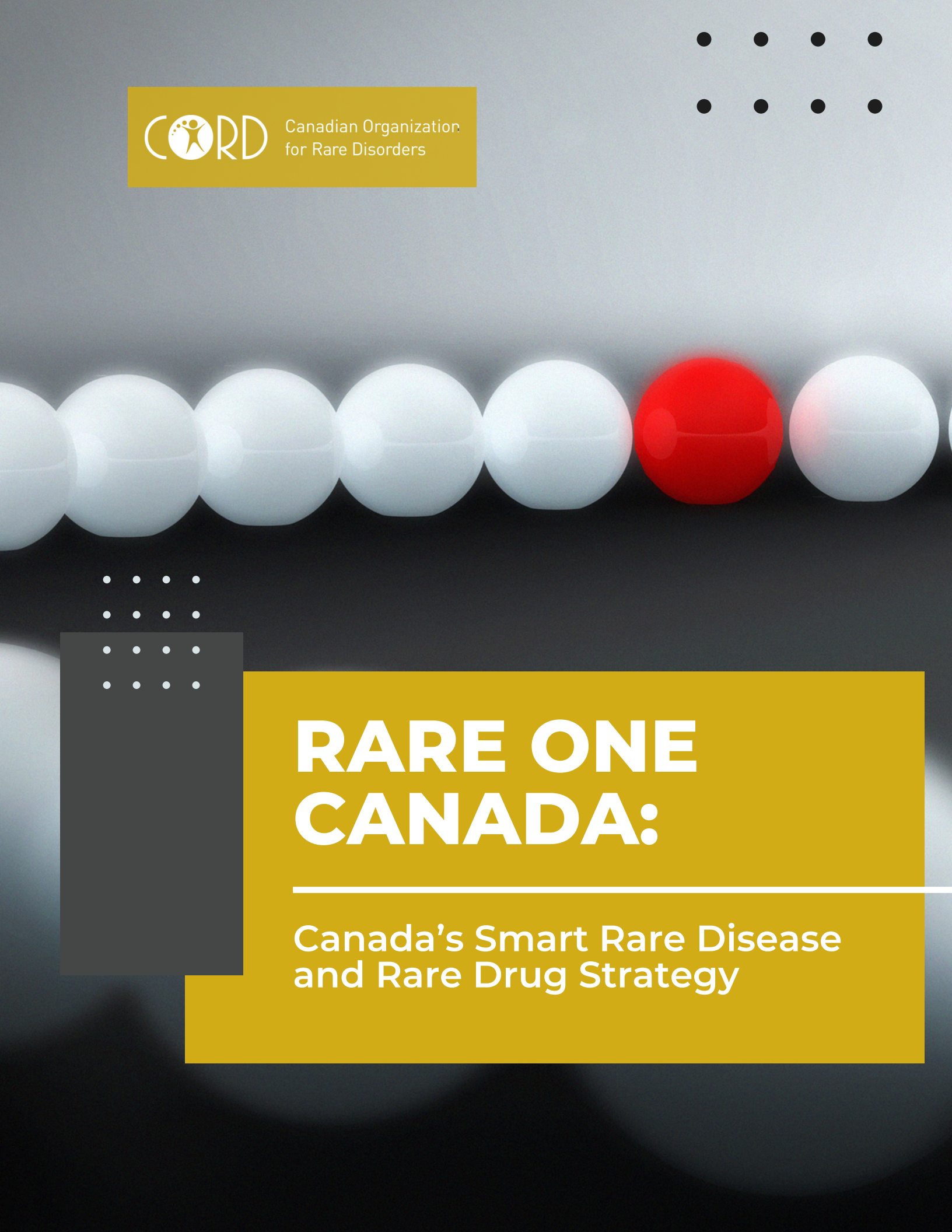


Canadian Organization for Rare Disorders

RARE ONE CANADA:

Canada's Smart Rare Disease and Rare Drug Strategy

WHERE ARE WE NOW AND WHERE DO WE NEED TO GO?

