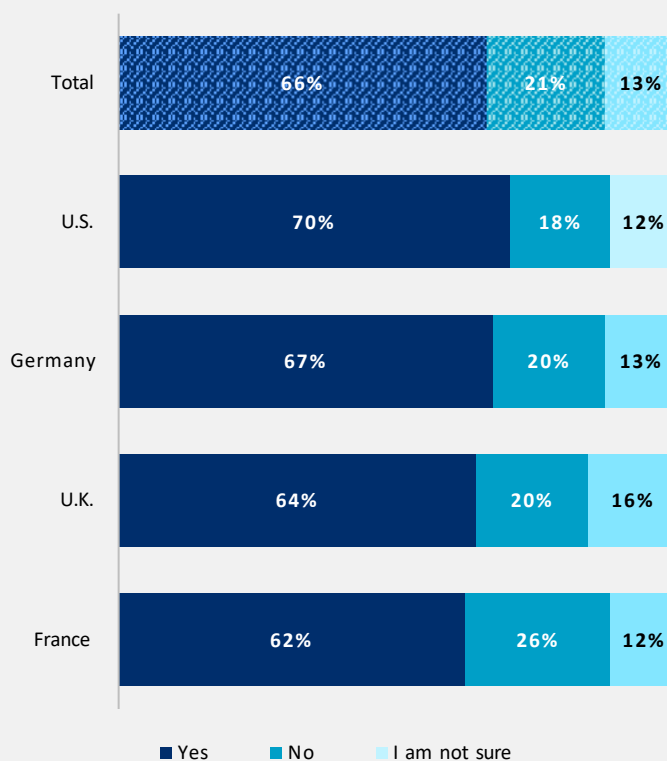
## Patients embrace wearables to help manage their health and wellness.

Across markets, 54% of patients use wearables, including smartwatches (32%), fitness trackers (22%), blood pressure monitors (16%) and heart rate (HR) and electrocardiography (ECG) monitors (10%). Half of patients who use these technologies say they share the health information they track with their providers. Notably, 66% say they would be willing to share health information tracked on wearables with providers to help manage their chronic conditions. However, only 24% of patients use a wearable device to keep track of when they take prescription medicines, and 27% use an app or website to track dosing. Patients who are 18-54 years old are more likely than those 55 years or older to use wearable to keep track of medicines; those 25-34 are the most likely to do so.

**Figure 15. According to Patients, Use of Technology to Manage Prescription Medicines**  
Percent "Yes"



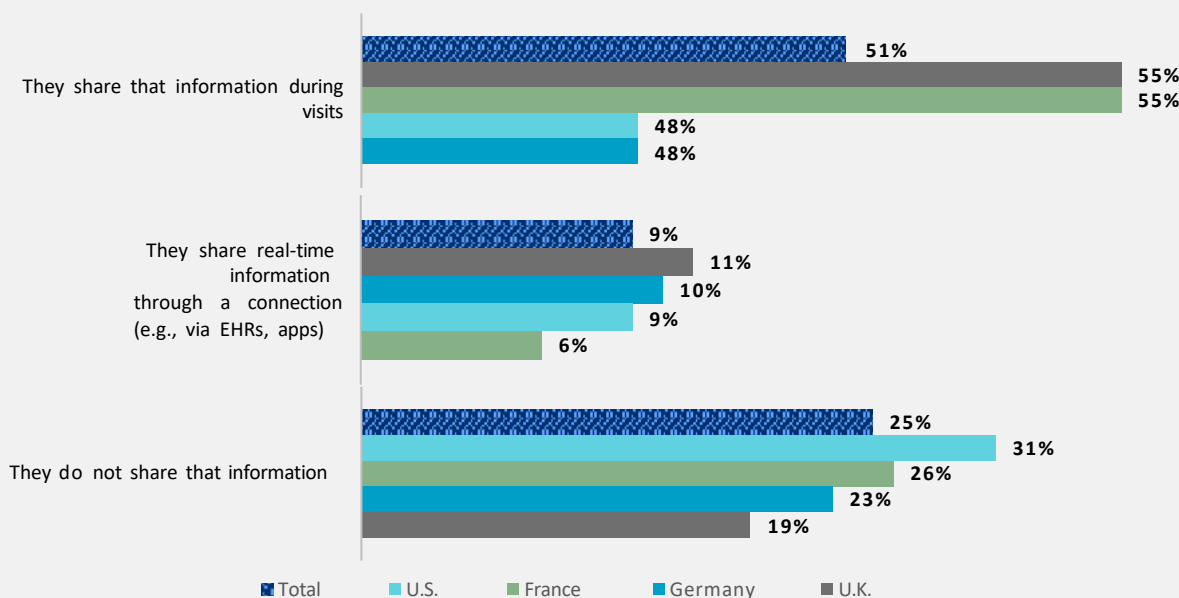
**Figure 16. According to Patients, Willingness to Share Health Information From Wearables with HCP**



## Providers are becoming more aware of their patients' use of wearables for tracking medications.

While most HCPs are not yet seeing widespread use of wearables for medication management, they are noting some trends in how patients use the devices. For example, 31% of providers report that at least half of their patients use wearables to set reminders for their prescription medicines, and 23% say that at least half of their patients use wearables to track when they take medication. A small subset of HCPs (17%) say at least half of their patients use wearables to record reactions to medication. Importantly, HCPs say that among patients who use wearables to manage their medicines, 51% share that information during visits and 9% share it real-time through a virtual connection (e.g., apps).

**Figure 17. According to HCPs, Percent of Patients Sharing Prescription Medicine Information Tracked by Wearables**



## HCPs and patients agree that health data from wearables can improve the diagnosis and management of diseases.

Across markets, HCPs and patients say that the two biggest benefits of patients sharing health data from wearables devices with their physicians is that it could help identify health problems early and improve the efficacy of treatment regimens. Health care providers in the U.S. are more likely than HCPs in other countries to say health information from wearables could help improve communication with patients; in fact, it is their top benefit (59%). Patients believe sharing health data from wearables could improve the accuracy of diagnoses (47%); however, providers are less likely to note that as a benefit (24%).

Patients who are 55 years or older are less likely to think sharing data from wearables would result in improved communication with their provider or having a more active role in their own health. However, the same group is more likely to think that sharing health information tracked with wearables would get them a treatment that is specific to their needs.

