CHILDREN'S MENTAL HEALTH RESEARCH

# Quarterly

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## Supporting children after mental health hospitalization

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# Quarterly

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Children's Health Policy Centre

### About the *Quarterly*

We summarize the best available research evidence on a variety of children's mental health topics, using systematic review and synthesis methods adapted from the *Cochrane Collaboration*. We aim to connect research and policy to improve children's mental health. The BC Ministry of Children and Family Development funds the *Quarterly.*

### About the Children's Health Policy Centre

We are an interdisciplinary research group in the Faculty of Health Sciences at Simon Fraser University. We focus on improving social and emotional well-being for all children, and on the public policies needed to reach these goals. To learn more about our work, please see childhealthpolicy.ca.

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## This Issue






**NEXT ISSUE**

**Suicide prevention: Reaching the greatest number of young people**

Suicide is the second leading cause of death for young people in Canada. To inform efforts to reduce these tragedies, we review the effectiveness of universal suicide prevention programs.

### How to Cite the *Quarterly*

We encourage you to share the *Quarterly* with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

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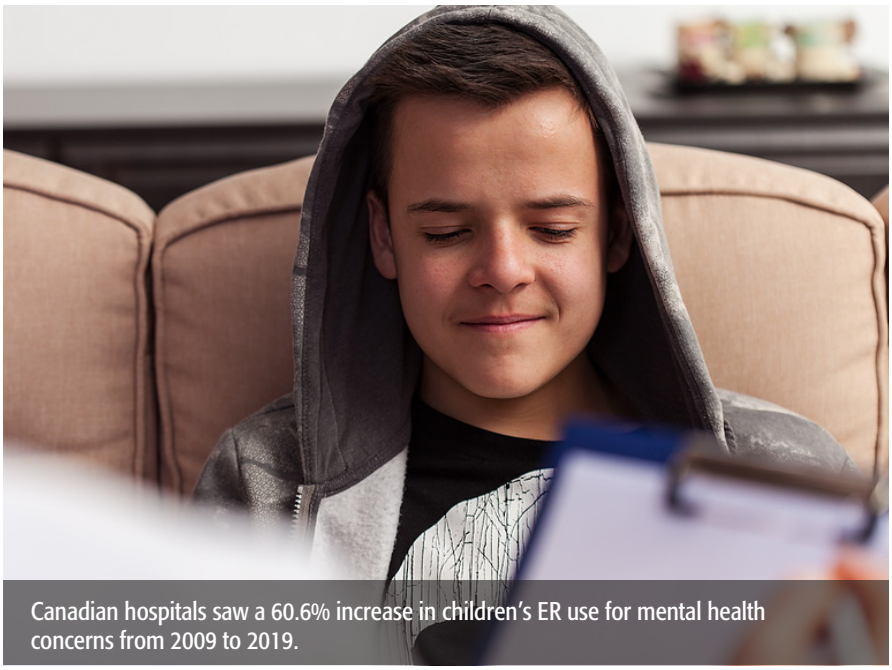
*We celebrate the Indigenous Peoples whose traditional lands Quarterly team members live and work on.*

OVERVIEW

# Encouraging the return home

*If there had been more ongoing care, then there might be some discharge planning and some connections that are available and built. But … quite often young people and their families are just left to navigate that … on their own.* — BC mental health care provider[1]



Canadian hospitals saw a 60.6% increase in children's ER use for mental health concerns from 2009 to 2019.

*For my son, when he's discharged,… he's handed a bunch of pamphlets, maybe a packet of pills that he just gobbles down. He's feeling rather hopeless, helpless. He's given a bunch of numbers to call … which he doesn't. He's not able to. He's just not able to.* — BC parent[1]

To ensure social and emotional well-being for all children, an important step involves adopting a population mental health strategy. Such a strategy has four crucial pillars.[2] First, policy-makers can address social determinants of mental health — for example, by implementing programs that reduce the number of children living with socio-economic disadvantage.[3] Second, programs can be implemented to prevent disorders before they develop.[4] Third, for those with mental disorders, timely and effective treatments can enable children to recover and resume their progress on positive developmental trajectories. The fourth pillar involves monitoring the success of these efforts and then making any needed adjustments to better address determinants, prevent disorders and provide treatments.

