

THE POWER OF HOLISTIC INSIGHT

Understanding why real-world treatment is sub-optimal and what can be done about it

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Introduction

Traditionally, research into the management and treatment of patients tends to focus on a single stakeholder type – typically the physician, sometimes the patient, payer or policymaker. However, real-world treatment decisions are rarely driven by one stakeholder in isolation.

Multi-stakeholder research is therefore essential and provides a far deeper level of insight and value, but even this may not be sufficient for a company that wishes to understand the full picture. Real-world treatment is influenced by multiple stakeholders and multiple external factors, such as bureaucracy, assessment, timing, preference, affordability, value for money, and more.

Looking ahead, the insight challenge is set to become greater still, thanks to the gradual evolution – and incorporation into treatment – of innovations with both diagnostic and predictive elements. These include:

- **Biomarker-informed disease management:** genomics/proteomics with companion and complementary diagnostics indicative of disease or treatment response
- **Real-time informed disease management:** digital health technologies (DHTs) and wearables
- **Intelligent smart disease management:** advanced analytics, software, algorithms and artificial intelligence.

These developments, which make treatment more personalised and precise, are opening the door to enhanced efficiency and effectiveness of healthcare delivery – and a future in which treatment and outcomes are delivered increasingly through multi-component disease management, rather than by drugs or interventions in isolation.

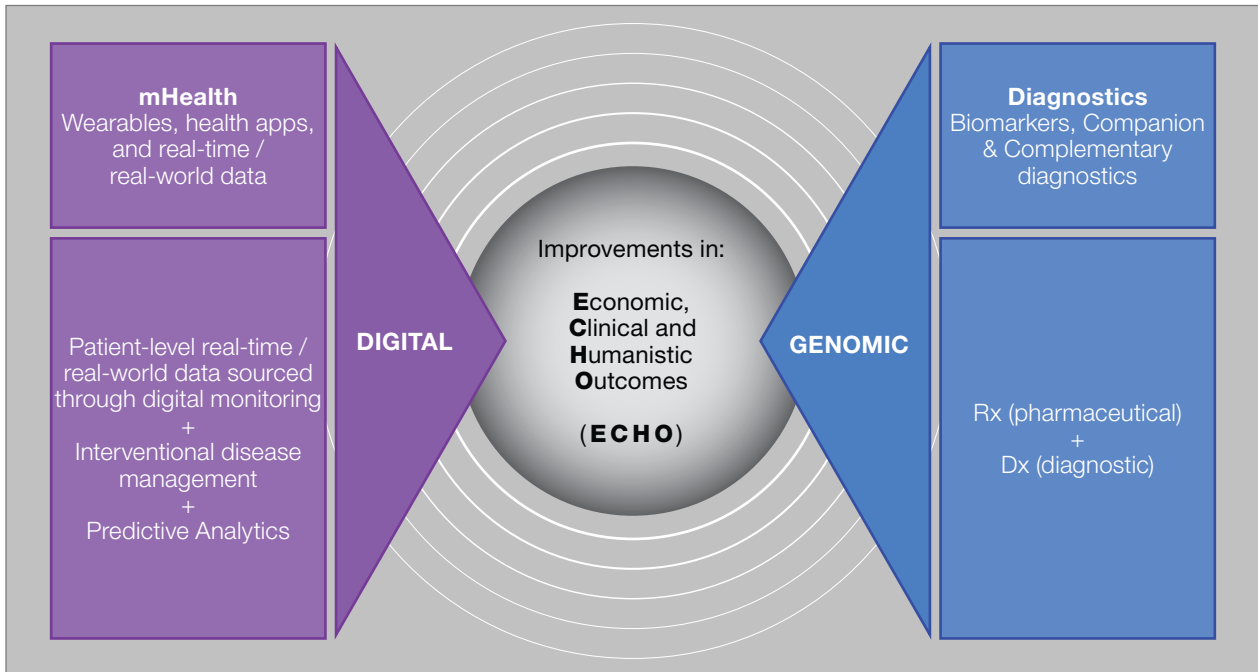


Figure 1: The convergence of digital and genomic technologies

Source: Ipsos

Understanding holism

To *understand* this increasingly complex multi-component world we need **HOLISTIC INSIGHT**.

Holistic insight focuses on complete systems and rejects analysis of the component parts. According to the Merriam-Webster dictionary, “Holism generally opposes the Western tendency toward analysis, the breaking down of wholes into parts sometimes to the point that you can’t see the forest for the trees.”ⁱ The concept of holism is particularly pertinent to healthcare itself, with holistic medicine seeking to treat the whole person versus his/her individual symptoms.