**Figure 18. Benefits of Sharing Data from Wearables**

| Benefit                                                                          | Patient |       | HCP  |       |
|----------------------------------------------------------------------------------|---------|-------|------|-------|
|                                                                                  | Rank    | Perc. | Rank | Perc. |
| Identify health problems early                                                   | 1       | 53%   | 1    | 55%   |
| Improve the accuracy of diagnosis                                                | 2       | 47%   | 7    | 24%   |
| Get a treatment that is specific to patients' needs                              | 3       | 41%   | 6    | 32%   |
| Improve how well treatment works                                                 | 4       | 40%   | 3    | 48%   |
| Make sure all health care providers have the same information and are up to date | 5       | 33%   | 5    | 32%   |
| Help patients have a more active role in their own health                        | 6       | 31%   | 2    | 53%   |
| Improve communication between health care providers and patients                 | 7       | 30%   | 4    | 43%   |

## For wearables to be fully integrated into patient care, the industry and health care system as a whole will need to address mistrust among patients and HCPs.

HCPs and patients both have a major concern about sharing health information tracked by wearables: security and privacy. Patients are also concerned about the accuracy of the information and lack of trust in the companies that make the wearable technology. HCPs are also concerned about inaccuracies, and they worry they wouldn't have enough time to review and assess the data, nor would they understand what to do with it.

These concerns speak to a broader issue of mistrust in wearable health trackers – an issue that will need to be addressed for patients and providers to get the most out of these devices.

Patients aged 18 to 54 are more concerned than those 55 years or older that the health information is being

used to discriminate against them and of that the technology may harm their health. The same cohort is also more likely to note that they lack trust in their health care provider and that the use of this technology does not align with their cultural or religious beliefs.

Patients in France are more likely than those in other markets to note concerns about the wearable technology harming their health (38%), while patients in Germany are more likely than those in other markets to say the use of this technology does not align with their cultural or religious beliefs (22%). HCPs in Germany are least likely to be concerned about understanding what to do with the data, but they are also more likely to lack trust in the companies that make the wearables.

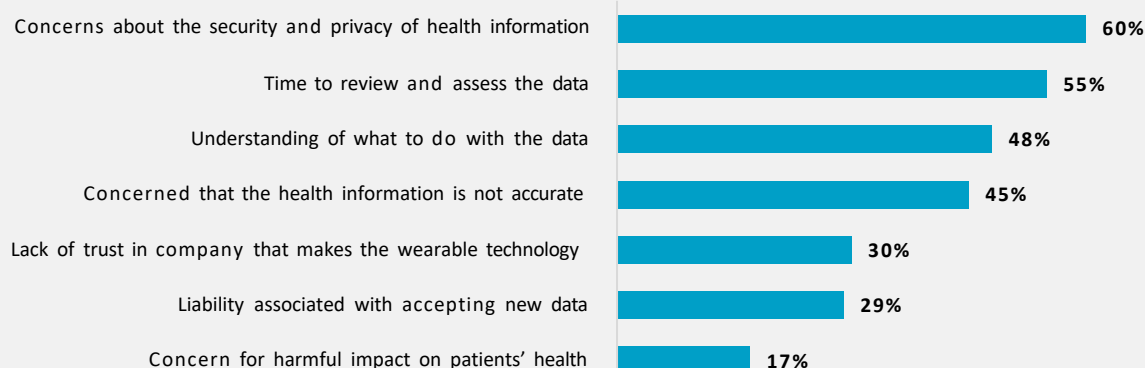
**Figure 19. Patient's Concerns about Sharing Health Information from Wearables with HCPs**

Top three selections



**Figure 20. HCP's Concerns about Patients Sharing Health Information from Wearables**

Top three selections



# Conclusion

Across four markets, patients express a strong desire to manage chronic diseases with medications they can administer themselves. This survey demonstrates high demand for self-injectable medicines and on-body drug-delivery systems. Health care providers are equally enthusiastic about these options. Both groups agree that the main benefits of prescription injectable medicines are that they save patients the time and hassle of having to travel to medical clinics for treatment and they offer them the ability to lead more independent lives.

There are some barriers to the adoption of prescription injectable medicines. Patient anxiety stemming from a lack of experience is the main concern among both patients and providers. Many patients fear they won't understand how to use self-injectable medications or OBDS, and patients express worries about potential side effects, particularly with self-injectable options. In the U.S., cost and insurance coverage are also significant concerns. Yet HCPs underestimate patients' concerns about side effects and cost, which could negatively affect adoption of these devices.

Patients and providers agree that a high-touch approach is necessary to quell concerns over self-administered medications. Both groups say that patients will need in-person training from a health care provider to learn how to use self-injectable drugs and OBDS properly. Patients also prefer on-demand access to HCPs and printed materials to consult as they become more experienced with these technologies.

Wearables such as smartwatches and fitness trackers could play a role in facilitating this provider-patient communication. While there are some differences in the use of wearables between younger and older patients, most patients say they would be willing to share health information tracked by the devices with their HCPs, helping providers monitor patient compliance and effectiveness of self-injectables and OBDS.

## Recommendations

The findings of this survey suggest that the pharmaceutical industry should actively engage in education that enables the adoption of self-administered injectable medicines and on-body delivery systems. Specifically, patients value a high-touch approach that includes in-person training from a health care provider. The industry could assist providers by suggesting training methods and developing educational materials that address concerns about self-injectables and OBDS and increase patients' confidence in using them.

Given the significant interest in self-injectables, OBDS and wearable technologies among patients, there is also an opportunity for industry leaders and research groups to analyze the costs vs. the benefits of these technologies. If the data show that advances in drug delivery positively impact health equity, social determinants of health and other barriers to optimal control of chronic diseases, the research could help increase the adoption of these technologies.

# Appendix A

## COUNTRY SPECIFIC REPORTS

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|         |    |
|---------|----|
| France  | 21 |
| Germany | 24 |
| U.K.    | 27 |
| U.S.    | 30 |



# France

## Summary

Patients and health care providers in France agree that there is a need for new drug delivery options that can make it easier for patients to take their prescription medications, 57% and 59% respectively. They are open to using or prescribing self-administered injectable medicines and on-body delivery systems (OBDS) for managing chronic conditions. At least half of health care providers are likely to recommend self-administered injectable medicines or OBDS to patients, and most patients are likely to use them if recommended by their health care provider.

Self-administered injectable medicines and OBDS medicines are perceived as supporting autonomy and convenience. Patients and health care providers note the top benefits of using them as "having the ability to lead a more independent life" and "spending less time going to a medical clinic for treatment." However, patients have concerns about the side effects of the medications and are afraid or anxious about self-injecting or finding OBDS inconvenient or uncomfortable to wear. In-person training from a health care provider is the top resource patients note that would help them feel most confident in starting to use self-administered injectable medicines or OBDS.

## Section 1: Self-administered Injectable Medicines

### Likelihood to prescribe or use self-administered injectable medicines

Patients and health care providers alike have a high likelihood of using or prescribing a self-administered injectable medicine to help manage a chronic condition. Sixty-four percent of health care providers say they are likely to recommend a self-administered prescription injectable medicine option if it is available. Difficulty with patient adherence (51%), patient preference (46%) and efficacy of injectable medications over non-injectable medications (46%) are the top three factors HCPs consider when prescribing self-administered prescription injectable medicines. Most patients (62%) say they would likely try it if recommended by their HCP.

