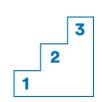# Solution selection playbook overview

DEFINE

 i. Follow the 3-step framework

Step 3
Prioritization

Step 2
Segmentation

Step 1
Problem space

This process helps to narrow down the broad range of patient unmet needs, and turn them into streamlined solutions

SYNTHESIZE

 ii. Immediate lookouts - high impact areas

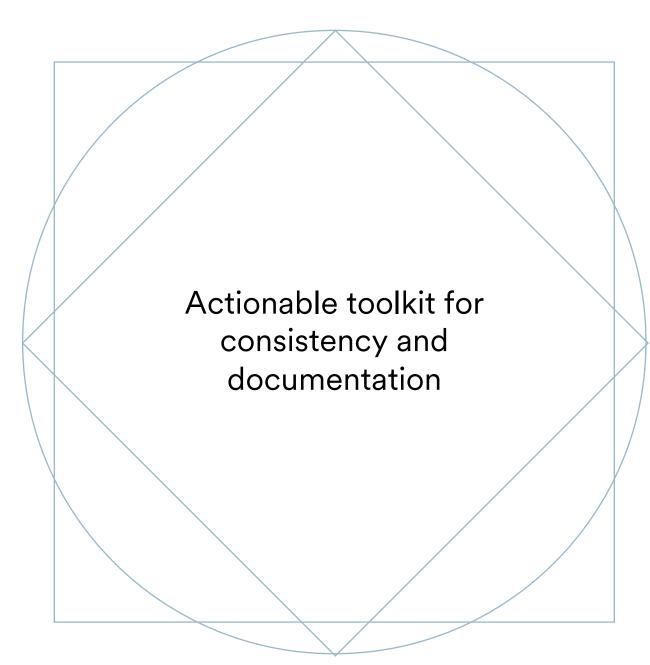High impact problem and opportunity areas

Common patterns emerged during our research and synthesis that can be considered as immediate lookouts for cross-TA, high patient impact areas.

RECORD

 iii. Compile key decisions into a blueprint

Actionable toolkit for consistency and documentation

A codified way of working that outputs a toolkit to engage with stakeholders for consistency and continuity.

i. Follow the 3-step framework   ii. Immediate lookouts - high impact areas   iii. Compile a PT centric data-oriented blueprint

DEFINE: A 3-step framework to shortlist solutions

Turning research insights into actionable guides – this process helps to narrow down the broad range of patient unmet needs, and turn them into streamlined solutions

3-step framework overview

Understand the gaps & opportunities across patient journey

01

Problem space

What problem are we solving and how

Use patient segmentation to guide intervention

02

Segmentation

How to choose more suitable solutions
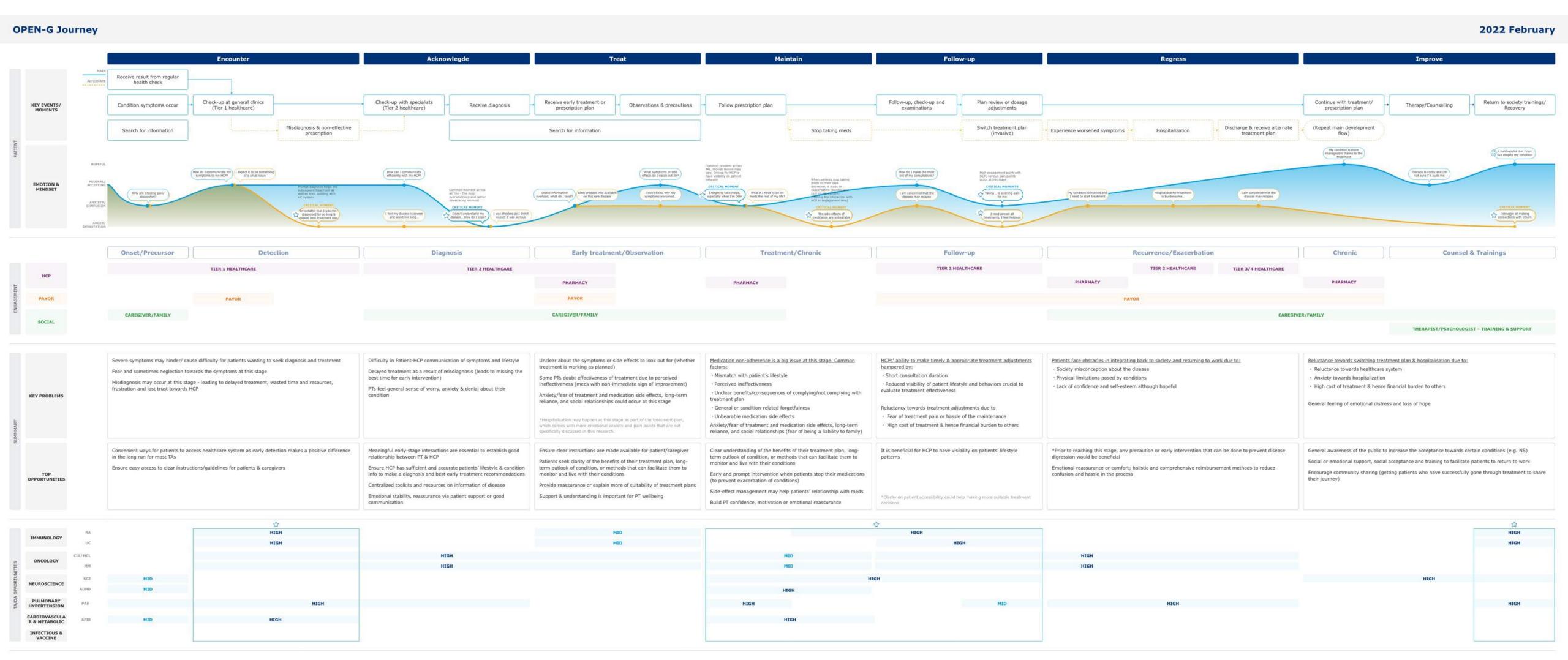
Prioritize solutions based on value to patient, HCP & JPKK

