Strategic Planning for Orphan Drugs:
Maximizing Asset Value Through Evidence-Generation Planning
Learning Objectives

What are strategic planning considerations for orphan drugs?

What is a market access evidence plan for orphan drugs?

What are key country requirements and innovative funding mechanisms to consider for orphan drugs?
What is a Market Access Evidence Plan (Roadmap) for Orphan Drugs?

Kati Copley-Merriman
Vice President,
*Market Access and Outcomes Strategy*
Orphan Drugs Treat Rare and Very Rare Diseases, but Definitions Differ by Country

Ritchter et al. (2015)\textsuperscript{10} identified 296 definitions related to rare diseases from 32 international jurisdictions.
Orphan Drugs – Challenges With Standard HTA Approaches

Challenges

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Condition</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of evidence</td>
<td>Poorly understood</td>
<td>High cost of the orphan drug</td>
</tr>
<tr>
<td>Low patient numbers</td>
<td>Lack of natural history</td>
<td>Ethical considerations</td>
</tr>
<tr>
<td>Surrogate endpoints</td>
<td>No or unclear comparators/standard of care</td>
<td>Drugs with more than 1 rare indication</td>
</tr>
<tr>
<td>Single arm trials</td>
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Lack of evidence leads to uncertainties in the clinical and economic evidence. Poorly understood condition can lead to long appraisal times by HTA agencies and fewer positive outcomes. If not reimbursed, the opportunity to collect real-world efficacy and safety data for “pay per performance” schemes is diminished.

HTA = health technology assessment.
How Can a Market Access Evidence Plan (Roadmap) Support the Value of a Pipeline Product? Plan for Success

“If you fail to plan, you are planning to fail!”

BENJAMIN FRANKLIN
Market Access Evidence Plan (Roadmap) Timing

- For products that might be approved based on phase 2 data, which is common for orphan drugs, the Market Access Evidence Plan should start prior to beginning phase 2 trials.

- Ideally for all other products, the Market Access Evidence Plan would begin prior to phase 3, in time to influence the study design.

Orphan drugs are commonly approved using single-arm phase 2 trials, so comparator arm(s) need to be generated by indirect comparisons.
Market Access Evidence Plan Creation Process Overview

- **Conduct a literature review** to understand the disease burden, unmet need, and disease data gaps (e.g., utility data).
- **Evaluate key country HTA requirements for orphan drugs** (which differ by country and change over time).
- **Identify and review evidence base** for key comparators (current treatments or standard of care/natural history if there are no approved treatments).
- **Product SWOT** (strengths, weaknesses, opportunities, threats)
- **Create the value story**

**Conduct a literature review** to understand the disease burden, unmet need, and disease data gaps (e.g., utility data).
Market Access Evidence Plan Creation Process Overview

- **Create a market access evidence plan** to address gaps and country requirements
- **Conduct payer research** to assess perceptions of unmet need, payer evidence needs, and price expectations
- **Conduct a gap analysis** for evidence to support the value story based on gaps identified in the literature, and for the product based on product and competitor study designs
- **Review existing data to support the value story**, both in the literature and for the product
Special Considerations: Payer-relevant Comparators

Consider payer-relevant vs. clinical benefit comparators

Identify comparators and study endpoints

- Prepare convincing evidence of comparative effectiveness (direct or indirect) vs. all relevant comparators
- Understand comparator trials, have indirect comparisons planned
- For single-arm studies, the comparator arm can be created using retrospective studies or disease registries
Special Considerations: Patient-reported Outcomes

Patient-reported Outcomes (PROs)
- PROs are often not included in clinical trials
- When included, the results fail to demonstrate change, capture domains important for patients, or are uncertain
- With a Roadmap, disease-specific measures can be planned and included
Special Considerations: Utility Measurement

Poor utility data can undermine price and reimbursement

Utility measurement

- Plan to collect utility estimates for cost-effectiveness models (quality adjustment)
- If not collected in a trial, it will cost more money for an additional utility study; this may lead to a price restriction as payer-relevant value (QALY gain) is uncertain
- Utility data is hard to collect in pediatric trials, which are common in rare diseases; methods being developed to address this are using parental scores or cross-matching with pediatric QOL measures

QALY = quality-adjusted life year; QOL = quality of life.
What Are the Elements of a Market Access Plan Roadmap Specific to Orphan Drugs?