It is mid-2022. As we move closer to the launch of Canada's Rare Drug Strategy, CORD is stepping up consultations with five to six webinars in April and May and a two-day "in person" conference on June 8-9 in Ottawa. Our intended outcome is NOT a plan to allocate the $1 billion start-up funding nor the $500 million annual commitment. We are NOT proposing minor tweaks to address gaps in the system nor even incremental improvements. We are calling on all stakeholders to arrive at "as near a consensus as possible" on a complete re-imagining of a system from the bottom up and top down that is "fit for purpose" of assuring all Canadians have access to the best therapies as soon as they are available anywhere in the world.

This means reimaginig and executing a patient-centred rare disease system that assures every person, in as short a time as possible, gets an accurate diagnosis, sees a specialist, forms an individualized care, treatment, and support plan, is enrolled in a patient registry and referred to a patient support group, gets timely monitored access to the best treatment and, most important, has the knowledge and right to participate as a full partner in all health-related decisions. This is available for all Canadians, regardless of where they live, their insurance coverage or their ability to pay.

WHY IS RARE DISEASE A PUBLIC HEALTH ISSUE?

There are more Canadians with a rare disease than with all cancers, cardiovascular disease, diagnosed diabetes. Altogether, 3 million Canadians, about 1 in 12, have a rare disease. Moreover, while 80% of rare diseases are genetic, 50% have no known family history. So everyone is potentially at risk. Two-thirds of those affected are children, 30% of whom will not live to their fifth birthday. Sadly, in Canada, a child dies of a rare disease every 18 minutes.

In terms of economic impact, rare disease costs the Canadian economy about $111 billion per year in direct medical costs, nonmedical cost, and productivity costs.

WHY IS NOW THE TIME FOR CANADA'S SMART RARE DRUG STRATEGY?

Rare disease drugs are saving lives, preventing and reducing disability, allowing patients and families to live more "normal" productive lives, and, for some conditions, providing a long-lasting treatment or "cure." Rare disease research is leveraging genomic breakthroughs, advanced medical technologies, application of data science and artificial intelligence to big data, patient registries, and real-world data, multiple disease cell-and-gene therapy platforms, and remote patient engagement. So rare disease therapies are at the forefront of innovative research, providing solutions with impacts beyond rare diseases, including viruses, cancers, and cardiovascular diseases.

Thanks to the US and EU Orphan Drug Acts, about 600 new therapies have been approved in the past 40 years but these cover only about 5% of up to 7,000 rare diseases. To date, Canada has contributed to only a small handful of rare disease drug discoveries. However, that scenario can and should change. Canada's burgeoning life sciences strategy has the scientific, clinical, and patient capacity to contribute significantly to discovery, manufacture, and management of rare disease diagnosis and treatment.

Consider two axioms here: "Your very success is what is going to destroy you" and the "tragedy of the commons" whereby pursuit of individual good can result in disaster for the common good. In other words, early reimbursement solutions for rare disease drugs therapies cannot be repeated infinitely when the number of new therapies expand exponentially. Most would agree that our drug assessment procedures were never designed to accommodate innovative therapies for small patient populations but we have continued to put them through the process and have mostly "cobbled" "on-off" reimbursement agreements with ostensibly minimal impact on the overall drug budgets. The solutions were rarely evidence-based, equitable, or sustainable. The question is not whether we have reached the breaking point with the "old" access pathways but "how can we do better?"

WHAT ARE THE HALLMARKS OF A SMART RARE DRUG STRATEGY?

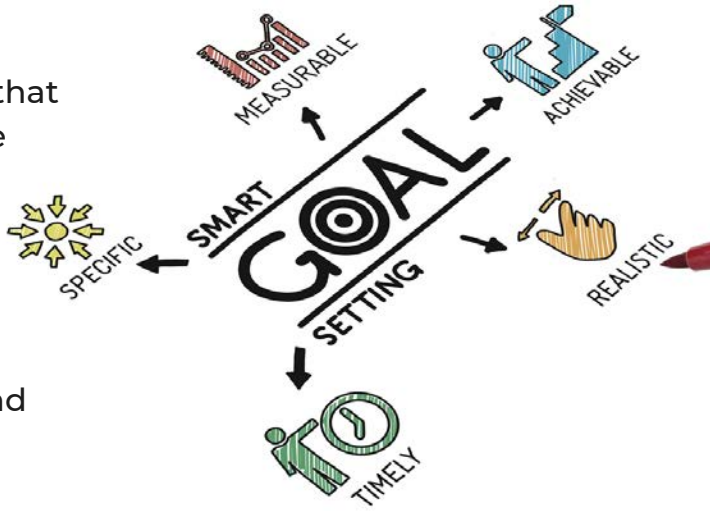
The opportunity to introduce a new Rare Disease Drug System is to build it with SMART principles. SMART systems share three attributes.