In the context of this paper, holism relates to the incorporation of all (relevant) stakeholders and the non-human elements of multi-component disease management. Essentially, holistic insight can lead us to understand why real-world treatment and outcomes are sub-optimal and, importantly, what can be done about it.

How do we develop holistic insight?

It need not be difficult or expensive. Much can be achieved through a two-step process:

- **STEP 1:** Build on the strong foundation of tried and tested insight approaches (ensuring that the study design is appropriate)

- STEP 2:** Merge the resulting insights in a meaningful way to generate a more holistic picture, on which clear decisions and actions may be based (paying attention to the inter-relationship between the components, i.e., system dynamics).

An Example from Oncology

Oncology treatment guidelines (ASCO, ESMO, NCCN, etc.) may be considered a proxy for how patients should be optimally treated. In the real world, however, treatment approaches may deviate significantly from these recommendations – and for multiple reasons – as highlighted by the following example.

Example: HER2- HR+ Metastatic Breast Cancer

Recent clinical trials (PALOMA-2ⁱⁱ, MONARCH-3ⁱⁱⁱ) demonstrated the superior efficacy of CDK4/6 inhibitors, a new class of agent, versus more established chemotherapies and endocrine therapy (ET). CDK4/6s are now considered the new Standard of Care (SoC) therapy unless patients experience organ failure requiring a temporary use of chemotherapy. Figure 2, from the *Annals of Oncology*^{iv}, explains this in more detail.

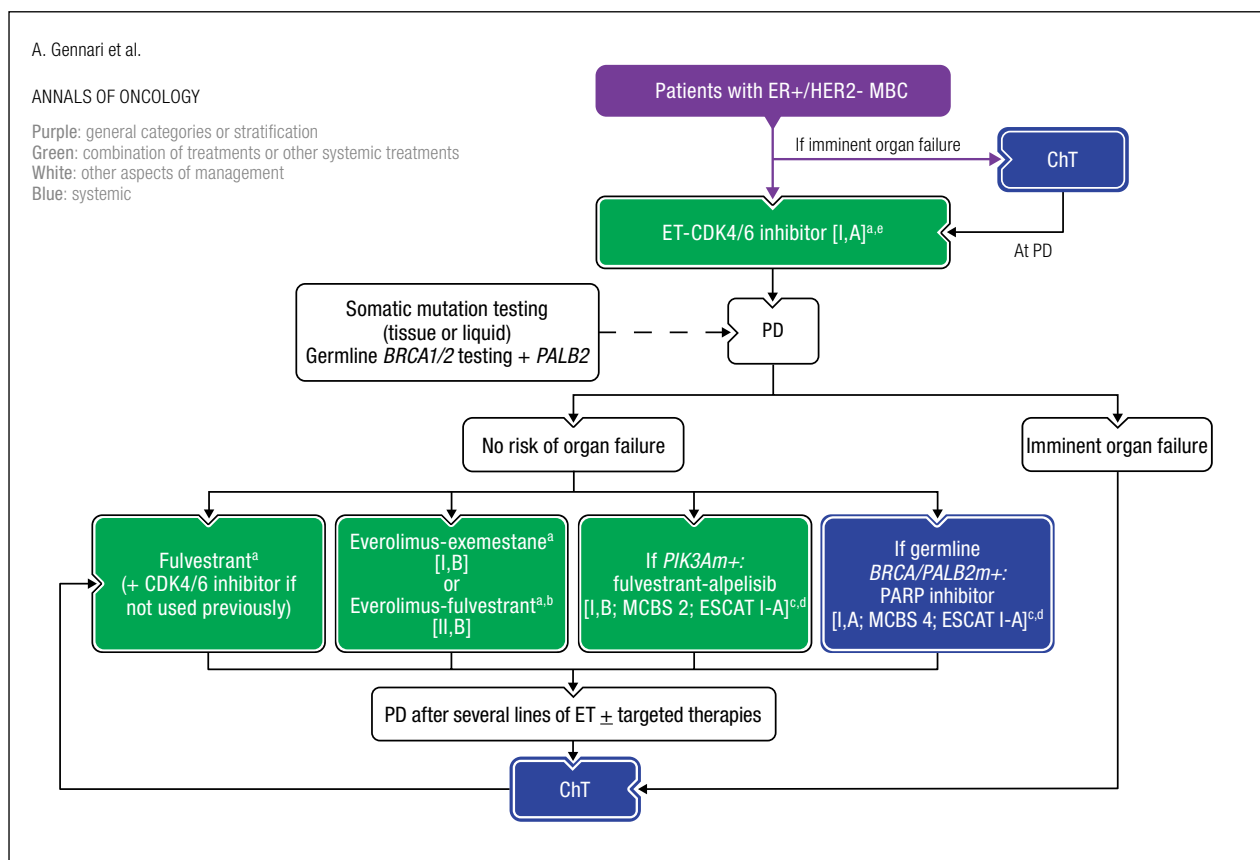
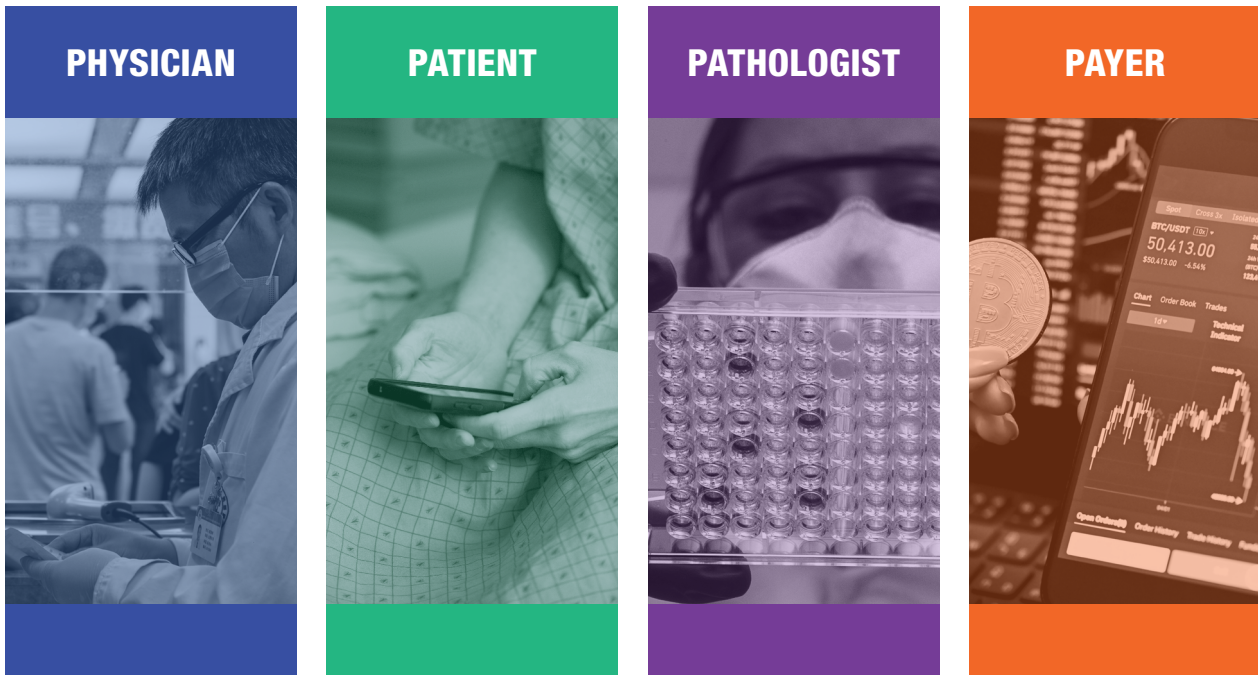