03

Prioritization
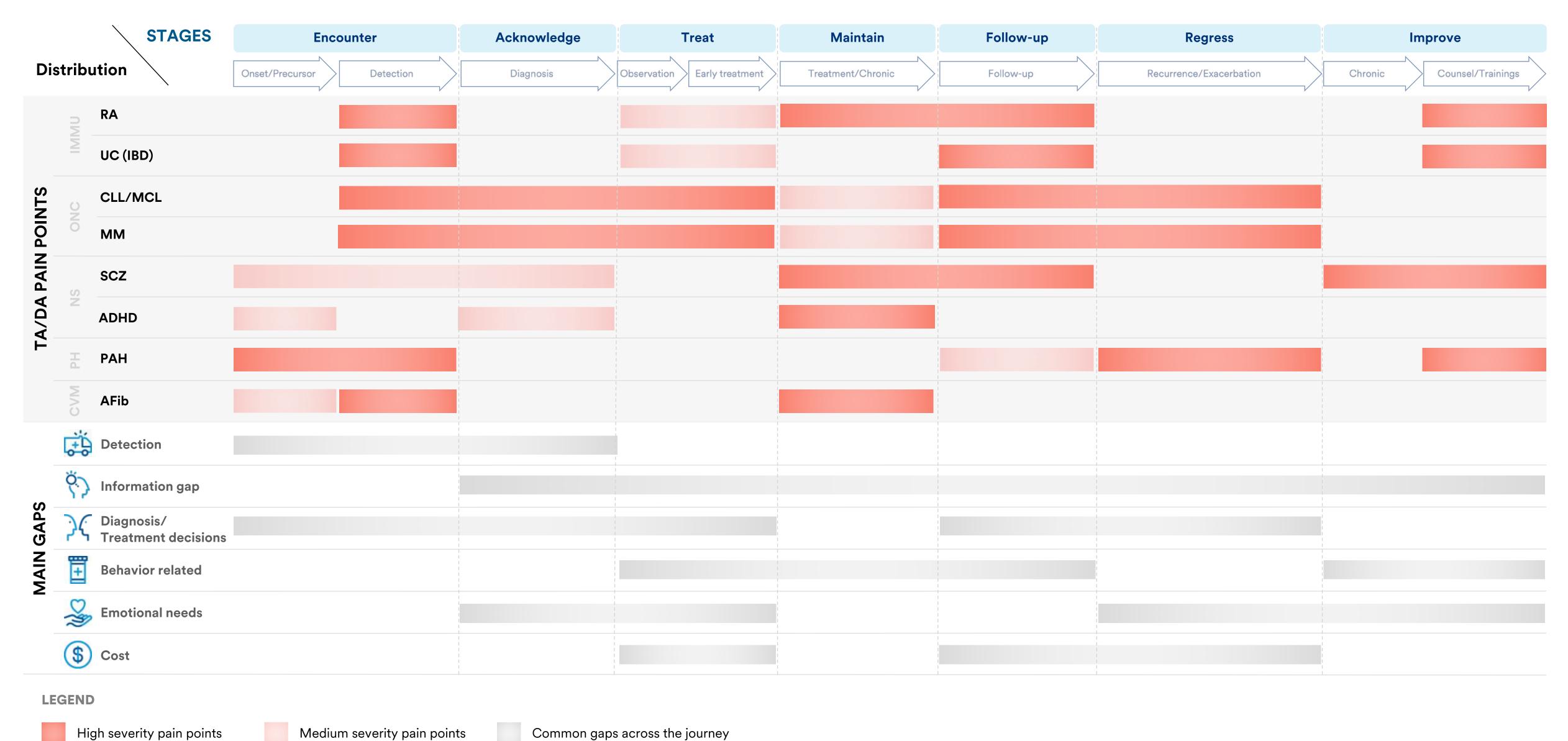
Which solutions to consider first

Patient journey map

A catalogue of key events, engagement, pain points and opportunities throughout the patient journey

OPEN-G Journey 2022 February

| Encounter | Acknowlegde | Treat | Maintain | Follow-up | Regress | Improve |

PATIENT

KEY EVENTS/ MOMENTS

MAIN / ALTERNATE

Receive result from regular health check

Condition symptoms occur — Check-up at general clinics (Tier 1 healthcare) — Check-up with specialists (Tier 2 healthcare) — Receive diagnosis — Receive early treatment or prescription plan — Observations & precautions — Follow prescription plan — Follow-up, check-up and examinations — Plan review or dosage adjustments — Continue with treatment/ prescription plan — Therapy/Counselling — Return to society trainings/ Recovery

Search for information — Misdiagnosis & non-effective prescription — Search for information — Stop taking meds — Switch treatment plan (invasive) — Experience worsened symptoms — Hospitalization — Discharge & receive alternate treatment plan — (Repeat main development flow)

EMOTION & MINDSET

HOPEFUL / NEUTRAL/ ACCEPTING / ANXIETY/ CONFUSION / ANGER/ DEVASTATION

ENGAGEMENT

| Onset/Precursor | Detection | Diagnosis | Early treatment/Observation | Treatment/Chronic | Follow-up | Recurrence/Exacerbation | Chronic | Counsel & Trainings |

HCP
TIER 1 HEALTHCARE — TIER 2 HEALTHCARE — TIER 2 HEALTHCARE — TIER 2 HEALTHCARE — TIER 3/4 HEALTHCARE
PHARMACY — PHARMACY — PHARMACY — PHARMACY

PAYOR
PAYOR — PAYOR — PAYOR

SOCIAL
CAREGIVER/FAMILY — CAREGIVER/FAMILY — CAREGIVER/FAMILY
THERAPIST/PSYCHOLOGIST – TRAINING & SUPPORT

SUMMARY

KEY PROBLEMS

Severe symptoms may hinder/ cause difficulty for patients wanting to seek diagnosis and treatment. Fear and sometimes neglection towards the symptoms at this stage. Misdiagnosis may occur at this stage - leading to delayed treatment, wasted time and resources, frustration and lost trust towards HCP

Difficulty in Patient-HCP communication of symptoms and lifestyle. Delayed treatment as a result of misdiagnosis (leads to missing the best time for early intervention). PTs feel general sense of worry, anxiety & denial about their condition

Unclear about the symptoms or side effects to look out for (whether treatment is working as planned). Some PTs doubt effectiveness of treatment due to perceived ineffectiveness (meds with non-immediate sign of improvement). Anxiety/fear of treatment and medication side effects, long-term reliance, and social relationships could occur at this stage
*Hospitalization may happen at this stage as part of the treatment plan, which comes with more emotional anxiety and pain points that are not specifically discussed in this research.