Jin Yang
Associate Director,
Market Access and Outcomes Strategy
A comprehensive literature review to understand the rare disease and the unique unmet needs patients face

- **Disease definition and diagnostic criteria:** diagnosis can be challenging
- **Natural history and clinical burden:** chronic and heterogeneous nature
- **Epidemiology:** limited and variable data
- **Humanistic burden:** lack of disease-specific PRO instruments
- **Economic burden:** lack of country-specific studies
- **Current treatment:** approved treatments and their HTAs, treatment guidelines, treatment patterns, pipeline drugs

**Literature Review To Understand Burden of Rare Diseases**
Gap Analysis From the Literature Review: Examples

- Epidemiology data are scarce in countries A, B, and C.
- Lack of natural history data; unclear when clinical manifestations will occur.
- Most studies used SF-36; disease-specific instrument is not validated.
- Economic burden studies are all US-based and short-term; long-term data outside the US are needed.
- Treatment patterns are similar across studies for 1L therapies but vary in the 2L setting, likely due to product availability in different countries.

1L = first line; 2L = second line; SF-36 = 36 Item Short Form health survey.
Evaluation of PRODUCT X and Competitive Landscape

Assessing PRODUCT X in various aspects helps identify gaps in evidence collection, shape trial design, and differentiate the product from competitors (if they exist)

• MOA: a unique MOA
• Clinical program: robustness of clinical evaluation
• Study design and outcomes: study arm, endpoints, PRO assessment, utility values, unique safety concerns
• Administration route: advantage versus SOC
• Economic evaluation: lessons learned from prior CEA or BIM

BIM = budget impact model; CEA = cost-effectiveness analysis; MOA = mechanism of action; SOC = standard of care.
Gap Analysis For Product X: Examples

- Phase 2 trial for PRODUCT X does not collect utility values.
- Competitor trials are similar but have additional PRO endpoints.
- No head-to-head trial between PRODUCT X and Competitor Y; but indirect comparison is feasible.
- Oral administration is an advantage, as SOC is administered via IV infusion.
- PRODUCT X has a novel mechanism of action, offering a new treatment option to patients who are refractory to SOC.

IV = intravenous.
SWOT Analysis: Examples

Strengths
- PRODUCT X has a relatively higher response rate based on indirect comparison of trial data.
- PRODUCT X has a good safety profile similar to placebo.
- PRODUCT X trial showed evidence of improved PRO while no other competitors evaluated PRO.

Weaknesses
- Utility data, which are used in economic models, were not collected in the clinical trials of PRODUCT X.
- Administration is subcutaneous injection versus oral.
- Long duration of response is not established for PRODUCT X.

Opportunities
- A high unmet need exists for patients with Disease X, who are refractory to SOC.
- Current treatment in 2L is a complex and risky procedure.
- PRODUCT X will be the first approved pharmacological treatment in the 2L setting.