Figure 2: Treatment of ER-positive/HER2-negative MBC

Source: *Annals of Oncology*^{iv}

Are these clinical guidelines being reflected in the real-world treatment of HER2- HR+ metastatic breast cancer? If not, why not? To answer that question, we need to understand the perspectives of the four key stakeholders impacting real-world therapy choice and outcomes. These include:



1. Insight Through the Physician Lens

In our first step towards holistic insight, we used real-world evidence from Ipsos' Global Oncology Monitor (see 'About the Research'). The Monitor provides real-world physician and treatment insights that help us to answer our WHAT, HOW and WHEN questions.

From an analysis of 2,648 patient audit charts from treating physicians in EU4 & UK (Jan-March '22), we were able to ascertain that:

- **60%** of the 1st line mBC HER2-, HR+ patients treated by our sampled doctors received CDK4/6 agents. For the remaining 40%, other classes of drugs were preferred.

This raises several questions: Why not a higher use of CDK4/6 at 1st metastatic line? Who or what is influencing this? How might this, in turn, be influenced? And what type of evidence is required? How does this vary by patient characteristics and outcomes of previous treatments? What sequential strategy do physicians have in mind? How might this change over time as new biomarkers and new therapies are introduced into routine clinical practice?

Additionally, we found that:

- The HER2- HR+ patients who received a CDK4/6 as their 1st metastatic treatment versus an ET monotherapy were statistically more likely to:
 - » Be younger (average age of 65 vs. 69)
 - » Be fitter (ECOG 0-1 of 89% vs. 72%)
 - » Have no comorbidities (27% vs. 16%)
 - » Show metastases to the bones (66% vs. 47%)
 - » Show metastases to the lungs (25% vs. 17%)
 - » Have already relapsed on previous drug or non-drug therapies (24% vs 10%).
- In 23% of cases where a CDK4/6 was prescribed, participating physicians stated that they would increase their prescribing of this therapy in the next 6 months. Just 9% said the same of ET monotherapy.
- The reasons CDK4/6s were prescribed included:
 - » Standard of Care therapy – SoC was mentioned as a reason for prescribing CDK4/6s in 58% of cases vs. 24% for ET monotherapy
 - » Relative efficacy – due to its ‘proven efficacy’ in 49% of cases vs. 32% for ET monotherapy
 - » Patient involvement – patient involvement was greater when CDK4/6s were prescribed (32% of cases vs. 21% for ET monotherapy).
- ET monotherapy was more likely than CDK4/6s to be chosen to maintain/improve quality of life (23% vs. 10%), for its tolerability (29% vs. 18%) and/or due to COVID-19 impact (12% vs. 1%).
- Finally, 47% of 2nd line patients receiving CDK4/6 therapy (21.4%) were treated with ET monotherapy at 1st line, potentially suggesting an intent to prescribe the two classes of drug sequentially rather than as a combination therapy.

The above example suggests that there are some clinical and experience-driven rationales behind a potential misalignment between what the guidelines say and what physicians do in the real world.

2. Insight Through the Patient Lens

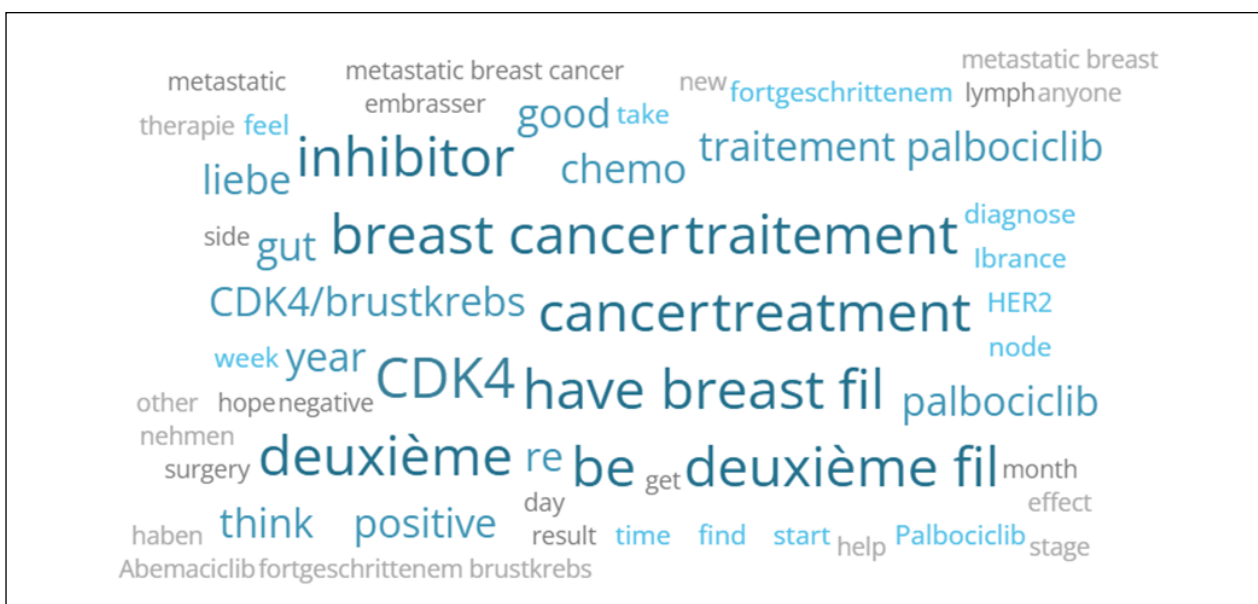
Armed with an understanding of physicians’ real-world treating behaviour, we can add another layer of insight by directly accessing the patient’s world. Social Intelligence Analytics (SIA) can give us an unfiltered view of patients’ attitudes, opinions, concerns and preferences.

Using Ipsos’ SIA platform, Synthesio, we collected public data from multiple online sources between August 2021 and August 2022. The keywords selected were indicative of influence on therapy choice and linked with products, disease states

and outcomes related to HER2- HR+ metastatic breast cancer. We focused on the EU4 and UK markets to align with the geographical scope of data collected by the Global Oncology Monitor.