Medication non-adherence is a big issue at this stage. Common factors:
· Mismatch with patient's lifestyle
· Perceived ineffectiveness
· Unclear benefits/consequences of complying/not complying with treatment plan
· General or condition-related forgetfulness
· Unbearable medication side effects
Anxiety/fear of treatment and medication side effects, long-term reliance, and social relationships (fear of being a liability to family)

HCPs' ability to make timely & appropriate treatment adjustments hampered by:
· Short consultation duration
· Reduced visibility of patient lifestyle and behaviors crucial to evaluate treatment effectiveness
Reluctancy towards treatment adjustments due to:
· Fear of treatment pain or hassle of the maintenance
· High cost of treatment & hence financial burden to others

Patients face obstacles in integrating back to society and returning to work due to:
· Society misconception about the disease
· Physical limitations posed by conditions
· Lack of confidence and self-esteem although hopeful

Reluctance towards switching treatment plan & hospitalisation due to:
· Reluctance towards healthcare system
· Anxiety towards hospitalization
· High cost of treatment & hence financial burden to others
General feeling of emotional distress and loss of hope

TOP OPPORTUNITIES

Convenient ways for patients to access healthcare system as early detection makes a positive difference in the long run for most TAs. Ensure easy access to clear instructions/guidelines for patients & caregivers

Meaningful early-stage interactions are essential to establish good relationship between PT & HCP. Ensure HCP has sufficient and accurate patients' lifestyle & condition info to make a diagnosis and best early treatment recommendations. Centralized toolkits and resources on information of disease. Emotional stability, reassurance via patient support or good communication

Ensure clear instructions are made available for patient/caregiver. Patients seek clarity of the benefits of their treatment plan, long-term outlook of condition, or methods that can facilitate them to monitor and live with their conditions. Provide reassurance or explain more of suitability of treatment plans. Support & understanding is important for PT wellbeing

Clear understanding of the benefits of their treatment plan, long-term outlook of condition, or methods that can facilitate them to monitor and live with their conditions. Early and prompt intervention when patients stop their medications (to prevent exacerbation of conditions). Side-effect management may help patients' relationship with meds. Build PT confidence, motivation or emotional reassurance

It is beneficial for HCP to have visibility on patients' lifestyle patterns. *Clarity on patient accessibility could help making more suitable treatment decisions

*Prior to reaching this stage, any precaution or early intervention that can be done to prevent disease digression would be beneficial. Emotional reassurance or comfort; holistic and comprehensive reimbursement methods to reduce confusion and hassle in the process

General awareness of the public to increase the acceptance towards certain conditions (e.g. NS). Social or emotional support, social acceptance and training to facilitate patients to return to work. Encourage community sharing (getting patients who have successfully gone through treatment to share their journey)

TA/GA OPPORTUNITIES

		Onset	Detection	Diagnosis	Early treat	Treatment	Follow-up	Recurrence	Chronic	Counsel
IMMUNOLOGY	RA		HIGH		MID	HIGH				HIGH
	UC		HIGH		MID	HIGH				HIGH
ONCOLOGY	CLL/MCL			HIGH	MID		HIGH			
	MM			HIGH	MID		HIGH			
NEUROSCIENCE	SCZ	MID			HIGH				HIGH	
	ADHD	MID		HIGH						
PULMONARY HYPERTENSION	PAH		HIGH	HIGH		MID		HIGH		
CARDIOVASCULAR & METABOLIC	AFIB	MID	HIGH	HIGH					HIGH	
INFECTIOUS & VACCINE										

Note: More details on different stages of the patient journey can be found in the extended section. Remember, this is an evolving asset that can be updated frequently.   Step 1: Problem space

Distribution of pain points & main gaps across the patient journey

STAGES

Stage	Sub-stage(s)
Encounter	Onset/Precursor, Detection
Acknowledge	Diagnosis
Treat	Observation, Early treatment
Maintain	Treatment/Chronic
Follow-up	Follow-up
Regress	Recurrence/Exacerbation
Improve	Chronic, Counsel/Trainings

Distribution

TA/DA PAIN POINTS

- IMMU: RA, UC (IBD)
- ONC: CLL/MCL, MM
- NS: SCZ, ADHD
- PH: PAH
- CVM: AFib

MAIN GAPS

- Detection
- Information gap
- Diagnosis/Treatment decisions
- Behavior related
- Emotional needs
- Cost

LEGEND

- High severity pain points
- Medium severity pain points
- Common gaps across the journey

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Step 1: Problem space

Step 2: Use patient **segmentation** to guide suitable solutions & interventions

Patient segmentation help us to choose solutions more effectively. It informs us about the type of solution that works the best for different patient archetypes. Again, it is applicable to broad range of patients' agnostic of TA/DA.

01
Understand the pain-points & opportunities across patient journey

Problem space

What problem are we solving and how

02
Use patient segmentation to guide intervention

Segmentation

How to choose more suitable solutions

03
Prioritize solutions based on value to patient, HCP & JPKK

Prioritization

Which solutions to consider first

Four patient segmentation criteria that affect effectiveness of solutions

Autonomy

Whether patients could complete tasks on their own, without the additional assistance from family/caregiver.

KEY FACTORS

- Severity
- Control
- Level of attention

Motive

Emotions/mindset (self-efficacy) of patient affects effectiveness of intervention tactics and pattern of patients' behaviours.

KEY FACTORS

- Motivation
- Proactiveness
- Disease relation
- Independent health decisions
- Emotional distress
- Acceptance
- Stage
- Confidence

TA/DA

Receptiveness

Patient receptiveness towards various treatments, interventions and HCP advice. Patient willingness to socialize with peers with the same TA/DA.

KEY FACTORS

- Trust & openness
- Receptiveness
- Sociability

Accessibility

Whether patients could access and use the intervention solution without any barriers.

KEY FACTORS

- Availability of care
- Accessibility to healthcare
- Digital fluency
- Affordability

LEGEND

● Key factors influencing the effectiveness of type of patient-facing solution

e.g.: How effective is a participatory medication tracking app for a patient in the 'high autonomy, motive & receptiveness' segmentation?