Threats
- Competitor Y has started phase 3 trials.
- Competitor Y is a once-daily oral tablet while PRODUCT X is administered subcutaneously.
- European markets have tougher reimbursement environments.
### Implications For Product X: Examples

<table>
<thead>
<tr>
<th>Literature-based Evidence Gaps</th>
<th>Priority To Address</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td><strong>LOW:</strong> This is not something Company X could easily solve for PRODUCT X, despite a need for confirmatory diagnosis test.</td>
</tr>
<tr>
<td>• Diagnosis is based on exclusion of other secondary causes.</td>
<td></td>
</tr>
<tr>
<td><strong>Epidemiology</strong></td>
<td><strong>LOW:</strong> Country-specific epidemiology data of Disease X are sufficient to support a budget impact model.</td>
</tr>
<tr>
<td>• Epidemiology data on Disease X are available in France, Germany, Italy, Spain, and the UK.</td>
<td></td>
</tr>
<tr>
<td><strong>Humanistic burden</strong></td>
<td><strong>MODERATE TO HIGH:</strong> The clinical trial for Product X used the SF-36, instead of the disease-specific instrument xxx.</td>
</tr>
<tr>
<td>• Only a few studies were evaluated, all used the generic instrument SF-36.</td>
<td></td>
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<tr>
<td><strong>Economic burden and prior modeling</strong></td>
<td><strong>HIGH:</strong> Obtaining accurate country-specific economic burden data is required for economic modeling.</td>
</tr>
<tr>
<td>• All identified studies were US-focused analyses; data outside the US is lacking.</td>
<td></td>
</tr>
<tr>
<td><strong>Treatment pattern</strong></td>
<td><strong>LOW:</strong> Adequate treatment pattern information was found for both 1L and 2L settings, all of which are recent (2020-2021).</td>
</tr>
<tr>
<td>• Treatment pattern data for both 1L and 2L therapies are available, showed similarities across countries in the 1L setting and variations in the 2L setting.</td>
<td></td>
</tr>
</tbody>
</table>
Value Messages: Examples

Value messages help you see the value of your product and position it in the market landscape.

Efficacy Messages

- PRODUCT X reduced disease activity xx from baseline by xx% after 6 months of treatment; and the reduction is maintained for at least X months.
- XX% of patients responded to PRODUCT X by 2 weeks, and yy%, zz% responded by 6 weeks and 6 months, respectively.

Safety Messages

- Treatment with PRODUCT X over 6 months shows no clinically significant worsening in safety profile, compared with baseline.
- Treatment with PRODUCT X is well tolerated, and adverse events are mild; no increase in serious infection or risk of xx leading to discontinuation of Product X.

Economic Value Messages

- PRODUCT X is cost-effective compared with placebo (no treatment); incremental cost effectiveness ratio of PRODUCT X is $xx per QALY.
- PRODUCT X has a low budget impact ($xx per member per month) because the disease is rare.

HRQOL Improvement Messages

- Clinically meaningful improvement in QOL, as measured by XYZ instrument, has been shown after x weeks of treatment with PRODUCT X versus a worsening with no treatment.
- Time to deterioration is longer with PRODUCT X versus placebo.
### Market Access Plan (Recommended Projects): Examples

Assuming Phase x Study Completion Q# 20##; Launch Q# 20##

<table>
<thead>
<tr>
<th>Evidence needed for gaps</th>
<th>Data source</th>
<th>Country</th>
<th>Start date/ study length/ price estimate</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early HTA advice</td>
<td>Letter of intent 3 months prior to building economic models</td>
<td>Europe</td>
<td>Q3, 2022 6-8 months $XX,XXX</td>
<td>Gain strategic input from country HTAs</td>
</tr>
<tr>
<td>Real-world burden of disease and treatment</td>
<td>Database study or disease registry/partner with disease associations</td>
<td>US, UK, and others</td>
<td>Q3, 2022 $XX,XXX</td>
<td>Understand the burden of disease and current treatments</td>
</tr>
<tr>
<td>patterns</td>
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<tr>
<td>Early economic model</td>
<td>Economic model</td>
<td>US</td>
<td>Q4, 2022 $XX,XXX</td>
<td>Understand model data gaps and pricing implications</td>
</tr>
<tr>
<td>Reimbursement submissions</td>
<td>Targeted and systematic literature reviews; country-specific economic models; global value dossier</td>
<td>US (AMCP), UK (NICE); IQWiG (Germany), etc.</td>
<td>Q1, 2024 6-9 months $XX,XXX per country</td>
<td>Meet reimbursement requirements</td>
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</tbody>
</table>