We also filtered on personal language to ensure patient rather than professional posts were collected and paid particular attention to brand mentions from the forum data, ultimately focussing in on a sample of 1,521 posts. Most common terms used within the discussions are shown in Figure 3 (the larger the word, the higher the number of mentions).

Figure 3: Key terms used in breast cancer discussions online



Source: Synthesio, an Ipsos Company

Among the three CDK4/6 inhibitors that are EMA-approved, one was clearly top of mind – palbociclib (Ibrance™), which was mentioned almost four times as often as either ribociclib or abemaciclib. Other notable findings were the positive sentiment regularly expressed by patients (‘Think positive’) and their comfort using technical words such as ‘inhibitor’, ‘CDK4’, ‘HER2’, ‘lymph’, and ‘node’. Once cancer affects someone’s life there is a clear tendency to seek as much information as possible and evidently many patients are more capable of mastering technical healthcare terminology than physicians typically perceive them to be.

Other verbatims highlight that, in some cases, patients’ and physicians’ viewpoints diverge. For example, some patients seem to better tolerate – or are more willing to tolerate – side-effects than some physicians fear. Another hot topic was lack of clarity around a physician’s reasons for choosing / changing a specific therapy, even among patients with a medium-high level of education.

Finally, there was also concern among patients around what governments decide to reimburse versus what needs to be covered privately, once a new drug receives EMA approval. This is not a new topic, but the broader access to information that patients have nowadays increases the level of frustration experienced by some.

Along with physicians' perceptions and/or experience with certain treatments, the above findings illustrate that although clinical guidelines are an important driver of prescribing, other key stakeholders (e.g., patients and payers) and other factors are also likely to affect what patients receive.

3. Insight Through a Pathology & Molecular Diagnostic Lens

Current treatment guidelines for HER2- HR+ metastatic breast cancer refer to PIK3CAm+ and BRCA 1/2 + PALB2 testing. However, additional diagnostic tests will be required in the future to inform therapy choice as knowledge of the genomics of breast cancer evolves. This will include Estrogen Receptor 1 (ESR1) mutations and, as therapies are licenced, potentially high TMB, TP53 mutation, PTEN loss of function mutation, RB1 pathway alteration, AURKA mutation/amplification, and BRIP1/MYC/RAD51C amplification.

We looked more broadly at breast cancer treatment using Ipsos' Molecular Diagnostics (MDx) Monitor, which captures an in-depth view of biomarker testing from both physician and pathologist perspectives (see 'About the Research'). Specifically, we used data collected between October and November 2020 from 108 physicians / pathologists in the US. Our analysis suggests challenges to the adoption of a greater precision medicine approach.

- HER2 testing is engrained / universal in clinical practice – whereas testing for other biomarkers lags considerably behind:
 - » According to our Oct-Nov 2020 data, approximately 86% of the Stage IV breast cancer patients treated by our participating physicians underwent HER2 testing. However, the practice of testing for other biomarkers was much lower (43% for BRCA 1/2 blood germline testing POST-diagnosis, 41% for dMMR/MSI).
- The diagnostic ordering mechanism in breast cancer is more complicated than in other solid tumors, such as NSCLC, CRC and Melanoma, because multiple specialties are involved; this represents a considerable challenge to increased testing.
 - » Stakeholders included pathologists (because of reflex testing for HER2), surgeons, OB/GYNs and genetic counsellors (to provide guidance on inherited mutations and assess familial risk).
- Despite these barriers, patient involvement appears to be a greater force in driving testing in breast cancer. Patients are typically more vocal, possibly better informed, and often more involved in the management of their disease than patients affected by other types of cancer. Given much of current testing is down to standard hospital protocol, the patient is an important driver when it comes to testing.
 - » Compared to the other solid tumours we monitor, we saw “patient request” coming through more strongly in breast cancer (e.g., 17% in BC vs. 9% in NSCLC in our Q3 2020 data).
- Patients who are not tested for biomarkers are “placed on hold” until they progress:
 - » In our data, ‘placed on hold’ accounted for 22% of reasons for not testing, followed closely by reimbursement or cost issues at 16%.

- Reflex testing (i.e., blanket-testing samples irrespective of whether an oncologist has ordered biomarker testing) is mostly seen for HER2.
 - » All other genes were tested mainly if the physician had ordered them specifically.
- Ultimately, cost /reimbursement appears to represent a major hurdle to adopting a greater precision medicine approach in breast cancer.

Compared to other cancer types, predictive molecular testing is more ingrained in this tumour. Nonetheless, as the number of genomic alterations that are relevant to the treatment of breast cancer is set to increase, guidelines must also evolve – and must do so to include the role of all stakeholders involved in the delivery of care for the patient.