## The growing use of hospitalization for child mental health concerns

Youth aged 15 to 17 have the highest rates of both ER visits and hospitalizations among young people.

When the four pillars of a population mental health strategy for children are *not* in place, young people and their families often pay a price. For example, when community-based mental health treatment is difficult to access, families may end up turning to hospitals, especially emergency rooms (ERs), for care.[5] From 2009 to 2019, Canadian hospitals saw a 60.6% increase in children's ER use for mental health concerns and a 59.7% increase in inpatient admissions.[6] Because these data predate COVID-19, more recent hospitalization rates for child mental health concerns may be even higher. These data also suggest that ERs are becoming a de facto safety net for the many young people who experience "fragmented care and significant gaps in mental health service systems."[7]

These Canadian data also reveal that the use of ERs and number of hospitalizations have varied considerably based on children's age, gender and place of residence. Youth aged 15 to 17 have the highest rates of both ER visits and hospitalizations among young people.[6] The lack of community-based mental health resources for teens may be a possible reason for the disproportionate rates.[8] And among these older teens, girls were twice as likely to be hospitalized as boys.[6] As well, children from rural communities accessed ERs at rates that were nearly 50% higher than those from urban centres.[6] Reasons for higher rural ER use may include a

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lack of mental health specialists and limited service options in these regions, as well as lengthy travel to access community-based services.[8]

BC data tell a similar story. Here, children's hospitalizations for mental disorders increased by 68.8% between 2009 and 2019.[6] Notably, these substantial increases occurred despite there being more effective ways to support children. A previous *Quarterly* issue identified two interventions — Home-Based Crisis Intervention and Multisystemic Therapy — that effectively treated children in crisis in community and produced better outcomes than hospitalization.[9] Both provided intensive community-based interventions such as cognitive-behavioural therapy, family therapy and parent training as well as psychiatric care.[10–11]

Many young people feel labelled and stigmatized after being hospitalized for their mental health needs.

## The downside of relying on hospitals

There are many reasons for ensuring that children receive needed mental health care in their communities. The physical environments of hospital ERs, including their busyness and lack of privacy, can be challenging at any time, but even more so when a child is experiencing a mental health problem.[1] When young people are hospitalized, they are also frequently asked to repeat their histories — which often include painful and traumatic experiences — to multiple care providers.[1] As well, many young people feel labelled and stigmatized after being hospitalized for their mental health needs.[1] Given the discrimination experienced by countless Indigenous individuals in Canadian hospitals, this setting may be particularly difficult for children from these communities.[12] (The sidebar identifies steps health care staff are taking to make the experience of being in hospital more supportive for Indigenous children.) Lastly, at a societal level, hospital care is costly and can consume a disproportionate share of funding for children's mental health.[17]

### Making hospitalization easier for Indigenous children

Health care practitioners in BC are working to improve the hospital experiences of Indigenous children and their families. Their efforts include hiring staff to help Indigenous individuals receive high-quality, culturally safe health care. Although there is variation across health authorities, such positions can include Aboriginal Patient Liaisons, Aboriginal Patient Navigators, Indigenous Patient Navigators and Indigenous Liaison Nurses.[13] These workers provide a range of services that can include ensuring that planning takes patients' needs into account; facilitating communication and cultural understanding between patients and providers; assisting with language translation; and making referrals to appropriate community resources.[14–16]

## An all-too-familiar experience

Despite the drawbacks of hospitalization, for many young people it is a repeat experience. A recent meta-analysis involving more than 83,000 young people found that 13.2% were readmitted to a psychiatric hospital after being discharged.[18] BC data show similarly problematic readmission rates, with 553 young people being hospitalized for mental health concerns three or more times in 2019.[6]