### Benefits of self-administered injectable medicines

The use of self-administered injectable medicines is seen as supporting patient autonomy and convenience. Having the ability to lead a more independent life was cited as a top benefit by 70% of providers and 59% of patients. Spending less time going to a medical clinic for treatment was named a top benefit by 53% of providers and 47% of patients. Feeling like patients have more control over their health was pegged as a top benefit by 52% of providers and 43% of patients.

### Barriers to consideration of self-administered injectable medicines

Anxiety about side effects and self-injection, as well as a lack of training on how to administer a self-injectable medicine are top concerns for patients considering the use of self-administered injectable medicines. HCPs note their patients' top concerns about using self-injectable medicines are being afraid or anxious about injecting themselves (92%) and not receiving training on how to administer the injection (72%). Patients' top three concerns are side effects (68%), being afraid or anxious about injecting oneself (60%) and not receiving training on how to administer the injection (58%).

### Addressing barriers related to self-administered injectable medicines

Both health care providers and patients agree that in-person training from a provider is the most helpful resource for addressing barriers. According to HCPs, the most effective resources for helping patients feel confident about using self-administered injectable medicines are in-person training from a health care provider (59%), 24/7 access to a nurse via telephone chat (52%), and "seeing other people like me using it" (34%). Patients note the best resources are in-person training from a health care provider (41%), on-demand access to a doctor (38%), and 24/7 access to a nurse via telephone or chat (35%). However, the preferred resources vary based on patient age. For instance, 21% of patients aged 35-54 and 24% of those aged 55 and older prefer in-person training from a health care provider, compared to only 9% of patients aged 18-24 and 6% of patients aged 25-34. Additionally, 18-24-year-old patients are more open to on-demand access to a doctor (27%), compared to their older counterparts (6% for 25-34-year-olds, 12% for 35-54-year-olds, and 13% for those over 55). Moreover, more women (41%) than men (28%) are open to 24/7 access to a nurse via telephone or chat.

## Section 2: On-body delivery Systems for Prescription Medicines

### Likelihood to prescribe or use on-body delivery systems

Patients and HCPs in France are also open to using OBDS to help manage their chronic conditions, though likelihood to use or prescribe OBDS is lower than that of self-administered injectables. Only 50% of health care providers says they are likely to prescribe OBDS for prescription medicines. Patient preference (49%) and patient concerns about self-administered medicine (44%) are the top two factors HCPs consider when prescribing OBDS medicines to patients.

Most patients are not at all familiar with OBDS (52%); however, over half (51%) of patients say they are likely to try an OBDS if recommended by their HCP. Men are more open to it (57%) than women (45%). Patients who have used self-administered injectables (61%) are more open to trying OBDS than those who have not (47%).

### Benefits of on-body delivery systems for prescription medicines

OBDS are seen as supporting patient autonomy, especially for patients who are 55 years or older, and being convenient. Health care providers name the top benefits of OBDS for patients as having the ability to lead a more independent life (61%), spending less time going to a medical clinic for treatment (52%) and feeling like they have more control over their health (48%). According to patients, the top benefit is having the ability to lead a more independent life (56%). This is an especially important benefit to patients who are 55 years or older (67%) compared to patients 18-54 years old (46% to 53%). Other top benefits named by patients are spending less time going to a medical clinic for treatment (51%) and spending less time on health care and more time on activities they love (43%).

### Barriers to consideration of on-body delivery systems for prescription medicines

HCPs note top concerns among their patients are not feeling confident they know how to use the device (62%), concern or anxiety from an auto-injection (49%) and feeling embarrassed for having a device on their body others can see (42%). According to patients, the top concerns are the device being inconvenient or uncomfortable to wear (45%), concern or anxiety about auto-injection (41%) and being afraid or anxious the device is not working properly (41%). Patients who completed a middle school education or lower are more likely to express concern about not feeling confident that they know how to use the device, with 60% of those with a middle school education or lower expressing concern compared to 37% of patients with a high school education or higher.

More female health care providers (59%) than male health care providers (25%) say embarrassment is a top concern. However, there is no statistically significant difference between female (32%) and male (37%) patients who note embarrassment as a top concern.

### Addressing barriers related to on-body delivery systems

Patients and health care providers agree that high-touch encounters, particularly in-person training, are the most effective at helping patients feel confident in starting the use of an on-body delivery system. HCPs believe the top resources for alleviating concerns with OBDS are 24/7 access to a nurse via telephone or chat (58%) and in-person training from a health care provider (56%). Instructional videos available on demand come in third at 33%. According to patients, the top resource is in-person training from a health care provider (40%). This is an especially popular choice for patients between 35 and 54 years of age and over 55 (47% and 42% respectively), in contrast to 18- to 24-year-olds and 25- to 34-year-olds (23% and 32% respectively). Other top picks for patients are on-demand access to a doctor (37%) and 24/7 access to a nurse via telephone or chat. The latter is more of a top resource for patients between the ages of 18 and 24 (47%), compared to 25- to 34-year-olds (28%), 35- to 54-year-olds (34%) and those 55 years or older (33%).

## Section 3: Wearables

### Use of wearables

Fifty-two percent of patients in France use some type of wearable device. Among those who use wearable devices to track health information, 43% report they share that health information with their health care providers. Most patients, 62%, say they are open to sharing health information from wearables with their HCPs. HCPs report that among patients who use wearables, 55% of them share health information during visits.

Patients with an income of under €50,000 are less likely to use wearables than those with an income of €50,000 or higher, and thus are less likely to currently share or be open to sharing health information from a wearable with their HCP. Patients who have used a self-administered injectable medicine (73%) or OBDS (77%) are more likely to be open to sharing health information from a wearable with their HCPs than those who have never used a self-administered injectable medicine (60%) or OBDS (59%).

### Benefits to patients of sharing health data tracked with wearables

According to health care providers, the biggest benefits of health data tracked with wearables are helping patients have a more active role in their own health (63%), improving how well treatments work (61%) and identifying health problems early (61%). Patients name the top benefits as identifying health problems early (51%), improving the accuracy of diagnoses (47%) and improving how well treatments work (46%).

### Barriers to patients sharing health data tracked with wearables

The top barriers cited by HCPs to patients sharing health data tracked with wearables are concerns about the security and privacy of health information (64%), the time to review and assess the data (60%) and understanding what to do with the data (51%). The top reasons patients would not want to share health information tracked by wearable with a health care provider are concerns about the security and privacy of health information (48%), concerns that the information is not accurate (42%) and worries that wearable tech may harm their health (38%). Lack of trust in companies making wearable technology is also high, at 37%.