4. Insight Through the Payer Lens

Achieving licensure (marketing approval) requires three hurdles to be overcome: demonstration of efficacy, safety, and quality. The payer, however, often remains a fourth hurdle to patient access to medicines.

A key payer hurdle to be overcome in many countries is Health Technology Assessment (HTA). Achieving a positive HTA recommendation requires evidence of clinical- and cost-effectiveness. There are significant differences in evidentiary requirements between the European Medicines Agency and the European Health Technology Assessment of Oncology Drugs, and significant differences between country requirements. (This is outlined in more detail in a recent article published by Sharon Wolters et al in *Value in Health*^v). An absence of relevant evidence can result in a product being licenced but not accessible for use in patients.

Another important factor is timing. According to a study reported at ESMO 2018 by Kirsten Vokinger et al, “some European countries take more than twice as long as others to reach health technology assessment (HTA) decisions to reimburse new cancer drugs following their approval by the EMA”^{vi}. The same study found that decision time averages over a year in some countries and that clear country-by-country differences exist; median EMA approval of the cancer drugs studied was two to three times longer in England and Scotland versus Germany and France.

There is, however, a move towards accelerating access to oncology drugs, harmonising HTA across Europe and integrating real-world evidence within the regulatory and HTA assessment processes – as outlined in an Ipsos poster presented at ISPOR Europe in November 2021^{vii}.

Although HTA can be a barrier to optimal treatment and outcomes in the real-world, there are approaches (facilitators) that can be used to overcome these such as Managed Entry Agreements based on financial and outcomes-based risk-sharing, and access restrictions to sub-populations where the greatest levels of clinical- and cost-effectiveness can be demonstrated.



Merging and integrating the insights

As we've just seen, treatment monitoring and tracking systems give us the physicians' real-world behaviour and perspectives. Diagnostics monitoring adds the pathologists' view. Social intelligence analytics enables us to capture and analyse the patient's voice. Payer and HTA research identifies market access barriers and facilitators, and the ways in which these might be overcome.

These approaches are ideal for answering the **WHAT, HOW** and **WHEN** questions – but, individually, they only partially answer the **WHY** question.

Combining and integrating these insights starts to indicate **WHY** current real-world treatment and outcomes are sub-optimal.

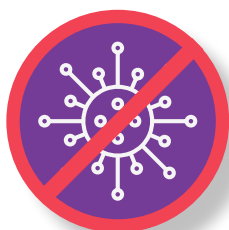
Further research is needed on top of the above to address the key questions raised by these insights, and which are often asked by pharmaceutical companies, physicians, payers and patients alike: what can be done to influence this? How can we improve clinical outcomes at both patient and population levels, and increase the efficiency and clinical - and cost - effectiveness of oncology disease management?

Barriers to optimal disease management – in summary



Barriers to **therapy use** may include:

- Affordability, access and availability
 - » Of drugs, diagnostic testing, reimbursement
 - » Of data/evidence.
- Timing
 - » Delays in updating treatment guidelines
 - » Delays in Health Technology Assessments and implementation
 - » Time lag in adopting technology
- Preference
 - » Influenced by context, personal experience, and outcomes of earlier treatment(s)
- Policy & priorities
- Power – physician vs. payer; HTA vs. medical society; treatment guideline perspectives differing from patients' perspectives.



Barriers to **molecular diagnostic use** may include:

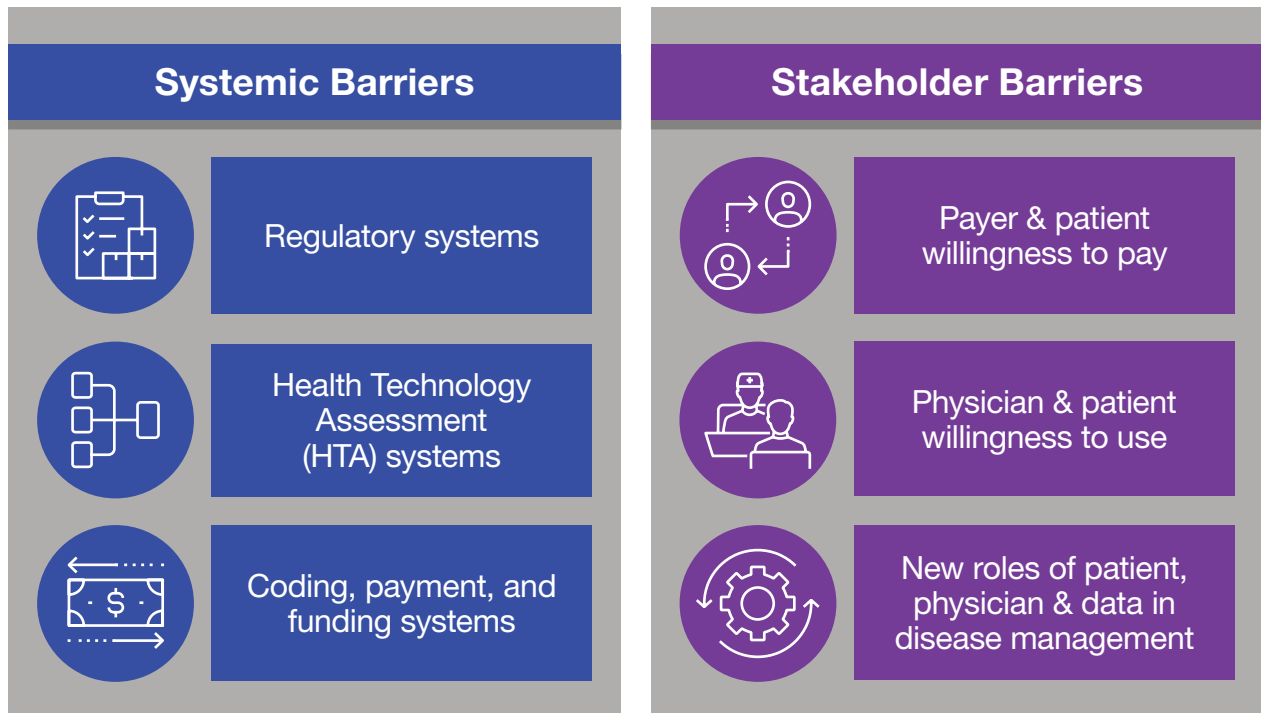
- Funding
- Access to and availability of testing
- Testing methods and process:
 - » Difficulty of obtaining sample
 - » Complexity
 - » Turnaround time
- Test performance:
 - » Will the test be (perceived to be) insufficiently accurate or ambiguous?
- Population selected for testing:
 - » Will the population tested be as broad as the drug's indication?
- Physician's adoption of the test proposition
- Patient demand for testing, and willingness to be tested
- Conversion rate
 - » Will physicians prescribe other drugs despite a "positive" test result?



Barriers around **stakeholders** may include:

- **Patients**
 - » Willingness to be treated, influenced by:
 - ◇ Patient preference and behaviours driven by experience / outcomes of earlier treatments (Prospect Theory)
 - ◇ Recommendations from HCPs and other patients, the internet, social media (as highlighted in the SIA example above).
- **Physicians**
 - » Willingness to test and treat, influenced by:
 - ◇ Treatment guidelines
 - ◇ Personal experience (e.g., clinical trial involvement)
 - ◇ Indirect compliant financial incentives (impact on income, gain-share, etc.).
- **Payers**
 - » Willingness to pay, influenced by:
 - ◇ The incidence of the genetic mutation
 - ◇ The cost of the therapy and diagnostic testing
 - ◇ The magnitude of the clinical benefit demonstrated.
- **Manufacturers**
 - » Willingness to invest in evidence development and information dissemination / awareness, influenced by:
 - ◇ Likely return on investment (RoI) in the context of overall product strategy and resource allocation
 - ◇ The extent to which there is sufficient leverage in 3 key areas to result in higher revenues / profitability:
 - Improved competitive position
 - Premium pricing
 - Earlier use in treatment pathway.

Figure 4: Barriers to delivering the promise of digital & genomic technologies



Source: Ipsos

Facilitators of optimal disease management

Once barriers have been identified, the options for facilitating their removal need to be explored. These may include:

- Removal of systemic and stakeholder barriers
- Creation of incentives
- Collaboration between stakeholders
- Integration of data from multiple sources
- Modification of healthcare IT systems.

Approaches to consider include:

- Leveraging policy and patient advocacy
- Integrating data, insights and evidence
- Action to promote early access and rapid uptake of innovation, which may be aided by:
 - » Novel pricing strategies (such as value-based & indication-based pricing)
 - » Innovative access strategies including contracting & risk sharing.

Approaches and frameworks to support the generation of holistic insight

There is not one method that suits all. Approaches we frequently use include:

Modified Porter Analysis

Porter's five forces model analyses the environment in which a product or company operates, focusing specifically on industry competition, threat of new entrants, power of buyers, power of suppliers and threat of substitutes.

STEEPLE frameworks

STEEPLE (social, technological, economic, environmental, political, legal & ethical) frameworks push us to consider how each factor will impact a business — and how products and services will fit into future scenarios. Without such a tool, we tend to think the future will be much like the present.