AMCP = Academy of Managed Care Pharmacy; NICE = National Institute for Health and Care Excellence.
### Timeline of Activities for the Market Access Plan: *Examples*

<table>
<thead>
<tr>
<th>Year</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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<td>2022</td>
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<td>2024</td>
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<td>2025</td>
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#### Phase 2b
- Noninterventional treatment costs
- SLR disease burden
- Early economic model

#### Phase 3
- SLRs for clinical evidence and economic models
- Economic models
- Global value dossier
- Real-world disease burden and treatment patterns
- Reimbursement submissions
- Caregiver preference

**Disease burden publication**
HTA for Orphan Drugs

Sheryl Warttig
Director,
*Market Access and Outcomes Strategy*
What is Health Technology Assessment (HTA)?

- Budget impact
- Literature review
- Relevant clinical and cost evidence (RCTs)
- Economic modeling
- Appropriate comparator

**Perspective**
Health service/Payer/Societal

**HTA Features**

**RCT** = randomized controlled trial.
HTA for Orphan Drugs

Most orphan drugs cannot be recommended/approved

Some agencies allow flexibilities for orphan drugs
Orphan Drugs – Challenges With Standard HTA Approaches

### Challenges

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<tr>
<td>• Single-arm trials</td>
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### Solution:
- **Evidence**
  - Accept greater uncertainties
- **Condition**
  - Use specialist committees/advisors
- **Other**
  - Accept higher prices (higher willingness-to-pay thresholds)

### Also:
- Conditional decisions (based on discounts, risk-sharing agreements, or managed access/entry)
- Exemption from HTA
Orphan drugs can be considered in 2 pathways:

- **HST**: for drugs that meet all 4 HST criteria
- **TA**: for drugs that do not meet the HST criteria
  - Most orphan drugs go through this route!

### HST criteria

1. The disease is very rare < 1 in 50,000 (< 1,100 people in England)
2. The number of people in England eligible for the drug is < 300 (single indications) or < 500 (across all its indications)
3. The very rare disease significantly shortens life or severely impairs QOL
4. There are no other satisfactory treatment options, or it will offer significant benefit over existing options
NICE HTA - TA Versus HST

Flexibilities that are common to both TA and HST

**Decision-making flexibility for:**

- **Nature and quality of evidence**
  - More uncertainty is acceptable for rare diseases, children, innovative or complex technologies
- **Benefits and adverse effects**
- **Position in the care pathway and alternatives**
- **Conditional recommendations (restricted population, discount, managed access)**
# NICE HTA - TA Versus HST

Flexibilities that are different

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Technology appraisal</th>
<th>Highly specialised technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decision-making flexibility</strong></td>
<td>As per previous slide</td>
<td>As per previous slide, plus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The overall size of health benefits to patients/carers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Robustness of the current evidence and the contribution the guidance might make to strengthen it.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Extent of morbidity and disability with current SOC</td>
</tr>
<tr>
<td><strong>Willingness-to-pay threshold</strong></td>
<td>£20,000 - £30,000</td>
<td>£100,000</td>
</tr>
<tr>
<td><strong>Quantitative decision ‘modifiers’</strong></td>
<td>QALY weight of x1 to x1.7 can be applied for severe conditions</td>
<td>QALY weight of x1 to x3 can be applied for large QALY gains (gains of 10-30 QALYS)</td>
</tr>
</tbody>
</table>
Between 2015 and 2020 *66 orphan drugs* were selected by NICE \(^1\)

Why?