# Germany

## Summary

Health care providers in Germany are more likely than patients to agree that there is a need for new drug delivery options that can make it easier for patients to take their prescription medications (61% and 40% respectively). Both patients and providers are open to using or prescribing self-administered injectable medicines and on-body delivery systems (OBDS) for medications to manage chronic conditions. More than two-thirds of health care providers are likely to recommend self-administered injectable medicines or OBDS to patients, and most patients say they are likely to use them if their HCP recommends it.

Both self-administered injectable and OBDS medicines are seen as supporting independence and quality of life. Patients and health care providers name "having the ability to lead a more independent life" and "spending less time going to a medical clinic for treatment" as top benefits of using them, and patients mention "having the ability to travel while continuing my treatment" as another major benefit. However, patients express concerns about potential side effects, anxiety about self-injecting medicines and worries that OBDS devices might not work properly and would be inconvenient or uncomfortable to wear. Patients name in-person training from a health care provider as the top resource to alleviate concerns surrounding both self-administered injectables and OBDS.

## Section 1: Self-administered Injectable Medicines

### Likelihood to prescribe or use self-administered injectable medicines

Both patients and health care providers are highly likely to use or prescribe a self-administered injectable medicine to help manage a chronic condition. Eighty-five percent of health care providers say they are likely to recommend a self-administered prescription injectable medicine option if it is available. Patient aversion to needles (50%), efficacy of injectable medications over non-injectable medications (48%) and patient concerns about self-administered medicine are the top three factors HCPs consider when prescribing self-injectable medicines. Most patients (74%) say they would likely try it if recommended by their HCP.

### Benefits of self-administered injectable medicines

Overall, patients and health care providers share similar opinions on the benefits of using self-administered injectables, which both groups see as supportive of patients' independence and quality of life. Eighty-one percent of providers named the ability for patients to lead more independent lives as a top benefit, and 52% of patients cited the ability to lead a more independent life as a benefit. The ability for patients to spend less time going to a medical clinic for treatment was cited as a top benefit by 58% of providers and 56% of patients. Feeling like patients have more control over their health was noted as a top benefit by 61% of providers and having the ability to travel while continuing treatment was chosen by 43% of patients.

### Barriers to consideration of self-administered injectable medicines

Health care providers are more likely to name patients' fear of injecting themselves as a top barrier to using self-administered injectables than are patients themselves. HCPs name their patients' top concerns about using self-injectable medicines as being afraid or anxious about injecting themselves (90%), not receiving training on how to administer the injection (65%) and concerns about side effects (48%). Patients list their top three concerns as side effects (58%), being afraid or anxious about injecting themselves (57%) and concern that the treatment will not work (55%). Men are more worried about side effects (24%) than are women (15%). Age is also a factor, with 28% of patients aged 55 and older expressing worries about side effects, as compared to 11% of 18- to 24-year-olds, 16% of 25- to 34-year-olds and 18% of 35- to 54-year-olds.

## Addressing barriers related to self-administered injectable medicines

Both health care providers and patients agree that in-person training from a provider is the most important resource for instilling confidence in patients that they can use self-administered injectables. Among health care providers, there are some major differences in preferred resources for patients depending on whether the provider is a physician or mid-level health care provider, with mid-level health care providers citing more varied top resources. Seventy-four percent of physicians and 54% of mid-level health care providers cite in-person training as the most effective resource. Physicians note instructional videos available on demand 49% and printed materials (39%) are also top resources for patients. However, mid-level health care providers cite 24/7 access to a nurse via telephone or chat (46%) and patients seeing people like themselves use it 45% as top resources.

Patients say the best resources are in-person training from a health care provider (52%), on-demand access to a doctor (38%) and printed materials with instructions (38%). However, the top resources vary by patient age. For instance, a significant proportion of patients 55 and older prefer in person training (66%) compared to younger age groups, while 18- to 24-year-olds are more open to 24/7 access to a nurse via telephone or chat (36%) than are those 25 and older (13% to 22%).

## Section 2: On-body delivery Systems for Prescription Medicines

### Likelihood to prescribe or use on-body delivery systems

Patients and HCPs in Germany are also open to using OBDS to help manage their chronic conditions, though they are less likely to use or prescribe OBDS than self-administered injectables. Sixty-eight percent of health care providers say they are likely to recommend an OBDS for prescription medicines if available. Patient preference (47%) and difficulties with patient adherence (35%) are the top two factors HCPs consider when prescribing OBDS medicines to patients. Fifty-one percent of patients are not at all familiar with OBDS, but 63% say they are likely to try an OBDS if recommended by their HCP.

### Benefits of on-body delivery systems for prescription medicines

Both health care providers and patients agree that the ability for patients to lead more independent lives is a top benefit of OBDS, with 79% of HCPs and 56% of patients naming this as a benefit. HCPs also say that patients benefit from the feeling that they have more control over their health (55%) and from spending less time going to a medical clinic for treatment (54%). For patients, the ability to lead a more independent life is especially important to those 55 years or older (70%), as compared to patients 18-54 years old (50% to 54%). Patients name other top benefits as spending less time going to a medical clinic for treatment (52%) and having the ability to travel while continuing treatment (44%).

### Barriers to consideration of on-body delivery systems for prescription medicines

Patient anxiety is a top concern for both health care providers and patients when considering OBDS. HCPs cite the top OBDS concerns among their patients as fear or anxiety that the device is not working properly (66%), not feeling confident they know how to use the device (60%) and feeling embarrassed about wearing a device on their body others can see (42%). Patients list their top concerns as the device being inconvenient or uncomfortable to wear (48%), being afraid or anxious the device is not working properly (45%) and not feeling confident they know how to use the device (38%). In contrast to what health care providers believe, very few patients (29%) feel that wearing an OBDS would be embarrassing and even fewer (8%) say this is their top concern. More female health care providers (70%) and patients (42%) than male health care providers (53%) and patients (32%) say lack of confidence using the device is a top concern. Patients aged 55 and over express more concern that OBDS devices would be inconvenient or uncomfortable (63%) than do other age groups (38% of 18- to 24-year-olds, 40% of 25- to 34-year-olds and 46% of 35- to 54-year-olds). Patients 55 and older are also more likely to feel anxious about whether the device is working properly (61%) compared to other age groups (36% of 18- to 24-year-olds, 39% of 25- to 34-year-olds and 41% of 35- to 54-year-olds). Patients with an education level of middle school or lower are more likely to express concern about OBDS devices being inconvenient or uncomfortable, with 56% of those with a middle school education or lower expressing concern compared to 42% of patients with a high school education or higher.



## Addressing barriers related to related to on-body delivery systems

According to HCPs, the top resources for alleviating patients' concerns about OBDS are in-person training from a health care provider (66%), instructional videos available on demand (38%) and "seeing people like me using it" (38%). Patients believe the top resource is in-person training from a health care provider (50%). This is especially likely to be named a top choice for patients 55 and older (66%) and patients who self-report poor (60%) or fair health (54%) vs. good health (44%). Other top picks for patients are on-demand access to a doctor (35%) and printed materials with instructions (33%).

