

Introducing CASPERR – the free, open-access Canadian Research Repository.

Authors

Alan M. Batt
Kathryn Brohman
Thérèse Choisi
Jan Jensen
Dugg Steary
Chris Smith
Brianna Wilson
Matthew Leyenaar

Contact: admin@casperr.net

Introduction

The field of paramedicine in Canada is undergoing a significant transformation as it evolves beyond traditional emergency response roles to include broader scopes such as community paramedicine, health promotion, health policy, and chronic disease management. However, scholarly research, data, and grey literature (such as reports) relevant to Canadian ambulance services, paramedicine, and emergency medical services (EMS) (herein referred to collectively as paramedicine) remain fragmented and often inaccessible to paramedics and others within the discipline who lack institutional library access, database access, and technical competencies to navigate these systems.

CSA Standard Z1635 ‘Functional requirements and core data set for a Canadian paramedic information system (CPIS)’ states that “*Stakeholders in Canadian paramedicine lack timely access to accurate, accessible, and aggregated data, particularly from a pan-Canadian perspective. Much of the data these stakeholders seek exists but is difficult to locate and access, and little of the data is linked*”.(1) Paramedic service data is powerful and can provide novel insights into health and public health issues but is underutilized.(2) This problem is mirrored in access to research outputs and data related to paramedicine in Canada.

The problem

Paramedics often face difficulties in finding, accessing, and using research findings.

Importantly, paramedics often do not have institutional library access meaning that even if they can identify evidence, they often face barriers to accessing it. There is also currently no centralized, open-access infrastructure dedicated specifically to collecting, preserving, and disseminating scholarly outputs related to Canadian paramedic and EMS systems. Such issues limit collaboration, slow innovation, and create barriers to knowledge mobilization among frontline

paramedics, researchers, policymakers, and educators. It also leads to inefficiency, whereby there is a reinvention or duplication of work rather than knowledge sharing. This in turn increases costs without increasing the benefits to the system. There is a recognised need as a result to improve and leverage advancing technologies in paramedicine (3), and the need for data to be shared and accessible to the community to support advances in the system. (4–6)

The inaccessibility of paramedicine conference abstracts is another problem frequently encountered in Canada, especially when seeking grey literature to include in reviews. Few of our discipline's conferences in Canada publish abstracts. In the rare instances that they do publish or share an abstract, oral and poster presentations are frequently published as written abstracts only and therefore lack the insight that the graphics provide when viewed as a physical or digital presentation.

The solution to these (and many other) barriers is a research repository. Repositories are digital, community driven and instructionally supported accessible storage spaces that are both durable and permanent. (7)

The solution

The *Canadian Ambulance Service, Paramedicine and EMS Research Repository* (CASPERR) was developed as a pan-Canadian open-access digital repository infrastructure. CASPERR will archive peer-reviewed journal articles, professional articles, theses, policy reports, conference presentations, posters, data sets, educational materials, and other forms of related research and knowledge products. It will be searchable, citable, and compliant with key Canadian and international open science policies.

The mission of CASPERR is to support open science in paramedicine within Canada, providing a trusted and comprehensive space for researchers, policymakers, and others to share their data and outputs. CASPERR simplifies the process of complying with open science requirements, ensuring that research outputs are freely accessible, thereby accelerating scientific discovery and innovation within the discipline in Canada and beyond.

CASPERR will:

- Promote the dissemination of Canadian paramedicine knowledge and innovation with a view to improve outcomes and quality of care;
- Foster interprovincial and interdisciplinary collaboration;
- Support evidence-based practice and education in paramedicine;
- Provide a platform for underrepresented and emerging voices in paramedicine research;
- Align with [Tri-Agency Open Access Policy on Publications](#) and the [FAIR \(Findable, Accessible, Interoperable, Reusable\) principles](#).

CASPERR Infrastructure

CASPERR offers the first centralized, open-access infrastructure dedicated specifically to collecting, preserving, and disseminating scholarly outputs or data related to Canadian paramedic

and EMS systems. CASPERR is accessible via one central website (<http://www.capserr.net>) and is composed of two separate platforms – one for research outputs (Zenodo), and one for research data (Borealis).

Zenodo

Zenodo is a leading open-source repository platform used by thousands of institutions worldwide to manage and provide access to digital assets. It is highly regarded for its metadata flexibility, preservation standards, scalability, and compliance with international repository standards. Zenodo is hosted by CERN which has existed since 1954 and currently has an experimental program defined for the next 20+ years. CERN is a memory institution for High Energy Physics and is renowned for its pioneering work in Open Access. Zenodo's solutions are used by thousands of other institutions such as the European Union, European Commission, US National Science Foundation, Swiss National Science Foundation, NASA, and many others.