● Key factors determining the suitability of specific solution's implementation, delivery method, etc.

e.g.: Do we need to collect data on patient's bowel movements (UC) or pain level (RA)? Can a patient afford certain technology or treatment options?

Note: See extended section for more details on how these criteria are derived.

Tracking solution influenced by autonomy & motive

High motive

Automatic tracking

Tracking solutions that requires minimal input and effort from patients.

e.g. AbilifyMyCite pills

Participatory tracking

Input tracker for patients.

Using reminders to reinforce and form positive behaviors.

e.g. Care4Today

Low autonomy

High autonomy

Other interventions/technology

New technology interventions, or support programs to supplement tracking solution.

e.g. Skin reminders

High engagement tracking

Solution with additional incentives to motivate & engage users, such as gamification or rewards.

e.g. -

Low motive

[1] Patients that are less able to manage their disease are shown to benefit from adherence devices with greater levels of surveillance. [source]

[2] Empirical studies lend support to the effectiveness of incentive-based tracking with medication adherence. Gamified tracking solutions can also bring about more desirable health behaviors through the support of intrinsic motivation & wellbeing uplift. [source 1] | [source 2]

Step 03: **Prioritize** solutions based on value to key players

Knowing the detailed value output can help us to prioritize and decide on detailed solution to pursue. This section of the framework should incorporate the inputs from the key stakeholders of the initiative to have a comprehensive and balanced evaluation.
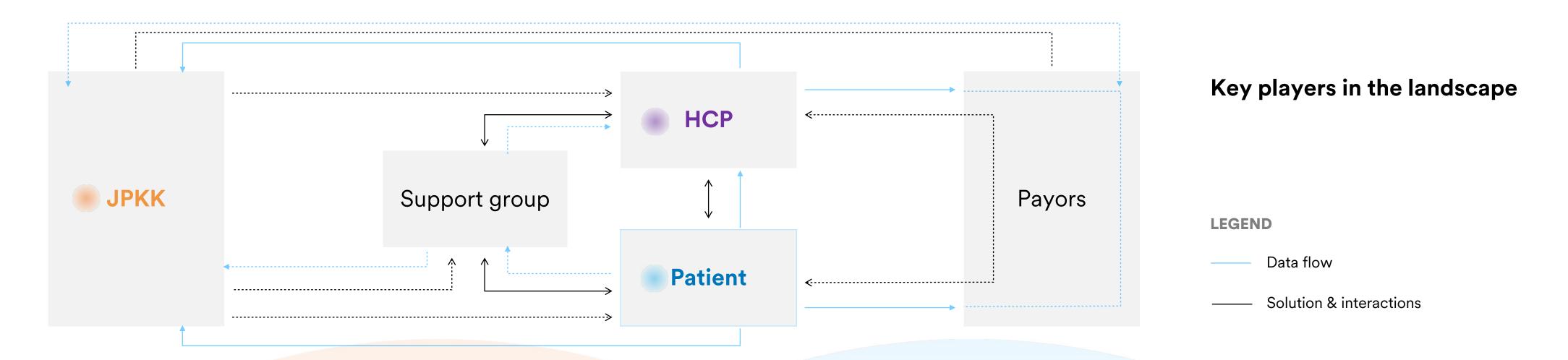
Understand the pain-points & opportunities across patient journey

01

Use patient segmentation to guide intervention

02

Prioritize solutions based on value to patient, HCP & JPKK

03

Problem space

What problem are we solving and how

Segmentation

How to choose more suitable solutions

Prioritization

Which solutions to consider first

Using JPKK, HCP and patients' value needs* to produce an evaluation rubrics
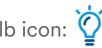
Key players in the landscape

LEGEND

— Data flow (blue)

— Solution & interactions (black)

Value to JPKK

RWD & RWE

Data access

Data insights

Data platform

Range of impact

Commercial

Scalability

Competitiveness of solution

Novelty level

Cost reduction

Brand recognition

Exclusiveness

Value to HCP

Patient communication

Channel or tools to reach and support Pts

Improved Pt mindset

Pt discovery (tent)

Optimal decision making

Diagnostics & treatment

Ease of use

Data access

Cost reduction

Solution

Save for future HC

Value to Patient

Improvement in disease management

QOL

Condition

Perception

Improvement in accessibility

Social support

HCP comms

Healthcare solution

Note: Mainly focused on patient, HCP and JPKK in this proposed evaluation scheme – this should be defined by key stakeholders and key users in the initiative   Step 3: Prioritization

Shortlisted solutions across the 5 opportunity spaces 💡

Based on rubrics examples for patient, HCP & JPKK

Awareness/Info	Info toolkit or illustrated discussion guides, for patients, (family and friends) to describe the symptoms to the doctors	Tools with checklist and info on the symptoms & corresponding actions	Info program to patients that explains the benefits of treatments	–
HCP – Pt. communication	Track & seamlessly communicate symptoms and irregular medication intake patterns to HCP	Intelligent system that assist HCP in decision making	–	–
Patient support	Forum to connect patients of the same condition/diagnosis	Adding psychological intervention into normal treatment plans for better result	–	–
Sensors & tracking	Self monitoring digital therapy tools (for socio-emotional management)	Rewards and gamification system to promote better adherence behavior (building habits)	Solution that prioritize effective reminders to achieve a closed loop system*	–
Emerging healthcare solution	System that syncs patient info & data across different medical intuitions to minimize repeated information	VR Programs for pain/side effect management or better simulation & articulation of symptoms	Consultation with simulation tools (e.g., VR) for PT to manage symptoms and anticipate therapy procedures	Voice AI social care bot