1. SMART HEALTH SYSTEMS ARE DESIGNED TO BE RAPID LEARNING SYSTEMS, AS INDICATED BY:

- engaged patients;
- digital capture, linkage and timely sharing of relevant data;
- timely production of research evidence;
- appropriate decision supports;
- aligned governance, financial and delivery arrangements;
- a culture of rapid learning and improvement; and
- competencies for rapid learning and improvement.

2. SMART HEALTH SYSTEMS ENGAGE IN AGILE PLANNING WHICH MEANS CONTINUOUSLY UPDATING SMART GOALS, WHICH ARE DEFINED AS:

- Specific: Well defined, clear, and unambiguous
- Measurable: With specific criteria that measure your progress toward the accomplishment of the goal
- Achievable: Attainable and not impossible to achieve
- Realistic: Within reach, realistic, and relevant to your life
- Timely: With a clearly defined timeline, including a starting date and a target date. The purpose is to create urgency.



3. SMART HEALTH SYSTEMS INTEGRATE SMART TECHNOLOGY, REFERRING TO SELF-MONITORING ANALYSIS AND REPORTING TECHNOLOGY

Two trends driving healthcare are, on the demand side, growing recognition of health services as a basic human right and an investment for a healthy society and, on the supply side, increasingly complex and impactful solutions that are highly specialized and costly. The conundrum is compounded by increasing competition for resources both within healthcare and with other sectors as economies recover from the pandemic and beleaguered healthcare providers exit their professions.

The way forward is the digital transformation of healthcare, and technology companies are being called up to develop solutions that improve healthcare performance and outcomes. Examples span individual devices to system management including:

- digitally connected remote healthcare services to expert centres and even more remote patients;
- sharing of patient health data across a variety of systems for multiple purposes;
- employing AI to rollout vaccines, conduct virtual screening, simulate drug adverse effects, and speed up diagnosis using algorithms
- Proactive healthcare wearables that can collect signals in real time
- Smart hospital management: workloads and patient flow

WEBINAR SERIES

Planning SMART

APRIL 19
12 - 1 PM

Application of RWE in Drug Access Decision Making

How can Real-World Evidence expedite access?

- What are real-world data vs. real-world evidence
- How is real-world evidence being used to improve care and access in Canada today?
- How can AI enhance RWE to improve individual outcomes and societal benefits?

Case study of SMA

- RWD from SMA patient registries (Poland)
- Analyzing RWD for RWE (Biogen)
- How RWE informed access decision making (UK, Germany)

Learning and Applications for Canada's Rare Disease Strategy

APRIL 26
12 - 1 PM

Lessons for a SMART Rare Drug System

Innovative research focused on small disease populations is proliferating not only the number of new rare disease therapies but the value of medicines with unprecedented life-altering, life-saving, breakthrough therapies that are long-lasting and even “cures”, many for previously untreated diseases. Not surprisingly, the opportunities have also generated challenges of providing access to all those who might benefit. How does Canada compare to other countries in access strategies? What can Canada learn from new and emerging rare disease drug initiatives in other countries?

A multistakeholder expert panel will discuss pro’s, con’s, and potential learning from various international rare disease and other innovative drug access pathways. These include:

UK Initiatives

- UK Innovative Licensing and Access Pathway;
- NHS England & NHS Improvement: 16 “smart” deals for swifter patient access

Australia Initiatives

- Australia government and Medicines Australia Strategic Agreement 2021
- Health Technology Assessment policy and methods review has shared goals
    - reducing time to access for Australian patients so that they can access new health technologies as early as possible;
    - maintaining the attractiveness of Australia as a first-launch country to build on Australia's status as a world leader in providing patients access to affordable healthcare,
    - by ensuring that our assessment processes keep pace with rapid advances in health technology and barriers to access are minimised;
    - agree that these goals require continuous evaluation and improvement of Health Technology Assessment methods

International comparisons of reimbursement process for RDTs

- How well does Canada meet the mark?