## Section 3: Wearables

### Use of wearables

It is somewhat common for patients to track health information using wearable technology and share that information with their health care providers. Sixty-six percent of patients report using some sort of wearable device such as a smartwatch, blood pressure monitor, fitness tracker or heart rate monitor. Among those who use wearables, 66% report they share the health information they track with their health care providers. Most, 67%, say they are open to sharing health information from wearables with their HCPs.

### Benefits to patients of sharing health data tracked with wearables

According to health care providers, the top benefits of patients sharing health data tracked with wearables are identifying health problems early (62%), improving how well treatments work (48%) and helping patients have a more active role in their health (45%). Patients see the top benefits as identifying health problems early (49%), improving the accuracy of diagnoses (46%) and improving how well treatments work (43%).

### Barriers to patients sharing health data tracked with wearables

HCPs cited the main barriers to patients sharing health data tracked with wearables as concerns about the security and privacy of health information (65%), the time to review and assess the data (49%) and lack of trust in the company that makes the wearable (44%). The top reasons patients would not want to share health information tracked by wearables with a health care provider are concerns about the security and privacy of health information (46%), concerns that the information is not accurate (41%) and lack of trust in company that makes the wearable technology (39%).



# United Kingdom

## Summary

Patient and health care providers in the U.K. agree that there is a need for new drug delivery options that can make it easier for patients to take their prescription medications, 61% and 95% respectively. Both are open to trying new drug-delivery options that would make it easier to manage chronic conditions, including self-administered injectables and on-body delivery systems (OBDS). Well more than half of providers say they would be likely to recommend self-injectable medications or OBDS to their patients, and most patients would be willing to try them if their providers recommended them.

Patients and health care providers value the convenience and autonomy that self-injectable medicines and OBDS provide. The top benefits cited by both groups include patients having the ability to lead more independent lives and take more control of their health. There are some barriers to adoption, however, including patient anxiety over injecting themselves with medicine or, in the case of OBDS, not knowing if the device is working properly. Both patients and providers say in-person training from a health care provider would be vital for overcoming fears and instilling confidence in patients.

## Section 1: Self-administered Injectable Medicines

### Likelihood to prescribe or use self-administered injectable medicines

Patients and providers are enthusiastic about self-administered injectable medications, with patients expressing slightly more interest in this option. Seventy percent of patients say they would try a self-administered injectable medicine to treat their chronic condition, while 62% of health care providers say that they would recommend a self-administered prescription injectable medicine option if it were available.

### Benefits of self-administered injectable medicines

Health care providers say the number-one benefit of self-administered injectable medicines for patients is that they would feel like they have more control over their health (63%). Mid-level health care providers especially see this as a top benefit (77%) compared to physicians (49%). Other top benefits to patients cited by HCPs are the ability to lead a more independent life (63%) and to spend less time going to medical clinics for treatment (59%). For patients, the top benefit is having the ability to lead a more independent life (56%). Second on the list for patients is spending less time going to a medical clinic for treatment (56%). Patients also value the feeling having more control over their health (54%).

### Barriers to consideration of self-administered injectable medicines

Nine in ten health care providers believe that patients' fear or anxiety over injecting themselves with medicine would be the top barrier to adoption, though patients themselves are not entirely in agreement, with just 72% saying they would be anxious or fearful. HCPs are also concerned patients wouldn't receive training on how to administer the injection (64%) and that there would be side effects (44%). Patients share those concerns: 72% cited a top barrier as not receiving training on how to administer the injection, with more women (77%) expressing this concern than men (68%). And 56% of patients are concerned about side effects.

### Addressing barriers related to self-administered injectable medicines

HCPs cite the top resources to help patients feel confident as in-person training from a health care provider (77%), printed materials with instruction (43%) and 24/7 access to a nurse via telephone or chat. A significantly higher proportion of mid-level health care providers believe in-person training from a health care provider and 24/7 access to a nurse via telephone or chat (84% and 55% respectively) are effective resources than do physicians (71% and 23% respectively). Instructional videos available on demand is a significantly more popular resource among physicians (44%) compared to mid-level health care providers (27%). Patients cite the top resource for helping instill confidence in starting to use a self-administered injectable as in-person training from a health care provider (58%). A significant proportion of people age 55 and older prefer in person training (73%) to other options.

## Section 2: On-body delivery Systems for Prescription Medicines

### Likelihood to prescribe or use on-body delivery systems

There is significant interest in OBDS among both patients and health care providers. Sixty-nine percent of health care providers say that if an on-body delivery system medicine option is available, they would recommend it to their patients. Sixty-five percent of patients say they are likely to try an OBDS if recommended, even though 67% of them are not at all familiar with OBDS.

### Benefits of on-body delivery systems for prescription medicines

Convenience and patients' ability to control their own health are common themes among health care providers and patients when they rate the benefits of OBDS. HCPs say the top three benefits to patients are having the ability to lead a more independent life (62%), feeling that they have more control over their health (59%) and the ability to spend less time going medical clinics for treatment (57%). Patients place high value on spending less time going to medical clinics (57%), having the ability to lead a more independent life (53%) and feeling like they have more control over their health (50%).

### Barriers to consideration of on-body delivery systems for prescription medicines

HCPs and patients share significant hesitations about on-body drug-delivery devices. Fifty-four percent of providers worry that patients would not feel confident knowing how to use the device, while 49% believe patients would be afraid or anxious the device is not working properly and 46% believe patients would feel concern or anxiety about auto-injection. Patients' top two concerns are that they would be afraid or anxious the device is not working properly (52%) and that the OBDS would be inconvenient or uncomfortable to wear (49%). Discomfort is the most common concern among patients ages 55 and older, with 60% citing it as a worry. Among 42% of patients, not receiving training on how to use the device is a top concern. Education level clearly affects patient confidence: "Not feeling confident that I know how to use the device" is by far the most cited concern among patients who only have a primary school level education, at 82%, vs. those who completed lower-secondary, (45%), upper-secondary/post-secondary (41%) and tertiary (37%) educations.

### Addressing barriers related to related to on-body delivery systems

Patients and HCPs agree that in-person training will be vital for getting patients comfortable with OBDS when they start their treatment, but opinions about other supportive resources vary based on a number of factors. HCPs name the top resources for patients as in-person training from a health care provider (71%), 24/7 access to a nurse via telephone or chat (39%) and attending a support group with other people who use the same medicine (36%). Physicians diverged a bit from other HCPs, naming the top three resources as in-person training from a provider (63%), instructional videos available on demand (41%) and virtual live training from a provider (40%).