Researchers have been able to identify risk factors for being readmitted to hospital. The previously noted meta-analysis found several, including initial hospitalizations being due to suicidal ideation and diagnoses involving psychotic, bipolar, attention-deficit/hyperactivity, autism spectrum, intellectual or eating disorders.[18] As well, youth with longer hospital stays and youth discharged to residential treatment were more likely to be readmitted than those with shorter stays who were discharged to other settings, such as their homes. Of note, age, gender, race/ethnicity, family psychiatric history, maltreatment history and non-suicidal self-injury were unrelated to readmission risk. Also unrelated to readmission risk were diagnoses of depressive, anxiety, oppositional defiant, conduct and posttraumatic stress disorders.[18]

## Supporting young people in hospital to stay out of hospital

Can readmission rates be reduced for young people? A review of more than 15,000 hospitalizations of children, youth and young adults in Alberta found that those who accessed aftercare, including from

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outpatient mental health clinics or physicians, had a 32% reduction in readmissions compared to those who did not.[19] These findings suggest that follow-up care needs to be readily available.

Researchers have also identified the need for improved discharge planning for young people.[7] To inform such planning, a recent systematic review identified six crucial components to better support children:

- conducting a comprehensive needs assessment, including evaluating social supports and living arrangements
- using collaborative care, including engaging the young person in treatment and discharge planning
- employing resource availability management, for example, assessing youth and family treatment preferences and referring to appropriate services
- coordinating community care, including contacting primary care providers and relevant community services and providing discharge documents prior to release
- designating a discharge planner who can lead the process and integrate recommendations from the treatment team
- creating a discharge plan that documents the young person's needs and goals, and providing this plan to the youth and family at least 48 hours before discharge[20]

A BC program can also help with continuity of care for children returning home from hospital. The sidebar highlights Rapid Access to Consultative Expertise (RACE), a program that enables family physicians and nurse practitioners to consult with child and adolescent psychiatrists.

Beyond making the discharge process more supportive for children and families, researchers have also begun to examine how specialized discharge interventions may improve experiences and outcomes. The Review article that follows summarizes two such interventions and their outcomes.

## Helping the helpers

Children and youth and their families are not the only ones looking for extra support after leaving hospital. Some practitioners also want help in assisting these young people. For example, family physicians and nurse practitioners may wish to consult with a psychiatrist regarding medication management. To address these needs, BC's Rapid Access to Consultative Expertise, or RACE, provides these practitioners with quick telephone access to child and adolescent psychiatrists.[21]

Hospital care is costly and can consume a disproportionate share of funding for children's mental health.

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REVIEW

# Making the first discharge the only discharge

Shortening inpatient stays becomes possible when young people are provided with adequate outpatient supports.

Given the high personal and societal costs of mental health hospitalizations for young people, preventing readmissions is crucial. One approach in meeting this goal involves discharge interventions. Such interventions aim to prevent or solve anticipated problems in post-discharge care and reduce the likelihood of another mental health crisis.[22] We conducted a systematic review to understand the effectiveness of these programs.

To ensure high quality, we required that the studies we accepted use randomized controlled trial (RCT) evaluation methods. We also required that studies be conducted in high-income countries to be relevant to Canadian policy and practice. After screening 1,615 articles and applying inclusion criteria, which are detailed in the Methods section along with our search strategy, we accepted two RCTs. Both studies compared a discharge intervention to existing outpatient care.

## How children were supported

The first trial, conducted in Germany, evaluated shorter hospital stays (average 48 days) followed by an intensive home-based program.[23] This Home Treatment program was compared to longer hospital stays (average 69 days) followed by regularly available services. Researchers required study participants to have hospital stays lasting at least 72 hours and a mental disorder diagnosis on admission.[23] Admission diagnoses included mood, anxiety, conduct, attention-deficit/hyperactivity, psychotic, eating and autism spectrum disorders as well as disorders due to substance use.[24] Young people's ages ranged from five to 17 years.[23]

Supporting children after hospitalization can yield multiple gains across multiple domains.