MAY 3
12 - 1 PM

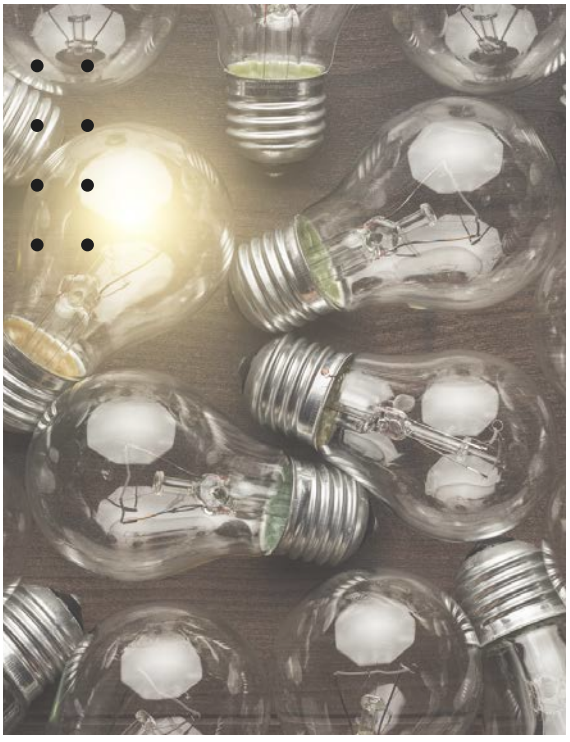
Rare Disease Patient Registries: Key to Drug Development and Access

Why, What, and How Patient Registries

- Use of patient registries for drug development, approval, access, real-world access and monitoring, re-assessment
- What are ethical issues and best practices re: patient/family engagement, data ownership and informed consent, data management and utilization including transparency, security, and sharing

Resources and Exemplars

- US NIH RaDaR
- NORD IAMRARE
- Canada INFORM RARE



MAY 5
12 - 2 PM

Rare Disease Centres of Excellence: Linchpin to patients, community care, and collaboration

Models

- Ex Canada: Expert Reference Networks, NORD Designated Rare Disease Centers of Excellence, WHO Global Rare Disease Network
- Canada's Maternal, Infant, Children, and Youth Research Network (MICYRN)
- Canadian Specialty Networks: Inherited Metabolic, Hemophilia, Cystic Fibrosis, Muscular Dystrophy, Bone Health
- Hub & Spoke Model (see: Ontario)

Coordination, Collaboration, Best Practices

- Screening, testing and diagnosis, genetic counselling
- Specialist care and treatment; best practices guidelines (development)
- Comprehensive care and community services
- Linkages and collaboration for diagnosis, consultation, training, support, and research including clinical trials

Vision for Canadian Rare Disease Network

MAY 19
12 - 1 PM

Leave No One Behind

Stories from the front lines: impact of denied or delayed or never launched drug access

- Good: Rescuing Individuals falling between the cracks
- Better: Solutions to bridging systemic gaps
- Best: Designing fair rare care … from R&D to monitored access

Managed drug access: the new normal and not the exception

- Managed access criteria = individualized drug utilization = optimized humanized monitored healthcare
- Managed access programs = value-based access = optimal societal cost utility/ROI

No Common QALY

- If the single common QALY is not relevant to rare disease therapies, what is the alternative, if anything?
- QALYs are only as good as the data on which they are calculated. If clinical trial rare drug data are uncertain, what's the value of the calculated QALY?
- If the validity of the QALY relies on the validity of the quality-of-life scores for various disease states and the QoL scales are not relevant for most rare diseases, what is the validity of the QALY? Does it contribute to the valuation of the therapy?
- Qualitative patient reports of health-related experiences and outcomes, including personal vignettes, are rich in data but difficult to transform into quantitative evidence that can be analyzed. Do these contribute to valuation of the therapy?

One Rare Pathway … Multiple Funding Sources?