Fifty-eight percent of patients name in-person training from a health care provider as their top resource for getting comfortable with an on-body drug-delivery device. This resource is especially popular among patients 55 and older (74%), vs. those between the ages of 35 and 54 (56%), 25 and 34 (38%) and 18 and 24 (39%). It's a top resource for more women (64%) than men (52%). When it comes to 24/7 access to a nurse via telephone or chat, 36% of patients as a whole name this as an effective resource. That said, 24/7 nurse access is popular among patients 18 to 24 years old, 53% of whom listed it as a top resource. By comparison, 31% of 25- to 34-year-olds, 35% of 35- to 54-year-olds and 31% of those 55 and older cited 24/7 nurse access as a top resource for adoption of OBDS.

## Section 3: Wearables

### Use of wearables

Forty-five percent of patients report using a wearable device. Older patients have yet to embrace this technology, with 73% of those 55 and older reporting that they do not use any devices to track health activities. Among patients who use wearables, only 16% report using it to keep track of when they take prescription medications and 33% say they share the health information with their health care provider.

### Benefits to patients of sharing health data tracked with wearables

Health care providers cite the top three benefits for patients of using wearable health trackers as helping them have a more active role in their health (55%), identify health problems early (55%) improve how well their treatment works (43%). Fifty-six percent of providers who are not physicians say the top benefit of patients sharing health data from wearables is that it could help tailor treatments to specific to patient needs. Patients cite the top three benefits as identifying health problems early (55%), improving the accuracy of diagnoses (50%) and getting treatments that are specific to their needs (43%).

### Barriers to patients sharing health data tracked with wearables

Both HCPs and patients express a strong lack of trust in wearable health trackers. Providers cite the top three barriers as concerns about the security and privacy of health information (55%), not having enough time to review and assess the data (54%) and not understanding what they should do with the data (52%). For patients, the top three barriers are concern that the health information tracked by wearables is not accurate (47%), concerns about the security and privacy of their health information (47%) and lack of trust in the companies that make wearable technology (37%).

# United States

## Summary

Patients and health care providers agree that there is a need for new drug delivery options that can make it easier for patients to take their prescriptions, 73% and 91% respectively. Both are open to managing chronic conditions by using or prescribing self-administered injectables and on-body delivery systems (OBDS). More than half of health care providers are likely to recommend self-administered injectable medicines or OBDS to patients, with most patients reporting they would be likely to use them if recommended by their health care provider.

Self-administered injectables and OBDS medicines are considered convenient and supportive of patient autonomy. Patients and health care providers note the top benefits of using them as spending less time going to a medical clinic for treatment, having the ability to lead a more independent life and feeling like they have more control over their health. However, patients cite concerns about side effects and cost of the medications and fears about self-injecting or finding OBDS inconvenient or uncomfortable to wear. Patients and doctors agree that in-person training from a health care provider is the top resource to help patients feel secure in starting self-administered injectables or OBDS.

## Section 1: Self-administered Injectables

### Likelihood to prescribe or use self-administered injectable medicines

Patients are somewhat more likely to use a self-administered injectable medicine to help manage a chronic condition than health care providers are to prescribe it. Sixty percent of health care providers say they are likely to recommend a self-administered prescription injectable medicine option if it is available, with mid-level health care providers (71%) more likely to recommend one than physicians (49%). The top two factors HCPs consider when prescribing self-administered injectable medicines are insurance reimbursement (44%) and patient concerns about self-administered medicines (39%), followed by patients' aversion to needles (38%) and difficulties with adherence (38%). Most patients (74%) say that if their health care provider recommended a self-injectable medicine to treat a chronic disease they would likely try it. Openness differs according to race and ethnicity, with Latino patients most amenable to trying self-administered injectable (52%), vs. patients who identify themselves as White (35%) or Black (32%). Patients who have a college or advanced degree are more likely than those who did not attend college to be open to using a self-administered injectable, 82% and 69% respectively.

### Benefits of self-administered injectable medicines

Sixty-four percent of providers cited the ability for patients to spend less time traveling to medical clinics as a top benefit, and 56% of patients agreed. The prospect of spending less time in medical clinics was especially attractive to patients who live in the Midwest (74%) compared to other regions (Northeast, 43%; South, 53%; West, 55%). Feeling like patients have more control over their health was named a top benefit by 55% of providers and 40% of patients. Having the ability to lead a more independent life was pegged as a top benefit by 53% of providers and 43% of patients.

### Barriers to consideration of self-administered injectable medicines

When considering the use of self-administered injectable medicines, patients are most concerned about side effects and self-injection, as well as cost of the medications. HCPs cite their patients' biggest concerns about using self-injectable medicines as being afraid or anxious about injecting themselves (92%), cost (65%), and not receiving training on how to administer the injection (65%). Patients name their top three concerns as side effects (57%), being afraid or anxious about injecting oneself (57%) and cost of the injectable medicine (54%).

## Addressing barriers related to self-administered injectable medicines

Health care providers and patients are aligned on the most helpful resources for addressing barriers. HCPs list the most effective resources for helping patients feel confident about using self-administered injectable medicines as in-person training from a health care provider (77%), instructional videos available on demand (47%) and printed materials with instructions (42%). Patients list the best resources as in-person training from a health care provider (52%), instructional videos (40%) and printed materials with instructions (33%).

## Section 2: On-body delivery Systems for Prescription Medicines

### Likelihood to prescribe or use on-body delivery systems

While patients and HCPs in the U.S. are also open to using OBDS to help manage their chronic conditions, the likelihood of using or prescribing OBDS is lower than that of self-administered injectables. Fifty-nine percent of health care providers say they are likely to recommend an on-body delivery system, provided its safety and efficacy were equivalent to a traditionally dosed drug. Insurance reimbursement (41%) and patient concerns about self-administered medicine (33%) are the top two factors HCPs consider when prescribing OBDS medicines to patients.

Sixty-five percent of patients say they would likely try an OBDS if their HCP recommended it to them. Seventy-five percent of patients with a college degree or higher are open to using an OBDS, compared to 59% of patients with less than a college degree.

### Benefits of on-body delivery systems for prescription medicines

Health care providers believe the top three benefits for patients are the ability to lead a more independent life (58%), spending less time going to medical clinics for treatment (54%), and feeling like they have more control over their health (53%). Patients cite the top benefits as spending less time going to medical clinics (50%), feeling like they have more control over their health (42%) and having the ability to lead a more independent life (41%). The prospect of spending less time in medical clinics is especially popular among patients who are 55 or older (63%) or who live in the Midwest (65%).

### Barriers to consideration of on-body delivery systems for prescription medicines

HCPs believe the top concerns patients have when considering an OBDS are cost of the device and medicine (58%), not feeling confident that they know how to use the device (47%) and the device being inconvenient or uncomfortable to wear (41%). But patients are most concerned about the device being inconvenient or uncomfortable to wear (48%), with the cost cited as a worry by 45% of patients and anxiety about the device not working properly cited by 43% of patients.