Unclear, probably because of size of eligible population
Between 2015 and 2020, 66 orphan drugs were selected by NICE. Why? Unclear, probably because of size of eligible population.
NICE HTA for Orphan Drugs

Between 2015 and 2020 66 orphan drugs were selected by NICE\(^1\)

- **22 via HST**
  - 0% rejected, optimized, restricted\(^1\)

- **44 via TA**
  - 37% rejected, optimized, restricted\(^1\)

**Why?**

Unclear, probably because of willingness to pay threshold
Between 2015 and 2020 66 orphan drugs were selected by NICE

22 via HST
0% rejected, optimized, restricted

44 via TA
37% rejected, optimized, restricted

Why?
Unclear, probably because of willingness to pay threshold

HST = £100k (up to £300k)

TA = £20k to £30k (up to £50k)
US Institute for Clinical and Economic Review (ICER): Ultra-Rare Diseases

- Adapted approach for ultra-rare condition treatments if:
  - < 10,000 patients
  - Future expansion of the indication to > 20,000 patients is unlikely
  - Offers major gains in quality and/or length of life

- Adapted approach contextualizes the challenges of generating evidence
  - Same approach to standards of evidence and rating evidence will be used

**Recent ICER White Paper Summary of Policy Options (April 2022)**

**Strengthen Evidence Generation:**
- Update ICD-10 codes to reflect the rare disease
- Fund patient registry development
- Clarify evidence expectations

**Pricing Options:**
- Consider outcomes-based or volume-based contracts
- Consider indication-based pricing
- Pursue value-based pricing
**HTA Pathways**

**HTA**
- **Recommended/approved**
  - Routine reimbursement
- **Conditional recommendation/approval**
- **Not recommended/approved**
  - No routine reimbursement
HTA Pathways

Pre-HTA
- e.g., Ultra-orphan Medicines Pathway (Scotland), Early Access (France)

HTA
- Recommended/ approved
- Conditional recommendation/ approval
- Not recommended/ approved

Post-HTA
- e.g., Innovative Medicines Fund (UK), Life Saving Drugs Program (Australia)

Standard reimbursement
Innovative Funding Mechanisms for Orphan Drugs

Vijay D’Souza
Senior Associate,
*Market Access and Outcomes Strategy*
Innovative Payment Mechanisms

Payment models support equitable access to orphan drugs

<table>
<thead>
<tr>
<th></th>
<th>Non-orphan drug</th>
<th>Value metric</th>
<th>Orphan drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smaller</td>
<td>Smaller</td>
<td>Incremental health gain</td>
<td>Larger</td>
</tr>
<tr>
<td>Lower</td>
<td>Lower</td>
<td>Cost</td>
<td>Substantially higher</td>
</tr>
<tr>
<td>Favorable</td>
<td>Favorable</td>
<td>Cost-effectiveness</td>
<td>Unfavorable</td>
</tr>
</tbody>
</table>

- Cost-effectiveness metric in the HTA evaluation deems the orphan drug as not cost-effective
- New ways of funding are essential to enable patient access within the limits of funding by healthcare systems
- Alternative financing schemes facilitate access when the technology cannot be reimbursed by a routine commissioning pathway
2-3 years gap between launch in the US and all Europe-5

Time to pricing and reimbursement for orphan drugs launched in 2021

- Reimbursement and launch occur almost simultaneously in Germany, Japan, and Italy
- Average time pricing and reimbursement:
  - UK: 572 days
  - France: 660 days
  - Spain: 730 days

Reimbursement data for the US is not provided.