LEGEND

🔵 Great value to patient 🟣 Great value to HCP 🟠 Great value to JPKK

Note: Shortlisted solutions can also be found on the patient journey map, indicated with a lightbulb icon: 💡

i. Follow the 3-step framework   **ii. Immediate lookouts - high impact areas**   iii. Compile PT-centric data-oriented blueprint
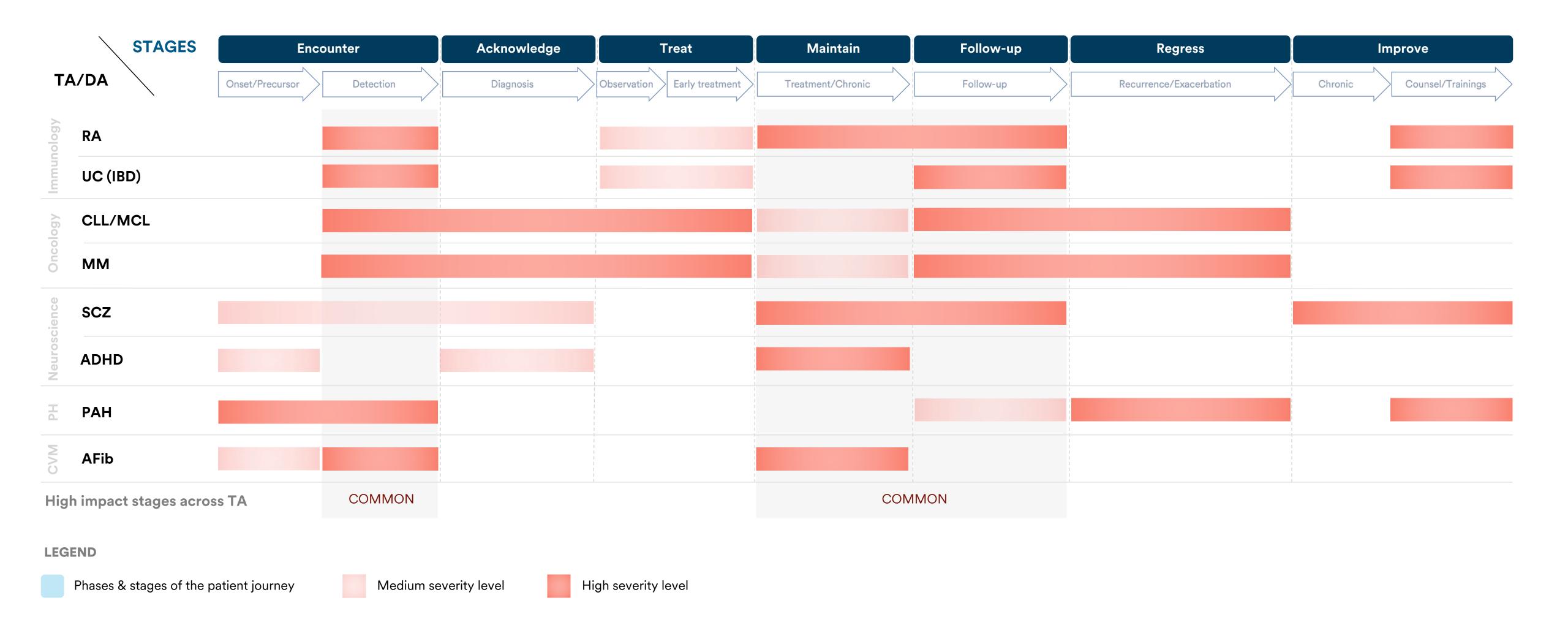
SYNTHESIZE: Immediate lookouts for cross-TA, high patient impact areas

Some common patterns that emerged during our research and synthesis – these can be considered as immediate lookouts for cross-TA, high patient impact areas.
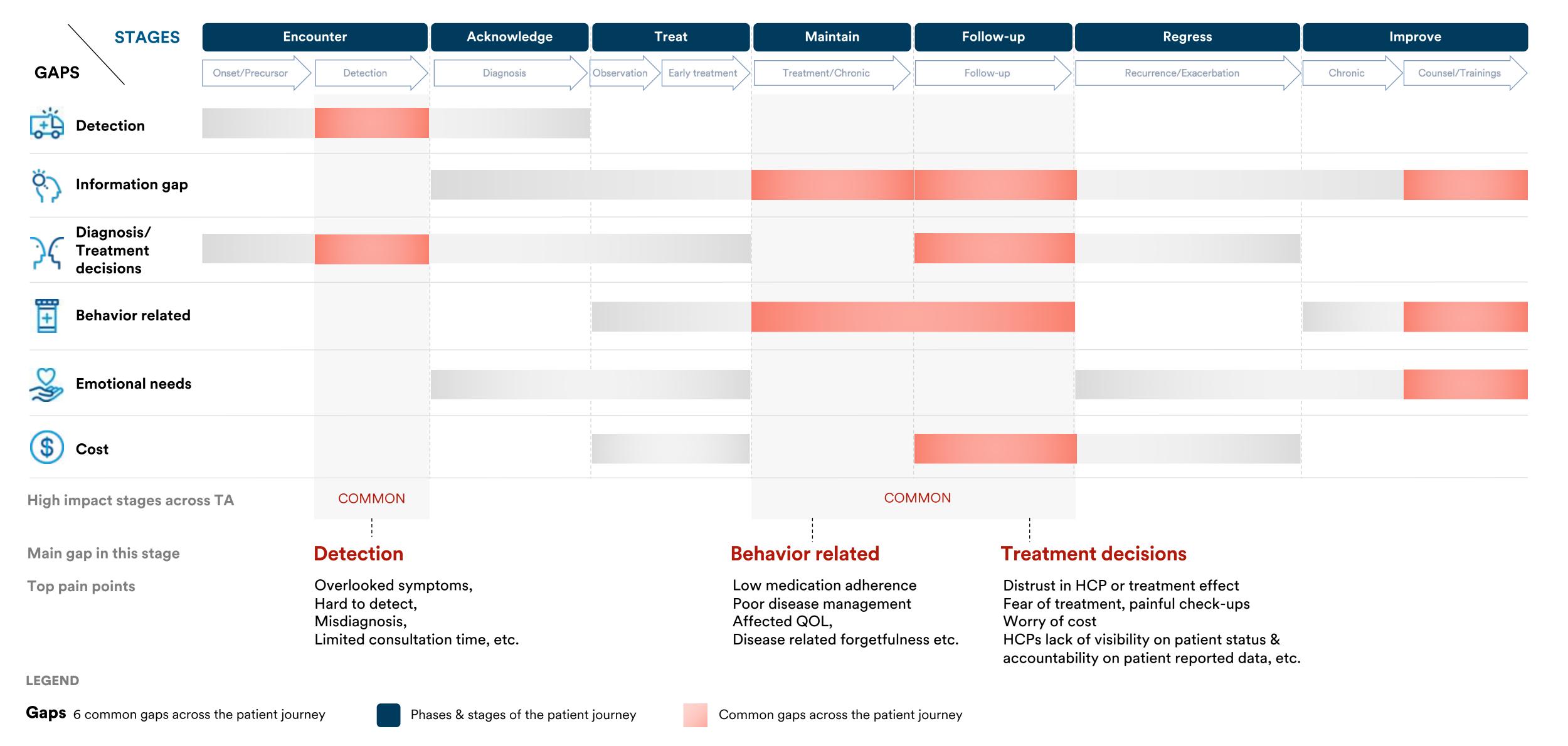
There's high occurrence, overlapping pain points in Detection, Chronic/Treatment and Follow-up stages across the journey which indicates high cross-TA/DA impact