- Should all Canadians with the same rare condition have the same access to care, treatment, and support?
    - What are viable models for coordinating, collaborating, combining, or consolidating across different sources of healthcare funding?
    - Should public drug plans have a designated drug and private sources be combined?
    - Access to those with potential benefit beyond clinical trial population
    - Funding models appropriate to high individual, sometime one-time) cost and low budget impact (over time and pools)
    - Value assessment with longer term and RW data at right time

MAY 26
12 - 1 PM

Economic Case for Rare and Innovative Research

Cost of Rare Disease
Return on Innovation Investment

Canadian Organization for Rare Disorders

CONFERENCE

JUNE 8 - 9, 2022

Ottawa Marriott Hotel

Building Canada's SMART Rare Disease and Rare Drug System

CORD CONFERENCE

Building Canada's SMART Rare Disease and Rare Drug System
June 8-9, 2022
Ottawa Marriott Hotel (Live stream option available)

GETTING SMART

The last in-person CORD conference was in Ottawa May 2020 when we were collectively just envisioning a national Rare Disease Drug Strategy, still somewhat enamored with the $1 billion commitment to start up and $500 million per annum to help sustain. We took full advantage of people being trapped during the COVID pandemic to pull together all stakeholders in consultation after consultation (32 in all).

Thanks to all our partners, we achieved a high level of consensus on a vision for a national Rare Drug Strategy and the building blocks of a Rare Disease System, essential to achieving the goals of person-centred timely and equitable access to the best rare disease therapies for all Canadians. We also arrived at understanding of the necessity of designing a SMART system that is agile, measurably cost-effective, and sustainable. In other words, it must be built to be patient engaged, goal directed, and technology empowered.

This two-day conference brings together the stakeholders and the learnings from all CORD and others' consultations. We will collectively continue to bring in international expertise and benefit from global strategic thinking, innovative initiatives, and best practices. Specifically, the underpinnings of the program are:

- **SMART health systems designed to be rapid learning systems**
- **SMART health systems engaged in agile planning and continuously updating SMART goals**
- **SMART health systems integrated by SMART Technology**

We are designing and implementing drug and health systems that improve healthcare performance and outcomes by are not just for rare but have elements of
The way forward is digital transformation of healthcare, including digitally connecting (remote) patients and services, collecting and sharing patient (controlled) data, and employing AI to streamline everything from clinical trials to health workforce management.

CONFERENCE AGENDA

Day 1: Thinking and Planning SMART

Setting the Stage
Brief introduction on what we have been doing, what we have achieved over the past two years of engagement, and where we are now, with perspectives from individuals representing different stakeholder communities.

Session 1: Visioning: What does SMART look like?

Open space, greenfield visioning exercise to creatively explore and re-imagine, at a high level, what a "fit for purpose" SMART Rare Disease and Rare Drug System should look like. All participants will work in rotating facilitated small "think tanks" groups and larger "sharing" sessions, culminating in a plenary presentation and panel discussion. At the end of the session, we will seek to achieve consensus on:

- Values, Principles, Goals
- Actionable Steps and Outcomes
- Technologically Enabled Access Pathways
- Patient Engagement at Every Stage, at Every Level

Session 2: Mind the Gap: Where are we now and where do we want to go?

A panel of representatives from the CORD Advisory Group on Developing a Rare Drug Strategy will present on the key learnings from the series of CORD Webinars and other consultations (Health Canada's What we Heard Report. They will engage with the audience on the opportunities and challenges arising from the consultations for "next steps" and, importantly, propose the critical role of patients throughout the proposed Rare Drug System.

1. Report back from Consultations
2. Identified and Emerging Opportunities and Challenges
3. Defining Critical Roles of Patients as individuals and families, patient organizations, partners in management and monitoring, and policy makers

Day 1: Thinking and Planning SMART

Session 3: BUILDING SMART

The building blocks for a SMART Rare Disease System are infrastructure, technology, and investment in innovation. These sessions will bring forth the discussions and outcomes from the Webinar Consultations held in April and May 2022, as well as other learnings. The format will consist of brief presentations from lead stakeholders on each topic area, the identified capabilities and opportunities that currently exist, the challenges and potential hurdles for advancing to a status to meet the needs of optimal therapeutic access and management, and the requirements for sustainability and advancement.
The global rare disease ecosystem, international initiatives that are available for learning and connecting, and partnerships beyond Canada will also be explored with representatives from the global rare disease community (WHO, RDI, International Rare Disease Research Consortium, NORD, EURORDIS and others). Three areas for discussion:

1. Infrastructure
We will discuss the key components for a SMART Rare Disease System and how to build on existing expertise and to expand capabilities, within Canada and internationally.