Children randomized to Home Treatment received a comprehensive assessment while hospitalized, focusing on reducing the likelihood of being readmitted to hospital.[23] Individualized post-discharge treatment plans involved up to three sessions a week of home-based mental health interventions, including case management, individual therapy, family therapy and medication. Children could also receive outpatient services such as day-hospital programs including schooling, as well as other community services such as occupational therapy. In addition, those randomized to Home Treatment had access to crisis management services 10 hours a day, five days a week. On-call physicians were also available 24 hours a day, seven days a week, and child and adolescent psychiatrists reviewed treatment plans biweekly. Home Treatment lasted 12 weeks.[23]

The second trial, conducted in the United Kingdom, evaluated an intensive, individualized treatment program, Supported Discharge Service, provided following hospitalizations. This intervention was compared to regularly available community services also provided following hospitalizations.[25] Researchers required

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study participants to have a mental disorder needing a hospital stay of at least 72 hours. Children's diagnoses included mood, psychotic, posttraumatic stress and anxiety disorders.[25–26] Their ages ranged from 12 to 17 years.[25] Participating children lived in one of two communities, including one that was rural.

Children randomized to Supported Discharge Service received individualized care based on their needs. Services could include customized care plans, intensive case management, psychological interventions, psychiatric care, assistance with school reintegration and social support. Practitioners delivered services in varied settings, including at home, in the community and in hospital day programs.[25] Program staff were available to families 12 hours a day, seven days a week. Program duration varied according to needs, lasting 11 weeks on average but up to 29 weeks in some cases.[25] Table 1 summarizes the two programs.

**Table 1: Post–Hospital Discharge Interventions**

| Intervention | Approach | Sample size | Child ages (country) |
|---|---|---|---|
| Home Treatment [23] | Comprehensive assessment during shortened hospitalization followed by intensive home- and community-based services based on need over 12 weeks | 100 | 5 –17 yrs (Germany) |
| Supported Discharge Service [25] | Intensive, individualized community- and home-based post-hospitalization services based on need for up to 29 weeks | 108 | 12 –17 yrs (United Kingdom) |

## Outcomes for Home Treatment

Home Treatment study outcomes were assessed at both eight months and four years after the intervention ended.[23–24] However, we report only on earlier outcomes because only 51% of children were available by four-year follow-up.[24] (We require that studies follow up on 80% of the original participants or more, or that they use specific statistical techniques to account for missing data. The reason for this is that biases in who drops out of a study or who stays in can make results appear better, or worse, than they actually are.) At eight-month follow-up, children's overall functioning was significantly improved, whether they received Home Treatment or typical services, with no significant difference between the groups. Specifically, at follow-up children in both groups had some difficulties in one area, such as school, but were generally functioning well.[23]

Using technology to deliver interventions virtually may be a way to reach more children in rural and remote communities.

Yet the two approaches came with significantly different economic implications.[23] Costs for both health care (e.g., outpatient services, psychotherapy and inpatient care) and other services (e.g., educational support, social-educational family services and out-of-home care) were significantly lower for Home Treatment compared with regular care. (Indirect expenditures such as parental income loss and informal caregiver costs were not calculated. All costs are reported in 2022 CDN$.) In fact, by eight-month follow-up, regular care cost nearly $15,000 more than Home Treatment per child. This resulted in an 86.1% probability of Home Treatment being more cost-effective than treatment as usual, despite producing similar clinical outcomes.[23]

## Outcomes for Supported Discharge Service

Outcomes for the Supported Discharge Service study varied because program duration differed based on children's needs.[25] On average, follow-up occurred at approximately three months for youth receiving Supported Discharge Service, but no comparable figure was provided for youth receiving regular services. (We still refer to follow-up as "none" in Table 2, even though some young people had completed treatment months prior and some were still receiving services at this time. We also limit our reporting of outcomes to those that were relevant to mental health and service costs.)