STAGES

	Encounter	Acknowledge	Treat	Maintain	Follow-up	Regress	Improve

TA/DA

Onset/Precursor → Detection | Diagnosis | Observation → Early treatment | Treatment/Chronic | Follow-up | Recurrence/Exacerbation | Chronic | Counsel/Trainings

Immunology
- RA
- UC (IBD)

Oncology
- CLL/MCL
- MM

Neuroscience
- SCZ
- ADHD

PH
- PAH

CVM
- AFib

High impact stages across TA   COMMON   COMMON

LEGEND

☐ Phases & stages of the patient journey   ☐ Medium severity level   ☐ High severity level
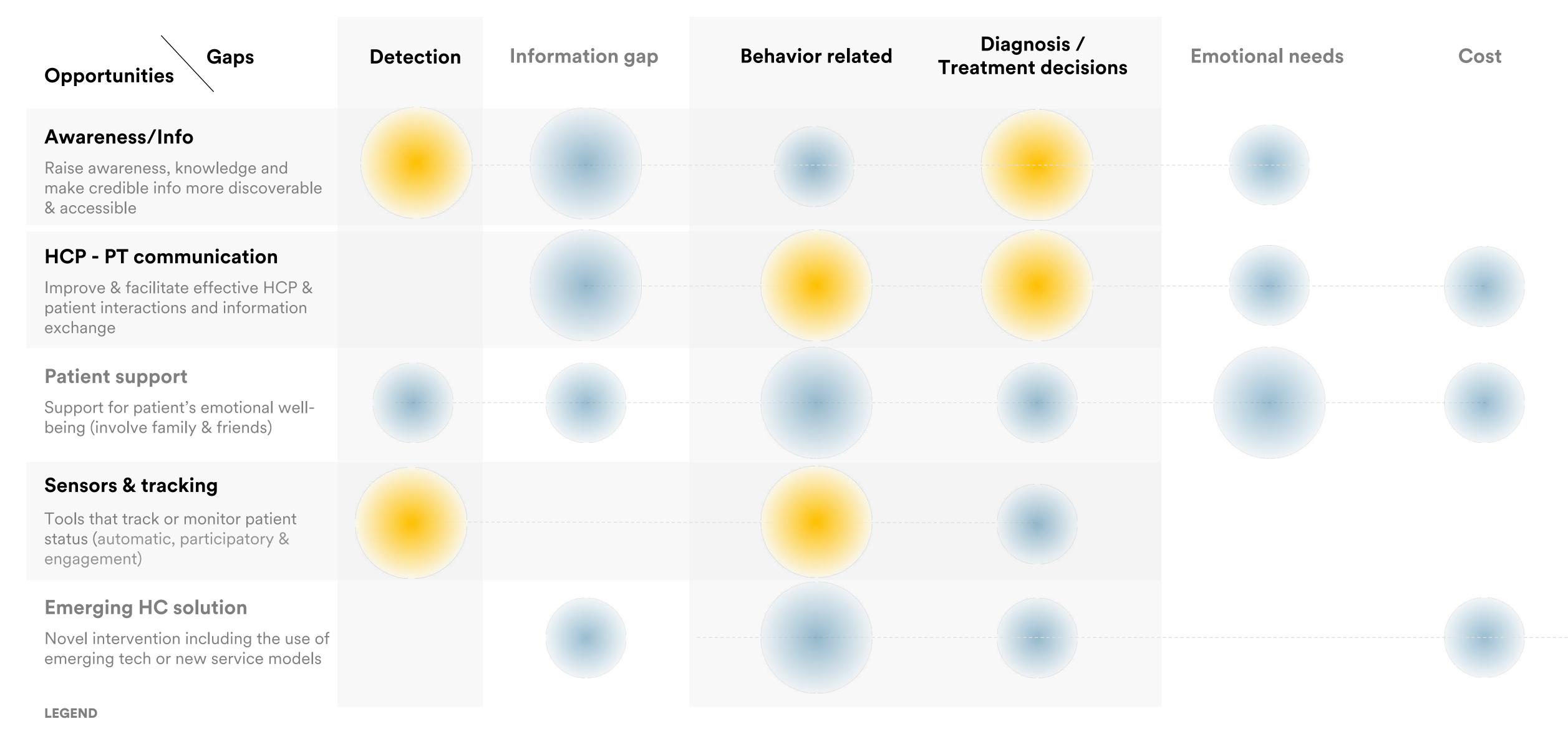
*Severity level is based on patients' pain points, impact on QoL or level of emotional distress

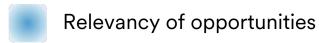Note: Current insights are based on secondary research, without direct reach to patients or TA leads

Sources: [1] Deloitte, 2021, Phase 1 Final Report Project OPEN-G, [2] 2021, MM/CAR-T Patient + Stakeholder Experience, [3] 2018, AF Personas_Xeralto

Immediate lookouts– high impact areas

Unfolding the main gaps and top pain points in high impact stages

STAGES

Encounter	Acknowledge	Treat	Maintain	Follow-up	Regress	Improve

GAPS

Onset/Precursor	Detection	Diagnosis	Observation	Early treatment	Treatment/Chronic	Follow-up	Recurrence/Exacerbation	Chronic	Counsel/Trainings

Gaps (rows):
- Detection
- Information gap
- Diagnosis/ Treatment decisions
- Behavior related
- Emotional needs
- Cost

High impact stages across TA

COMMON   COMMON

Main gap in this stage

Detection   **Behavior related**   **Treatment decisions**

Top pain points

Overlooked symptoms,   Low medication adherence   Distrust in HCP or treatment effect
Hard to detect,   Poor disease management   Fear of treatment, painful check-ups
Misdiagnosis,   Affected QOL,   Worry of cost
Limited consultation time, etc. Disease related forgetfulness etc. HCPs lack of visibility on patient status &
                                                                 accountability on patient reported data, etc.