Borealis

Borealis, the Canadian Dataverse Repository, is a bilingual, multidisciplinary, secure, Canadian research data repository, supported by academic libraries and research institutions across Canada. Borealis supports open discovery, management, sharing, and preservation of Canadian research data. CASPERR can also provide your research group or project with a distinct collection hosted under the CASPERR dataverse.

Zenodo + Borealis = CASPERR!

For CASPERR, the combination of Zenodo and Borealis presents a completely free, robust, secure, and scalable solution that eliminates the need for in-house infrastructure investments or advanced technical staffing, while still providing high-performance repository infrastructure. CASPERR is designed to operate with minimal infrastructure and staffing needs, leveraging the features of the Zenodo and Borealis platforms and support from academic institutions and organizations in Canada. CASPERR is not owned by any one entity in Canada, ensuring its continued presence and reducing the potential for conflicts of interest. The CASPERR Borealis dataverse is supported by Queen's University Library.

Full details on servers and infrastructure can be accessed via:

<https://about.zenodo.org/infrastructure/> and <https://cloud.scholarsportal.info/>

Benefits for paramedics and content users

CASPERR offers many benefits for those who use or consume research findings such as paramedics, students, policymakers, and service leaders in Canada.

FREE and open

With free to access content without registration, CASPERR promotes the free and open dissemination of Canadian paramedicine knowledge and innovation.

One single access point

CASPERR links you to outputs and data with a view to improve care outcomes, inform intelligent policy, support service and education provision, encourage provider wellbeing, and underpin the

delivery of quality and safe care. As it grows, you will be able to easily find all outputs related to a given topic or issue with a simple click.

Find related outputs

Content creators can link journal articles, datasets, presentations, posters, podcast episodes, and much more together, allowing you to easily find and access all outputs related to a project.

Citeable no matter the format

All content submitted to CASPERR can be easily cited using the details on the content page – whether it is a presentation, paper, report, dataset or podcast episode!

Benefits for researchers and content creators

CASPERR offers additional benefits for researchers, graduate students, and those who produce materials for paramedic services in Canada.

Greater dissemination and citation

Did you know that articles that are archived in repositories, or that link to data in a repository have a higher citation rate than articles that do not share data, or share only in Supporting Information files? (8,9)

Aligned with open science initiatives

Depositing outputs and data with CASPERR aligns with the Tri-Agency Open Access Policy on Publications (10) and the FAIR (Findable, Accessible, Interoperable, Reusable) principles.(11)

Permanent identifiers and ability to link

All submissions to CASPERR are assigned a unique DOI, and resources can be cross-referenced to provide links between different outputs and datasets.

Permanent and secure backups

CASPERR ensures secure, citeable, and versioned copies of data and outputs are always available and safely stored on servers in Canada and the EU.

Benefits for service leaders and policymakers

CASPERR offers additional benefits for service leaders and policymakers.

Intelligent policy

One central location for evidence to support system developments in Canada means that it is easier for you to find research and outputs that can support you in developing intelligent, evidence-informed policies.

Reduced duplication of effort

The ability to identify initiatives in paramedic service design, education, policy and other areas from across Canada, and use the lessons from those initiatives as shared on CASPERR means you don't need to reinvent the wheel when developing a new program or solution.

Signalling leadership

Collating your services outputs related to your areas of investment and development (e.g., community paramedicine, integrated care models, leadership development) and placing them on CASPERR provides an easy to use, public, and permanent record of your services leadership in aspects of paramedicine in Canada. We know great work is being done across the country – the challenge is often being able to easily find the evidence!

Using CASPERR

You can access CASPERR via the website at <http://casperr.net>. Once you have arrived at the home page, you can follow links to access or submit research outputs, access or submit research data, or visit our friends at the EMS PEP Database to access the evidence base for clinical interventions (if reviewing or developing CPGs for example).

If you are a researcher, we encourage you to submit your research outputs and data to CASPERR. Full details on eligible submissions and how your data is managed are available on our curation policy page on the website. By supporting CASPERR, researchers and supporting organizations will contribute to building a lasting knowledge infrastructure that serves the public good and drives excellence in paramedicine across Canada.

Steering Committee

We would like to acknowledge the members of the inaugural Steering Committee of CASPERR for their enthusiasm and commitment to establishing this essential resource for Canadian paramedicine research.

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