### Addressing barriers related to related to on-body delivery systems

Top resources cited by health care providers for alleviating concerns with OBDS are in-person training from a health care provider (71%), 24/7 access to a nurse via telephone or chat (48%) and instructional videos available on demand (43%). According to patients, the top resource is in-person training from a health care provider (47%). This is by far the most popular resource among patients 55 and older, 60% of whom cited it as their number-one choice. By comparison, it was a top choice among 41% of 18- to 24-year-olds, 40% of 25- to 34-year-olds and 42% of 35- to 54-year-olds. Other top resources named by patients are instructional videos available on demand (36%) and 24/7 access to a nurse via telephone or chat (31%). The latter is the most popular resource among Latinos (44%) compared to other racial groups (White, 27%; Black, 31%).

## Section 3: Wearables

### Use of wearables

It is somewhat common for patients to track health information using wearable technology and share that information with their health care providers. Fifty-five percent of patients use wearables, and one in four use a wearable keep track of when they take their prescription medicines. Among patients who use wearables, 52% say they share that health information with their health care providers.

### Benefits of patients of sharing health data tracked with wearables

HCPs say the top benefits of patients tracking health data with wearables are improving communication with patients (59%), helping patients have a more active role in their own health (49%) and identifying health problems early (45%). Patients name the top benefits as identifying health problems early (55%), improving the accuracy of diagnoses (45%) and getting a treatment that is specific to their needs (41%).

### Barriers to patients sharing health data tracked with wearables

HCPs name the top barriers to patients sharing health data tracked with wearables as the time to review and assess the data (59%), concerns about the security and privacy of health information (57%) and not understanding what to do with the data (52%). Patients say the top reasons they would not want to share health information tracked by wearables with a provider are concerns about the security and privacy of health information (50%), concerns that the information is not accurate (48%) and lack of trust in the company that makes the wearable (38%). Security and privacy are especially a concern among patients who report they are in poor health (68%) vs. those with fair (45%) or good health (50%).



# Appendix B

## Respondent Demographics

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| Health Care Provider Demographics | 39 |
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# Patient Demographics

| Age, Gender, Race & Ethnicity, No. of Prescription Medicines |       |        |         |      |      |
|--------------------------------------------------------------|-------|--------|---------|------|------|
|                                                              | Total | France | Germany | U.K. | U.S. |
| Total                                                        | 2000  | 500    | 500     | 500  | 500  |
| Age                                                          |       |        |         |      |      |
| 18-24                                                        | 13%   | 15%    | 13%     | 15%  | 9%   |
| 25-34                                                        | 17%   | 10%    | 19%     | 12%  | 26%  |
| 35-44                                                        | 20%   | 22%    | 25%     | 16%  | 18%  |
| 45-54                                                        | 20%   | 24%    | 22%     | 20%  | 16%  |
| 55-64                                                        | 13%   | 14%    | 12%     | 15%  | 11%  |
| 65 or older                                                  | 17%   | 15%    | 9%      | 23%  | 21%  |
| Gender                                                       |       |        |         |      |      |
| Man                                                          | 47%   | 48%    | 44%     | 49%  | 49%  |
| Woman                                                        | 52%   | 52%    | 56%     | 51%  | 51%  |
| Other                                                        | <1%   | 0%     | 0%      | 0%   | 1%   |
| Race and Ethnicity                                           |       |        |         |      |      |
| White (non-Hispanic)                                         | 62%   | --     | --      | --   | 62%  |
| Hispanic/Latino                                              | 21%   | --     | --      | --   | 21%  |
| African-American/Black                                       | 16%   | --     | --      | --   | 16%  |
| Asian                                                        | 3%    | --     | --      | --   | 3%   |
| Native American/Alaska Native/First Nations                  | 1%    | --     | --      | --   | 1%   |
| Prefer to self-describe                                      | 1%    | --     | --      | --   | 1%   |
| Number of Prescriptions                                      |       |        |         |      |      |
| Mean                                                         | 3.6   | 3.5    | 3.2     | 4.1  | 3.8  |

# Patient Demographics

| Educational Attainment                                                                   |       |        |         |      |      |
|------------------------------------------------------------------------------------------|-------|--------|---------|------|------|
|                                                                                          | Total | France | Germany | U.K. | U.S. |
| Total                                                                                    | 2000  | 500    | 500     | 500  | 500  |
| Some high school or less – no diploma or GED                                             | 2%    | --     | --      | --   | 2%   |
| High school graduate – high school diploma or the equivalent (GED)                       | 28%   | --     | --      | --   | 28%  |
| Vocational or technical school                                                           | 5%    | --     | --      | --   | 5%   |
| Some college, no degree                                                                  | 25%   | --     | --      | --   | 25%  |
| Associate degree                                                                         | 7%    | --     | --      | --   | 7%   |
| Bachelor's degree                                                                        | 22%   | --     | --      | --   | 22%  |
| Master's degree                                                                          | 9%    | --     | --      | --   | 9%   |
| Professional or doctorate degree                                                         | 2%    | --     | --      | --   | 2%   |
| No formal education                                                                      | 2%    | 2%     | 3%      | 1%   | --   |
| Primary school                                                                           | 1%    | --     | --      | 1%   | --   |
| Lower secondary school                                                                   | 13%   | --     | --      | 13%  | --   |
| Upper secondary, post-secondary school, with degree (general or vocational)              | 47%   | --     | --      | 47%  | --   |
| Tertiary (University-level education), with degree (Bachelor, Master, PhD, JD, MD, etc.) | 37%   | --     | --      | 37%  | --   |
| Complete Middle School                                                                   | 21%   | 7%     | 35%     | --   | --   |
| Complete High School                                                                     | 29%   | 38%    | 20%     | --   | --   |
| Complete University-level education with degree (Bachelor, Master, PhD, JD, MD, etc.)    | 46%   | 52%    | 40%     | --   | --   |
| Prefer not to answer                                                                     | 1%    | 2%     | 1%      | 1%   | 0%   |

# Patient Demographics

| Income                                                            |       |        |         |      |      |
|-------------------------------------------------------------------|-------|--------|---------|------|------|
|                                                                   | Total | France | Germany | U.K. | U.S. |
| Total                                                             | 2000  | 500    | 500     | 500  | 500  |
| Less than<br>\$25,000/£20,000/€25,000                             | 23%   | 28%    | 19%     | 25%  | 19%  |
| \$25,000-\$49,999<br>£20,000 - £39,999<br>€25,000 - €49,999       | 29%   | 39%    | 26%     | 32%  | 17%  |
| \$50,000-\$74,999<br>£40,000 - £59,000<br>€50,000 - €74,999       | 21%   | 17%    | 26%     | 18%  | 23%  |
| \$75,000-\$99,999<br>£60,000 - £79,000<br>€75,000 - €99,999       | 12%   | 7%     | 15%     | 8%   | 17%  |
| \$100,000-\$149,999<br>£80,000 - £124,999<br>€100,000 - €149,999  | 9%    | 4%     | 8%      | 7%   | 16%  |
| \$150,000-\$199,999<br>£125,000 - £164,999<br>€150,000 - €199,999 | 2%    | 1%     | 1%      | 2%   | 4%   |
| \$200,000-\$249,999<br>£165,000 - £199,999<br>€200,000 - €249,999 | 1%    | <1%    | 1%      | 1%   | 1%   |
| \$250,000/£200,000/€250,000<br>or more                            | 1%    | <1%    | 1%      | 1%   | 1%   |
| Prefer not to answer                                              | 4%    | 3%     | 3%      | 6%   | 2%   |