LEGEND

Gaps 6 common gaps across the patient journey   ■ Phases & stages of the patient journey   Common gaps across the patient journey

Note: Current insights are based on secondary research, without direct reach to patients or TA leads   Immediate lookouts– high impact areas

Highlighting the opportunity areas that may create high cross - TA/DA impact

Opportunities / **Gaps**

Opportunities	Detection	Information gap	Behavior related	Diagnosis / Treatment decisions	Emotional needs	Cost
Awareness/Info — Raise awareness, knowledge and make credible info more discoverable & accessible	● (high)	●	●	● (high)	●	
HCP - PT communication — Improve & facilitate effective HCP & patient interactions and information exchange		●	● (high)	● (high)	●	●
Patient support — Support for patient's emotional well-being (involve family & friends)	●	●	●	●	●	●
Sensors & tracking — Tools that track or monitor patient status (automatic, participatory & engagement)	● (high)		● (high)	●		
Emerging HC solution — Novel intervention including the use of emerging tech or new service models		●	●	●		●

LEGEND

Gaps Main gaps across journey   ● Relevancy of opportunities   ● High relevancy opportunity areas

Shortlisting ideas based on patient segmentation details

Main gaps

Pain points

Detection
Overlooked symptoms,
Hard to detect,
Misdiagnosis,
Limited consultation time, etc.

Behavior related
Low medication adherence
Poor disease management
Affected QOL,
Disease related forgetfulness etc.

Treatment decisions
Distrust in HCP or treatment effect
Fear of treatment, painful check-ups
Lack of visibility & distrust in patient reported data
Worry of cost

Patient segmentation
High autonomy
High motive
High receptiveness

Form, **reinforce** and enhance the **behaviour**

Opportunities

Awareness/Info

Bite-size, clear and upfront information that reduces cognitive overload on HCP, PT & caregivers (principle)

Centralized platform* & AI service for all disease related info (e.g.: checklist of symptoms, information of corresponding actions) (both HCP <Tier 1> & PT)

HCP trainings or info kits | Info program/tools* that explains treatment details (e.g.: benefits & consequences)

Janssen With Me ®

HCP – PT communication

HCP dashboard (clinical support tools) to assist HCP in understanding patient insights and make relevant decisions

YADOC · welby · COHESIC · RAMP

Patient insights

IQVIA · phys iQ accelerate iQ · WebMD

Tracks and seamlessly communicate PT symptoms and irregular medication pattern to HCP (or support group)

Integrated system of in-person & remote consultation or communication tools

System that syncs patient info & data across institutions

Individual Number Card

Sensors & tracking

Self management platform* (e.g.: info, appointment scheduling, medication history, symptom & socio-emotional management)

welby · care4today · YADOC · Medisafe · +medi · IBD · LIVINGWITH

Close-loop tracking systems* (e.g.: effective reminders, gamification schemes, etc.)

Digital therapeutic tools*

*The format includes but is not limited to digital app, website, mixed-reality programs, interactive robots, intervention from support group, etc.

Immediate lookouts– high impact areas

Case studies: Cross TA application examples for prioritized solutions

Prioritized solutions that provides **access to data / evidence** on patient or HCP (behavior, preferences, treatment effect, etc.) and the pain points they address.

Behavior related

Low medication adherence
Disease related forgetfulness etc.

Treatment decisions

Lack of visibility & distrust in patient reported data
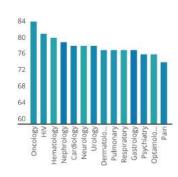
Patient segmentation

High autonomy
High motive
High receptiveness

Form, **reinforce** and enhance the **behaviour**

e.g.: Help the patient to form a habit with the use of reminders

HCP – PT communication	**HCP dashboard (clinical support tools) to assist HCP in understanding patient insights and make relevant decisions**
Sensors & tracking	**Self management platform* (e.g.: info, appointment scheduling, medication history, symptom & socio-emotional management)**

Medisafe – Medication management

With a primary focus on the space of medication adherence, Medisafe offers various features to help patients with medication management, including onboarding guide, behavioral interventions (e.g.: reminders), personalized and proactive interventions. LINK
It aggregates ePROs into real-world insights of medication behaviors across multiple TA areas. LINK

Behavior related

AOZORA – Medication Check Task Alert for ADHD
IBD supplement – Visualization of symptoms of Crohn's disease and ulcerative colitis

While both are self-management applications, AOZORA provides patients with task reminder feature, whereas IBD supli provides symptom recording & reporting features, enables shared decision making between HCPs and patients.

Behavior related   Treatment decisions

YaDoc is an example where HCP dashboard and self management platform are integrated into one solution package. It allows patient to record symptoms, fill in questionnaires prior to consultations, as well as enables remote consultation between patient and HCPs.

While the default features are more generic, they are customizable to fit the needs of different diseases.