Source: GlobalData, Poli • Get the data • Created with Datawrapper
Innovative Funding for Rare Diseases – UK (England and Wales)

Alternative reimbursement pathway-Innovative Medicine Fund

NICE HTA Appraisal

- Data needed to resolve uncertainties
  - Clinically and cost effective
    - Not recommended

Innovative Medicine Fund

- Routine NHS Commissioning
  - No routine NHS commissioning

NICE Guidance Update

- Recommended for routine commissioning
  - Optimized (routine use for the eligible patient population)

Not recommended

NHS = National Health Service.
Ultra-Orphan Drug Risk Share and New Medicines Fund

- **Application for UO status (proforma) and validation**
- **Initial assessment (NPAF)**
- **Evidence generation**
- **Submission for reassessment**
- **New Medicines Fund (“case-by-case” basis)**

**Stage 1: 8 weeks**
- Early confirmation of ultra-orphan definition, even before CHMP opinion

**Stage 2: 18 weeks**
- Assessment of clinical and cost effectiveness
- Highlights uncertainties within evidence-base and helps to inform the data collection stage

**Stage 3: Up to 3 years**
- The SMC will review the evidence and make a final decision on its routine use in NHS Scotland

**Key Points**

- **CHMP** = Committee for Human Medicinal Products; **NHS** = National Health Service; **NPAF** = New Product Assessment Form; **UO**: ultra-orphan.

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**Flowchart Description**

1. **Application for UO status**
2. **Initial assessment (NPAF)**
3. **Evidence generation**
4. **Submission for reassessment**
5. **New Medicines Fund (“case-by-case” basis)”**
Access to treat serious or rare diseases

**Early Access for Rare Disease Medicines – France**

Company must commit to:
- Apply for MA within 2 years
- Respect the protocol for therapeutic use established for the drug
- Finance real-life data collection

Consultation with ANSM on efficacy and safety

**Early Access Authorization**

1. Manufacturers request early access
2. 1. Pre-MA early access
   2. Post-MA early access

HAS assessment

Access granted

**Compassionate Use**

- Compassionate access authorization
- Physician request for named patient
- Access granted for 1 year, renewable
- Company application
- Access granted for 3 years, renewable

ANSM = Agence Nationale de Sécurité des Médicaments et des produits de santé (French National Agency for Medicines and Health Products Safety); HAS = Haute Autorité de santé (French National Authority for Health); MA = marketing authorization.
Innovative Funding for Rare Disease Medicines – Australia

Alternative reimbursement pathway - LSDP

**Listing a medicine on the LSDP**

- **PBAC minutes**
- **Optional pre-LSDP application meeting after publication of PBAC minutes**
- **LSDP application**
- **LSDP expert panel (LSDPEP) meeting and stakeholder forum**
- **Sponsor response**
- **Verbal confirmation of the CMO’s recommendation to sponsor**

**Pre-application**: 9 weeks

**Assessment**: 9 weeks

**Recommendation**: 2 to 6 weeks

**Pricing and review**:
- Proposed price of the medicine versus the effective price of the medicine in comparable overseas markets compared
- Only cost of the medicine is subsidized
- Proposed cost of the medicine versus the cost of comparable medicines (that are already funded through the LSDP)
- Use and cost of new medicines on the list are reviewed after 2 years

CMO = Chief Medical Officer; LSDP = Life Saving Drugs Program; LSDPEP = LSDP expert panel; PBAC = Pharmaceutical Benefits Advisory Committee; PBS = Pharmaceutical Benefits Scheme
Planning for Alternative Funding

- Only 17% of orphan drugs reach marketing approval as per historical success rate; and nearly a third fail at the market access stage.\(^1\)

- Lack of data on safety, efficacy, and additional benefit compared with existing treatments to support clinical effectiveness is the main cause of failure.

- Early engagement is recommended with each HTA body to discuss the evidence requirement for value assessment.
  - During the clinical development stage and before MA application, to help with type and amount of evidence required

Pathways to early engagement

<table>
<thead>
<tr>
<th>Early engagement in France</th>
<th>Early engagement routes in the UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clear timeframe for early engagement due to the nature of the early access application process in France.</td>
<td>• Innovative Licensing and Access Pathway (ILAP)</td>
</tr>
<tr>
<td></td>
<td>• Promising Innovative Medicines (PIM) designation route for Early Access to Medicines Scheme (EAMS)</td>
</tr>
</tbody>
</table>