- Centres of Excellence
- Patient Registries
- Smart Diagnostic Capabilities: Preventive, person-engaged, cost-efficient (one-stop), connected to care, captured for care and research
- Research Capacities

2. Technology
Investing in digital health technology and tools are essential to building a SMART Rare Disease and Rare Drug System. Drawing from the May Webinar and other examples, a panel of experts and users will present key learnings, opportunities, challenges, and immediate next steps. They will expand upon the following topics, among others, with the audience.

- Community empowered healthcare
- Data connected
- Ai enabled healthcare
- Person empowered health management

Networking Cocktail Reception (5 - 7 pm)

Day 2: Thinking and Planning SMART

Session 3: BUILDING SMART (cont'd)

Investment in Innovation
Canada has tremendous capability in rare disease research but has never had specific orphan drug legislation to incentivize and support R&D, comparable to the USA and EMA Orphan Drug Acts. We feel investment in innovation is a critical component of the rare disease strategy, to contribute to the global drug supply but also to generate a return on rare disease investment. Moreover, innovation investment should include the entire patient journey, including diagnosis, specialist care and management, drug monitoring and data collection, and patient outcomes.

- FDA/EU Orphan Drug Acts
- Canadian Research Capabilities and initiatives
- Support programs

Session 4: SMART Pathways for Innovative Therapies

The establishment of a Rare Disease Drug Strategy is the opportunity to re-imagine pathways for access that would assure timely and equitable access, designed to fill the gaps in today's therapies but also building the system in anticipation of the drugs that will be available in near and more distant future.

This session will be anchored by patient experiences and case studies, those discussed in the May webinars and additional ones. These are examples of specific challenges, some with successful access outcomes, sometimes only after multiple interventions over months and years. Other therapies remain inaccessible to some or all patients who would potentially benefit based on Health Canada approval.

Brief vignettes plus an overview of recommendations from the May Webinars will be discussed by a multistakeholder panel with the goal of defining several "viable" alternative access pathways specific to one or more rare disease therapies.

Following the panel discussion, participants will be directed into "problem solving" small groups, each of which will be assigned an actual therapy and disease scenario or a hypothetical (fictitious) case. Each group will consider proposed alternative pathways, combinations, or variations, to arrive at an optimal "way forward" that would best meet the patient-centred goals of timely, effective, and equitable access and system objectives, including value-based and sustainable access. Group solutions will be presented, defended, and debated in a plenary session.

Day 2: Thinking and Planning SMART

Session 5: SMART Funding

There is strong preference for a single Rare Disease and Rare Drug System integrated across all provinces and territories, across all levels of government (federal, provincial/territorial, local), across all health providers (hospital, community, specialist, general practice, and allied), and across all sources of funding (public drug plan, private plan insurer, corporate, and personal).

A panel representing public plans, private health insurers, corporate plan sponsors, consultants, and individuals will be presented with several profiles of “patients, rare conditions, and therapies) to work toward consensus on the criteria for effective funding models.

Session 6: Leave No One Behind

This multistakeholder panel will consider “outlier” policy and access issues, some of which affect only a very few rare disease patient and others that affect many patients across many rare (and not-so-rare) conditions. Case examples, each of which illustrates one or more access barriers, will be presente. All of the conference participants will be encouraged to “brainstorm” solutions and the panel will deliberate their pro’s, con’s and feasibility to arrive at recommendations for further development. Areas of interest include:

- Ultra-rare conditions (example: FOP)
- Orphan indications for rare disease treatments (example: Cystic Fibrosis)
- Use of common therapies for rare conditions (example: Prader-Willi Syndrome)
- Generic therapies (issue for many rare conditions)

Conclusion: Bringing Everyone Together for Next Steps

The concluding session will identify new insights on old and emerging issues, new understandings of opportunities and challenges, and recommendations for collaborative next steps as we move with urgency toward the implementation of Canada’s Rare Disease and Rare Drug System.