Behavior related   Treatment decisions

*The format includes but is not limited to digital app, website, mixed-reality programs, interactive robots, intervention from support group, etc.   Immediate lookouts– high impact areas

i. Follow the 3-step framework

ii. Immediate lookouts - high impact areas

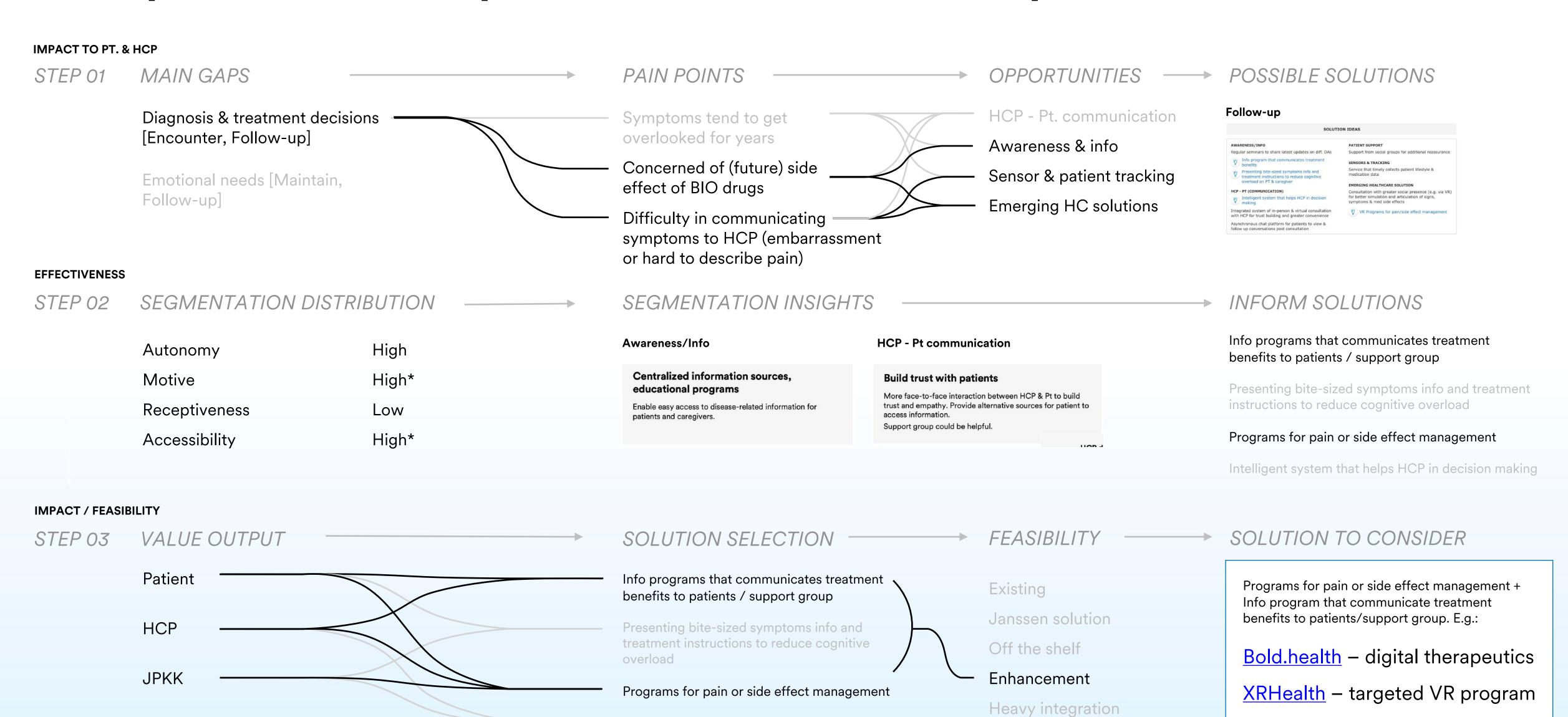**iii. Compile a PT centric data-oriented blueprint**

RECORD: A blueprint that compiles the patient, solution and data demands

A codified way of working that outputs a toolkit to engage with stakeholders – it helps to set a common ground of understanding, captures and documents key decisions for consistency and continuity for new or cross-TA initiatives.

Example | Use the 3-step framework to inform a TA specific initiative

IMPACT TO PT. & HCP

STEP 01 *MAIN GAPS* → *PAIN POINTS* → *OPPORTUNITIES* → *POSSIBLE SOLUTIONS*

Diagnosis & treatment decisions [Encounter, Follow-up]

Emotional needs [Maintain, Follow-up]

Symptoms tend to get overlooked for years

Concerned of (future) side effect of BIO drugs

Difficulty in communicating symptoms to HCP (embarrassment or hard to describe pain)

HCP - Pt. communication

Awareness & info

Sensor & patient tracking

Emerging HC solutions

Follow-up

SOLUTION IDEAS

AWARENESS/INFO
Regular seminars to share latest updates on diff. DAs
- Info program that communicates treatment benefits
- Presenting bite-sized symptoms info and treatment instructions to reduce cognitive overload on PT & caregiver

HCP - PT (COMMUNICATION)
- Intelligent system that helps HCP in decision making
Integrated system of in-person & virtual consultation with HCP for trust building and greater convenience
Asynchronous chat platform for patients to view & follow up conversations post consultation

PATIENT SUPPORT
Support from social groups for additional reassurance

SENSORS & TRACKING
Service that timely collects patient lifestyle & medication data

EMERGING HEALTHCARE SOLUTION
Consultation with greater social presence (e.g. via VR) for better simulation and articulation of signs, symptoms & med side effects
- VR Programs for pain/side effect management

EFFECTIVENESS

STEP 02 *SEGMENTATION DISTRIBUTION* → *SEGMENTATION INSIGHTS* → *INFORM SOLUTIONS*

Autonomy	High
Motive	High*
Receptiveness	Low
Accessibility	High*

Awareness/Info

Centralized information sources, educational programs

Enable easy access to disease-related information for patients and caregivers.

HCP - Pt communication

Build trust with patients

More face-to-face interaction between HCP & Pt to build trust and empathy. Provide alternative sources for patient to access information.

Support group could be helpful.

Info programs that communicates treatment benefits to patients / support group

Presenting bite-sized symptoms info and treatment instructions to reduce cognitive overload

Programs for pain or side effect management

Intelligent system that helps HCP in decision making

IMPACT / FEASIBILITY

STEP 03 *VALUE OUTPUT* → *SOLUTION SELECTION* → *FEASIBILITY* → *SOLUTION TO CONSIDER*

Patient

HCP

JPKK

Info programs that communicates treatment benefits to patients / support group

Presenting bite-sized symptoms info and treatment instructions to reduce cognitive overload

Programs for pain or side effect management

Intelligent system that helps HCP in decision making

Existing

Janssen solution

Off the shelf

Enhancement

Heavy integration

Novel solution

Programs for pain or side effect management + Info program that communicate treatment benefits to patients/support group. E.g.:

Bold.health – digital therapeutics

XRHealth – targeted VR program

AppliedVR – training program