# Patient Demographics

| Chronic Conditions                                                       |       |        |         |      |      |
|--------------------------------------------------------------------------|-------|--------|---------|------|------|
|                                                                          | Total | France | Germany | U.K. | U.S. |
| Total                                                                    | 2000  | 500    | 500     | 500  | 500  |
| Depression                                                               | 25%   | 19%    | 24%     | 29%  | 29%  |
| Hypertension (high blood pressure)                                       | 22%   | 20%    | 17%     | 22%  | 29%  |
| Anxiety disorder                                                         | 21%   | 16%    | 15%     | 25%  | 27%  |
| High cholesterol                                                         | 21%   | 13%    | 15%     | 25%  | 31%  |
| Asthma                                                                   | 19%   | 19%    | 22%     | 20%  | 16%  |
| Diabetes                                                                 | 17%   | 16%    | 19%     | 14%  | 18%  |
| Seasonal allergies                                                       | 16%   | 16%    | 13%     | 13%  | 24%  |
| Arthritis                                                                | 14%   | 4%     | 7%      | 21%  | 23%  |
| Chronic pain                                                             | 12%   | 10%    | 10%     | 13%  | 14%  |
| Eczema (atopic dermatitis)                                               | 9%    | 11%    | 5%      | 12%  | 8%   |
| Irritable Bowel Syndrome                                                 | 8%    | 3%     | 10%     | 13%  | 8%   |
| Osteoporosis                                                             | 6%    | 5%     | 5%      | 7%   | 7%   |
| Eye disease (e.g., age-related macular degeneration, cataract, glaucoma) | 6%    | 4%     | 6%      | 7%   | 7%   |
| Psoriasis                                                                | 6%    | 8%     | 6%      | 5%   | 4%   |
| Eating disorder                                                          | 5%    | 7%     | 7%      | 4%   | 3%   |
| Post-traumatic stress disorder (PTSD)                                    | 5%    | 2%     | 6%      | 5%   | 10%  |
| Irregular heart rhythm                                                   | 5%    | 5%     | 5%      | 6%   | 6%   |
| Chronic obstructive pulmonary disease (COPD)                             | 5%    | 3%     | 6%      | 6%   | 5%   |
| Autoimmune disorder                                                      | 4%    | 4%     | 5%      | 5%   | 3%   |
| Ulcers                                                                   | 4%    | 3%     | 5%      | 4%   | 5%   |
| Bipolar disorder                                                         | 3%    | 1%     | 3%      | 3%   | 6%   |
| Immune deficiencies                                                      | 3%    | 2%     | 4%      | 3%   | 2%   |
| Cancer (other than non-harmful skin tumours)                             | 3%    | 3%     | 3%      | 3%   | 3%   |

# Patient Demographics

| Chronic Conditions       |       |        |         |      |      |
|--------------------------|-------|--------|---------|------|------|
|                          | Total | France | Germany | U.K. | U.S. |
| Total                    | 2000  | 500    | 500     | 500  | 500  |
| Epilepsy                 | 3%    | 3%     | 2%      | 4%   | 2%   |
| Coronary artery disease  | 3%    | 3%     | 5%      | 2%   | 3%   |
| Pneumonia                | 3%    | 2%     | 5%      | 1%   | 2%   |
| Stroke                   | 3%    | 2%     | 5%      | 2%   | 2%   |
| Substance dependence     | 3%    | 3%     | 3%      | 3%   | 3%   |
| Personality disorder     | 2%    | 1%     | 3%      | 2%   | 3%   |
| Crohn's disease          | 2%    | 1%     | 3%      | 1%   | 2%   |
| Multiple sclerosis       | 2%    | 2%     | 3%      | 1%   | 1%   |
| Congestive heart failure | 2%    | 1%     | 2%      | 2%   | 3%   |
| Pulmonary hypertension   | 2%    | 2%     | 1%      | 2%   | 2%   |
| Muscular Dystrophy       | 1%    | 1%     | 2%      | 1%   | 1%   |
| Schizophrenia            | 1%    | 1%     | 2%      | 1%   | 2%   |
| Lyme Disease             | 1%    | 1%     | 2%      | 1%   | *%   |
| Parkinson's              | 1%    | 1%     | 2%      | <1%  | 1%   |
| Alzheimer's Disease      | 1%    | <1%    | 2%      | <1%  | 1%   |
| Hepatitis                | 1%    | 1%     | 2%      | 1%   | 1%   |
| ALS                      | 1%    | 0%     | 1%      | 1%   | 1%   |
| HIV                      | 1%    | 2%     | 1%      | 1%   | 1%   |



# HCP Demographics

| Type of HCP, Years in Practice, Gender |       |        |         |      |      |
|----------------------------------------|-------|--------|---------|------|------|
|                                        | Total | France | Germany | U.K. | U.S. |
| Total                                  | 587   | 142    | 145     | 150  | 150  |
| Type of HCP                            |       |        |         |      |      |
| Physician                              | 51%   | 54%    | 52%     | 50%  | 50%  |
| Nurse                                  | 33%   | 41%    | 37%     | 37%  | 17%  |
| Advanced Practice Nurse                | 6%    | 6%     | 7%      | 13%  | 0%   |
| Nurse Practitioner                     | 5%    | 0%     | 0%      | 0%   | 20%  |
| Physician Assistant                    | 4%    | 0%     | 4%      | 0%   | 13%  |
| Years in Practice                      |       |        |         |      |      |
| 0-10                                   | 26%   | 20%    | 14%     | 37%  | 33%  |
| 11-20                                  | 36%   | 36%    | 38%     | 40%  | 30%  |
| 21-30                                  | 28%   | 30%    | 39%     | 18%  | 27%  |
| 31-40                                  | 9%    | 13%    | 8%      | 5%   | 11%  |
| 41-50                                  | <1%   | 0%     | 1%      | 0%   | 0%   |
| Gender                                 |       |        |         |      |      |
| Man                                    | 45%   | 51%    | 61%     | 37%  | 32%  |
| Woman                                  | 55%   | 49%    | 39%     | 63%  | 68%  |