Background

Rationale for Functional Dyspepsia (FD) Working Group (WG)

- PRO Consortium member representatives and FDA advisors identified FD as an area lacking a “well-defined and reliable” measure of treatment benefit

Goal of the FD WG

- To develop a PRO measure to assess the symptoms of FD for use in clinical trials as a primary endpoint measure to establish treatment benefit

Targeted Labeling Language

- The PRO measure would support an indication for the treatment of the FD subtype as defined by the Rome III diagnostic criteria: 1) Postprandial distress syndrome (PDS), which includes symptoms such as postprandial fullness and early satiety; 2) Epigastric pain syndrome (EPS), which involves symptoms such as epigastric pain and burning; or 3) Co-existing PDS and EPS subtypes

Milestones

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<tr>
<th>Milestone</th>
<th>Expected Date</th>
<th>Completed Date</th>
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<tbody>
<tr>
<td>Vendor selection and contracting</td>
<td>SEP 2012</td>
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<tr>
<td>Complete background research (Literature Review Report and Expert Panel input)</td>
<td>AUG 2013</td>
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<tr>
<td>Submit Literature Review and Concept Elaboration Protocol to FDA for consultation and advice</td>
<td>OCT 2013</td>
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<tr>
<td>Received written comments from the FDA</td>
<td>DEC 2013</td>
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<tr>
<td>Submitted working group’s responses to FDA comments</td>
<td>FEB 2014</td>
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<tr>
<td>Complete initial concept elicitation interviews and generate items (concept elicitation interviews, item generation, expert panel input)</td>
<td>MAR 2015</td>
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<tr>
<td>Complete translatibility and electronic implementation assessments</td>
<td>APR 2015</td>
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<tr>
<td>Complete cognitive interviews and revise instrument</td>
<td>FEB 2017</td>
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<tr>
<td>Submitted Qualification Briefing Package to FDA for exploratory use of Functional Dyspepsia Symptom Diary (FDSD)</td>
<td>NOV 2017</td>
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Highlights

Example Endpoint Model for Treatment of FD – Postprandial Distress Syndrome (PDS) Subtype

- Endpoint Hierarchy: Concept(s) | Endpoint Type
- Primary: Total Symptom Score (stomach burning, stomach pain, bloating, postprandial fullness, early satiety) | PRO

Example Endpoint Model for Treatment of FD – Epigastric Pain Syndrome (EPS) Subtype

- Endpoint Hierarchy: Concept(s) | Endpoint Type
- Primary: Total Symptom Score (stomach burning, stomach pain, bloating, postprandial fullness, early satiety) | PRO

Example Endpoint Model for Treatment of FD – Co-existing PDS and EPS Symptoms

- Endpoint Hierarchy: Concept(s) | Endpoint Type
- Primary: Total Symptom Score (stomach burning, stomach pain, bloating, postprandial fullness, early satiety) | PRO

Target Population

- U.S. adult patients aged 18 years and older, with a diagnosis of FD (including PDS, EPS, or both) according to the Rome III diagnostic criteria, inclusive of a recent negative endoscopy
- Exclusion criteria include the following conditions: patients with gastroparesis, active irritable bowel syndrome, active chronic constipation, and active GERD (list not exhaustive)

Conceptual Framework

![Functional Dyspepsia (FD) Conceptual Framework](image)

- Stomach Burning
- Stomach Pain
- Upper Abdominal Bloating
- Postprandial Fullness
- Early Satiation
- Nausea*
- Excessive Burping/Belching*

*Supplementary items included in FDSD are not included in the TSS nor used in trial endpoints (to be scored as individual items)

Measure – Functional Dyspepsia Symptom Diary (FDSD)

Core items: Five core symptom domains plus two supplementary domains

Recall Period: 24-hour

Response Options: 11-point numeric rating scale

Symptom Attribute: Severity was chosen based on patient descriptions of FD symptom experience

Data Collection Mode: Handheld smartphone device used during cognitive interviews

Working Group Updates

Completed Activities

- FDSD Qualification Briefing Package submitted to the FDA for review

Information Dissemination

- Presentation at 2016 American Gastroenterology Association (AGA) Drug Development Conference: Clinical Endpoints in Upper GI Disorders and endorsement in their white paper

Unique Issues for the Working Group

- Recruitment challenges encountered in identifying patients with FD diagnosis that do not have other co-existing gastrointestinal (GI) disorders
- Very extensive list of exclusion criteria from FDA, further complicated by potential discrepancy between clinician-reported and patient-reported symptoms
- Compromise reached with the FDA’s Qualification Review Team to allow enrollment of patients with comorbid conditions for cognitive interviews with future evaluation planned regarding the impact of these comorbid conditions on the patients’ FD-symptom experience
- Challenge articulating concepts when developing several key items (i.e., early satiety and burping/belching)
- Item wording was successfully tested in cognitive interviews

Lessons Learned

- Do not assume an accepted definition of condition exists and that certain terminology is universally understood (e.g., conceptual framework and conceptual model)
- PRO instrument development may raise questions regarding disease definition that require significant amount of time and cross-functional knowledge to align with FDA
- When possible, consult recruiting agencies and clinical sites to assess feasibility of inclusion/exclusion criteria before finalizing
- Despite FDA’s interest in having the instrument development sample free of confounding conditions (i.e., a “pure FD” sample), it is critical that the sample represents the real-world FD population to ensure that future research is feasible and relevant

Working Group Participants

<table>
<thead>
<tr>
<th>Company/Organization</th>
<th>Representatives</th>
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<tbody>
<tr>
<td>Allergan</td>
<td>Robyn T. Carson, MPH (Co-Chair); Steven J. Shiff, MD</td>
</tr>
<tr>
<td>Ironwood Pharmaceuticals, Inc.</td>
<td>David Reaer, PhD (Co-Chair); Jennifer Hanlon, MPH</td>
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<tr>
<td>Aspen Family Foundation</td>
<td>Catherine Foley, PhD</td>
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<tr>
<td>Brian E. Lacy, MD, PhD</td>
<td>Dartmouth-Hitchcock Medical Center</td>
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<tr>
<td>Henry P. Parkman, MD</td>
<td>Temple University</td>
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<tr>
<td>Jan Tack, MD, PhD</td>
<td>University of Leuven</td>
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<tr>
<td>Nicholas Talley, MD, PhD</td>
<td>University of Newcastle</td>
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Contract Research Organization

- Research Team

Adelphi Values

- Alan Shields, PhD; Fiona Taylor, MBA/oem; Catherine Foley, MPH, MA; Sophie Higgins, MPH; Emily Brennan, MPH; Megan Daggett, BA

ePRO System Provider

- Representative

Biomedical Systems

- Serge Bodart, MS (at time of study)