EAMS = Early Access to Medicines Scheme; ILAP = Innovative Licensing and Access Pathway; MHRA = Medicines and Healthcare products Regulatory Agency; PIM = Promising Innovative Medicines.
Innovative Funding – Summary

Variation in the evidence requirement between pre-market and HTA recommended access

Early-late clinical development
Marketing authorization
HTA assessment
Post-HTA rejection

Early Access Authorization - France
LSDP - Australia
Ultra-Orphan Drug Risk Share - Scotland
New Medicines Fund - Scotland
Innovative Medicine Fund - UK
How can a market access evidence plan support the value of a pipeline product?

- Ensures *payer-relevant* evidence is generated demonstrating clinical effectiveness, quality-of-life benefit, cost-effectiveness, and budget impact
- Develops the evidence package in parallel with and throughout the product development process, so it is available to support acquisitions, licensing, and/or asset valuations
- Identifies opportunities for *highest value-added patient benefit* = best price & reimbursement opportunity
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## Abbreviations

<table>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AMCP</td>
<td>Academy of Managed Care Pharmacy</td>
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<tr>
<td>ANSM</td>
<td>Agence Nationale de Sécurité des Médicaments et des produits de santé (French National Agency for Medicines and Health Products Safety)</td>
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<tr>
<td>BIM</td>
<td>budget impact model</td>
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<tr>
<td>CADTH</td>
<td>Canadian Agency for Drugs &amp; Technologies in Health</td>
</tr>
<tr>
<td>CEA</td>
<td>cost-effectiveness analysis</td>
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<tr>
<td>CHMP</td>
<td>Committee for Human Medicinal Products</td>
</tr>
<tr>
<td>CMO</td>
<td>Chief Medical Officer</td>
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<tr>
<td>EAMS</td>
<td>Early Access to Medicines Scheme</td>
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<tr>
<td>EMA</td>
<td>European Medicines Agency</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
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<tr>
<td>HAS</td>
<td>Haute Autorité de santé é (French National Authority for Health)</td>
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<tr>
<td>HRQOL</td>
<td>health-related quality of life</td>
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<tr>
<td>HST</td>
<td>highly specialised technologies</td>
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<td>HTA</td>
<td>health technology assessment</td>
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<tr>
<td>ILAP</td>
<td>Innovative Licensing and Access Pathway</td>
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<td>IV</td>
<td>intravenous</td>
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<tr>
<td>LSDP</td>
<td>Life Saving Drugs Program</td>
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<tr>
<td>LSDPEP</td>
<td>LSDP expert panel</td>
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<td>MA</td>
<td>marketing authorization</td>
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### Abbreviations (con’t.)

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>MHRA</td>
<td>Medicines and Healthcare products Regulatory Agency</td>
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<tr>
<td>MOA</td>
<td>mechanism of action</td>
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<tr>
<td>NHS</td>
<td>National Health Service</td>
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<tr>
<td>NICE</td>
<td>National Institute for Health and Care Excellence</td>
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<tr>
<td>NPAF</td>
<td>New Product Assessment Form</td>
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<tr>
<td>PBAC</td>
<td>Pharmaceutical Benefits Advisory Committee</td>
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<td>PBS</td>
<td>Pharmaceutical Benefits Scheme</td>
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<td>PIM</td>
<td>Promising Innovative Medicines</td>
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<td>QALY</td>
<td>quality-adjusted life year</td>
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<td>QOL</td>
<td>quality of life</td>
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<td>RCT</td>
<td>randomized controlled trial</td>
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<td>SF-36</td>
<td>36 Item Short Form health survey</td>
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<td>SMC</td>
<td>Scottish Medicines Consortium</td>
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<td>SOC</td>
<td>standard of care</td>
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<td>TA</td>
<td>technology appraisals</td>
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<td>ultra-orphan</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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References


Slide 5

Slide 45