Delphi Method

The Delphi method is based on the principle that forecasts (or decisions) from a structured group of individuals are more accurate than those from unstructured groups. Comprised of multiple rounds of questions put to experts, Delphi essentially encourages respondents to reconsider their earlier answers in view of the responses of others – ultimately arriving at the 'correct' answer as a group.

Behavioural Science, Patient Preference & Prospect Theory

Prospect Theory, which is rooted in psychology, explores how decisions are made when people are presented with alternatives that include uncertainty or risk. Powerful examples are included in KP Weinfurt's 2007 article, 'Using Prospect Theory to Understand End-of-Life Decisions'^{viii}. The author highlights how preferences may change for patients with grave prognoses.

System Dynamics

System dynamics is an aspect of systems theory used as a method to understand the dynamic behaviour of complex systems. The method recognises that a system's structure and the relationships between its component parts is often just as important in determining its behaviour as the individual components themselves.

War Gaming

Any company operating in today's dynamic, rapidly changing environment needs to gain market foresight into how the landscape may evolve in the future and the consequences of this for its R&D and commercial decision-making. It is vital to understand the inter-play and dynamics between the various stakeholders.

(We recommend an experiential approach to market foresight, called Dynamic Market Simulation (DMS) based on system dynamics methodology, sometimes called competitive simulation or war gaming)

Which oncology business questions might be answered by the holistic insight approach?

The simple answer is “almost all”. However, two specific examples will, in the future, be of increasing importance:

- **Identifying optimal treatment sequencing:**
 - » Evaluating value in oncology treatment sequencing
 - » Exploring the challenges of measuring value along the treatment pathway from diagnosis to death/remission/cure in oncology and the role that multi-source data, insight, and evidence integration can have in this.
- **Attributing value in oncology treatment:**
 - » Exploring how biomarker-informed treatment selection, predictive analytics and artificial intelligence can result in patients being treated with stacks of drugs (combination and triple therapies)
 - » Understanding how payers should attribute value to the components informing willingness to pay and reimbursement, and the trade-offs that manufacturers will need to make in order for the overall disease management to be cost-effective
 - » Identifying how payment and reimbursement can be fairly allocated to the individual elements of multi-component disease management.

Conclusions

As we’ve demonstrated in this article, real-world treatment and outcomes are certainly influenced by treatment guidelines, but other key stakeholders and factors are likely to have a significant influence on what patients receive in practice.

Insight is required to understand **WHY** real-world treatment and outcomes are sub-optimal and **WHAT can be done to influence this**. To help answer these key questions, on top of the real-world insights we began with, we need to consider:



For support in all three areas, Ipsos’ Advisory Services teams are here to help.

About the Research

Ipsos Global Oncology Monitor

The Ipsos Global Oncology Monitor is an online multi-country, multi-centre medical chart review. Participating physicians are geographically representative and screened for treatment involvement levels and number of patients managed per month. Reporting on patients they see in consultation, participants provide date of diagnosis, current and historic treatment and reasons for prescribing / discontinuing anti-cancer drug treatment. Data on patients treated with different classes of anti-cancer drugs are compared using descriptive statistics. Data referred to in this article were collected online from 443 oncologists/gynaecologists on 2,648 Stage IV, HER2- HR+ breast cancer patients treated with anti-cancer drugs in France (n=599), Germany (n=516), Italy (n=518), Spain (n=499) and UK (n=516) between January and March 2022.

Ipsos Molecular Diagnostics (MDx) Monitor – Solid Tumours

The Ipsos Global Molecular Diagnostics Monitor is a multi-stakeholder, physician-reported syndicated patient and laboratory record database, capturing perceptions towards, and usage of, MDx tests in solid cancer types. Participating drug-treating physicians are screened for specialty, level of seniority and number of drug-treated cancer patients seen per study wave and must be the primary decisionmaker for their patients. Participating pathologists must be involved with preparing samples, ordering cancer-related MSx tests and/or performing/interpreting cancer-related MDx testing in solid cancers, and must be aware of the methodology and/or brand used for cancer-related MDx tests. Each wave, participants complete a perceptual usage and attitudes questionnaire, before providing de-identified information on a predefined quota of oncology patients seen in consultation / laboratory samples handled in practice, retrospectively (across a pre-defined list of solid tumour types). Data referred to in this article were collected online from 108 physicians / pathologists between October and November 2020 in the US.

Synthesio (an Ipsos Company)

Data were collected in the Synthesio platform from social media networks and online forums in France, Germany, Italy, Spain and the UK, between August 15th 2021 and August 15th 2022. The query was a combination of keywords centred around metastatic breast cancer and treatment options, alongside personal pronouns, translated for each of the required markets. Posts were analysed qualitatively first and foremost, with particular attention paid to those from patient forums and those including a brand mention.

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End notes

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