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Most young people were not readmitted to psychiatric inpatient units and no significant group differences were found for this outcome.[27] For those who were readmitted, there were no significant differences in time spent in hospital, despite an average length of stay of 12.6 days for young people receiving Supported Discharge Service versus 21.9 days for those receiving regular services.[27] Researchers also found no significant group differences at the end of treatment for ER visits, for young people's overall functioning by either clinician rating or self-report, or for mental disorder symptoms by clinician rating or self-report.[25, 27] But researchers did find a reduction in self-harm.[25] Significantly fewer youth receiving Supported Discharge Service engaged in frequent (five or more) self-harm episodes versus those in the comparison group (24.4% versus 42.1%), despite there being no significant group differences for engaging in *any* self-harm.[25] The program also significantly improved reintegration into community schools, with 81.1% of youth who received the intervention reintegrating versus only 50.9% of those in the comparison group. As well, youth who received Supported Discharge Service were employed, in school or in training for significantly more days than youth receiving regular services.[25]

Regarding costs, researchers estimated that Supported Discharge Service was $1,375 less expensive to deliver per child than typical services — when accounting for health care costs (e.g., outpatient services, hospital care and psychiatric medications) as well as costs of children living in various staffed accommodations.[25] Nevertheless, this cost difference was not statistically significant. However, the program was found to have a 58% to 60% probability of being more cost-effective than typical services when accounting for the benefits, that is, improvements in young people's overall functioning and reductions in service costs.[25] Table 2 summarizes outcomes for both studies.

**Table 2: Post–Hospital Discharge Intervention Outcomes**

| Intervention | Follow-up | Outcomes | |
|---|---|---|---|
| | | Clinical | Cost |
| Home Treatment [23] | 8 months | NS Overall functioning | ↓ Overall costs*<br>↑ Cost-effectiveness** |
| Supported Discharge Service [25, 27] | None† | NS # of readmissions to inpatient psychiatric unit<br>NS # of days in hospital during psychiatric readmissions<br>NS # of visits to emergency department<br>NS Overall functioning (2 of 2)<br>NS Mental disorder symptoms (3 of 3)<br>↓ Self-harm — 5+ episodes<br>NS Self-harm — any<br>↑ Attending community school<br>↑ # of days in employment, school or training program | NS Costs††<br>↑ Cost-effectiveness‡ |

NS No significant difference between intervention and control groups.
↓ or ↑ Statistically significant benefits for intervention group compared with control group.
* Included health care and other services (e.g., educational support and out-of-home care).
** Assessment of cost-effectiveness followed a standard convention, namely calculating an incremental cost-effectiveness ratio, rather than conducting a test of statistical significance.
† Follow-up times varied because length of intervention varied based on children's needs.
†† Costs included both health care and other services (e.g., children residing in staffed accommodations).
‡ Assessment of cost-effectiveness followed a standard convention, namely calculating a cost-effectiveness acceptability curve, rather than conducting a test of statistical significance.

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## Implications for practice and policy

Both Home Treatment and Supported Discharge Service aimed to improve outcomes for children who had been hospitalized for mental health concerns. While Home Treatment and regular services produced similar outcomes, the former had the advantage of significantly lower costs and greater cost-effectiveness. Supported Discharge Service produced better results than the comparison condition on three of 12 outcome measures. These three included significantly reducing the number of children having five or more episodes of self-harm, significantly increasing children's engagement in community schools and significantly increasing their engagement in other productive activities. Supported Discharge Service was also found to be cost-effective.

Any costs associated with providing added supports post-hospitalization are likely outweighed by the benefits.

These findings suggest four implications for practice and policy.

- *Reduce mental health hospitalizations safely by supporting children in community.* The Home Treatment trial provides evidence that it is possible to shorten inpatient stays when adequate outpatient supports are provided. Young people with these extra supports had stays that were 21 days shorter compared with regular services, yet with no difference in overall functioning eight months later.
- *Recognize that extra supports after hospital discharge can have wide-ranging benefits.* The Supported Discharge Service trial provides evidence that the program reduces the number of children frequently engaging in self-harm, while increasing their engagement in school and other productive activities. These findings suggest that supporting children after hospitalization can yield multiple gains across multiple domains.
- *Build on the research evidence to better serve children in rural and remote communities.* Supported Discharge Service was delivered in two regions, one of which was rural, showing that it is feasible to provide intensive mental health services even in more remote communities. Using technology to deliver interventions virtually may be another way to reach more children in rural and remote communities. Such delivery is increasingly common since the COVID-19 pandemic began, according to a recent US study of mental health care delivery, which found a twelvefold increase in psychologists' use of telecommunications such as video calls.[28] Evidence of the effectiveness of virtually delivered children's mental health interventions was also highlighted in a recent *Quarterly* issue. These approaches can further augment lessons from the Supported Discharge Service study.
- *Support children post-hospitalization knowing that doing so will pay off.* The Home Treatment and Supported Discharge Service studies both provide evidence of cost-effectiveness. These findings suggest that any costs associated with providing added supports post-hospitalization are likely outweighed by the benefits. For example, even though the costs of Supported Discharge Service were not significantly lower than regular services, the intervention was still cost-effective when considering the benefits it produced, including reducing self-harm and increasing engagement in productive activities.

Our review suggests that after a mental health hospitalization, young people can be supported to return home more quickly and remain there, with less need for rehospitalization. This review also found that intensive community-based services are cost-effective, enabling children and youth to flourish without the impediment of prolonged or repeated hospitalizations. When these interventions are coupled with adequate investments in programs that address social determinants of mental health as well as effective prevention and treatment programs, fewer children will likely need hospital care for mental health issues.

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## METHODS

We use systematic review methods adapted from the *Cochrane Collaboration*.[29] We build quality assessment into our inclusion criteria to ensure that we report on the best available research evidence, requiring that intervention studies use randomized controlled trial (RCT) evaluation methods and meet additional quality indicators. For this review, we searched for both systematic reviews and RCTs on interventions that aimed to support young people who had been hospitalized with mental health concerns. The search terms used were adapted from a previously published systematic review.[22] Table 3 outlines our database search strategies.

**Table 3: Search Strategy**

| | |
|---|---|
| **Systematic reviews** | |
| **Sources** | • Campbell Systematic Reviews, Cochrane Database of Systematic Reviews, CINAHL, ERIC, Google Scholar, Medline and PsycINFO |
| **Search terms** | • Aftercare, discharge, intervention or transition *and* hospital, recovery or services *and* mental health or psychiatric |
| **Limits** | • Peer-reviewed articles published in English from database inception to 2022<br>• Pertaining to children aged 18 years or younger<br>• Systematic review or meta-analysis methods used |
| **Original studies** | |
| **Sources** | • CINAHL, ERIC, Medline and PsycINFO |
| **Search terms*** | • Aftercare, discharge, intervention or transition *and* hospital, recovery or services *and* mental health or psychiatric |
| **Limits** | • Peer-reviewed articles published in English from 2019 to 2022*<br>• Pertaining to children aged 18 years or younger<br>• RCT methods used |

* Updated searches were conducted building on a previously published systematic review that had search dates spanning from database inception to 2019.[22]

After completing these searches, we screened 1,615 titles for relevance. We then hand-searched the reference lists from relevant systematic reviews and a previous issue of the *Quarterly*. We also conducted additional searches using Web of Science. Using this approach, we assessed six RCTs described in 10 articles. Two team members then independently assessed each article, applying the inclusion criteria outlined in Table 4.

**Table 4: Inclusion Criteria for RCTs**

- Participants were randomly assigned to intervention and comparison groups (i.e., no-treatment, treatment-as-usual or active control) at study outset
- Study authors provided clear descriptions of participant characteristics, settings and interventions
- Interventions aimed to support young people with mental health concerns after discharge from hospitalization
- Interventions were evaluated in settings comparable to Canada
- Attrition rates were 20% or less at final assessment and/or intention-to-treat analysis was used
- At least one outcome rater was blinded to participants' group assignment
- Reliability and validity were documented for primary outcome measures
- Statistical significance was reported for primary outcome measures

Two RCTs met all the inclusion criteria. Figure 1 depicts our search process, adapted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses.[30] Data from these studies were then extracted, summarized and verified by two or more team members. Throughout our process, any differences among team members were resolved by consensus.

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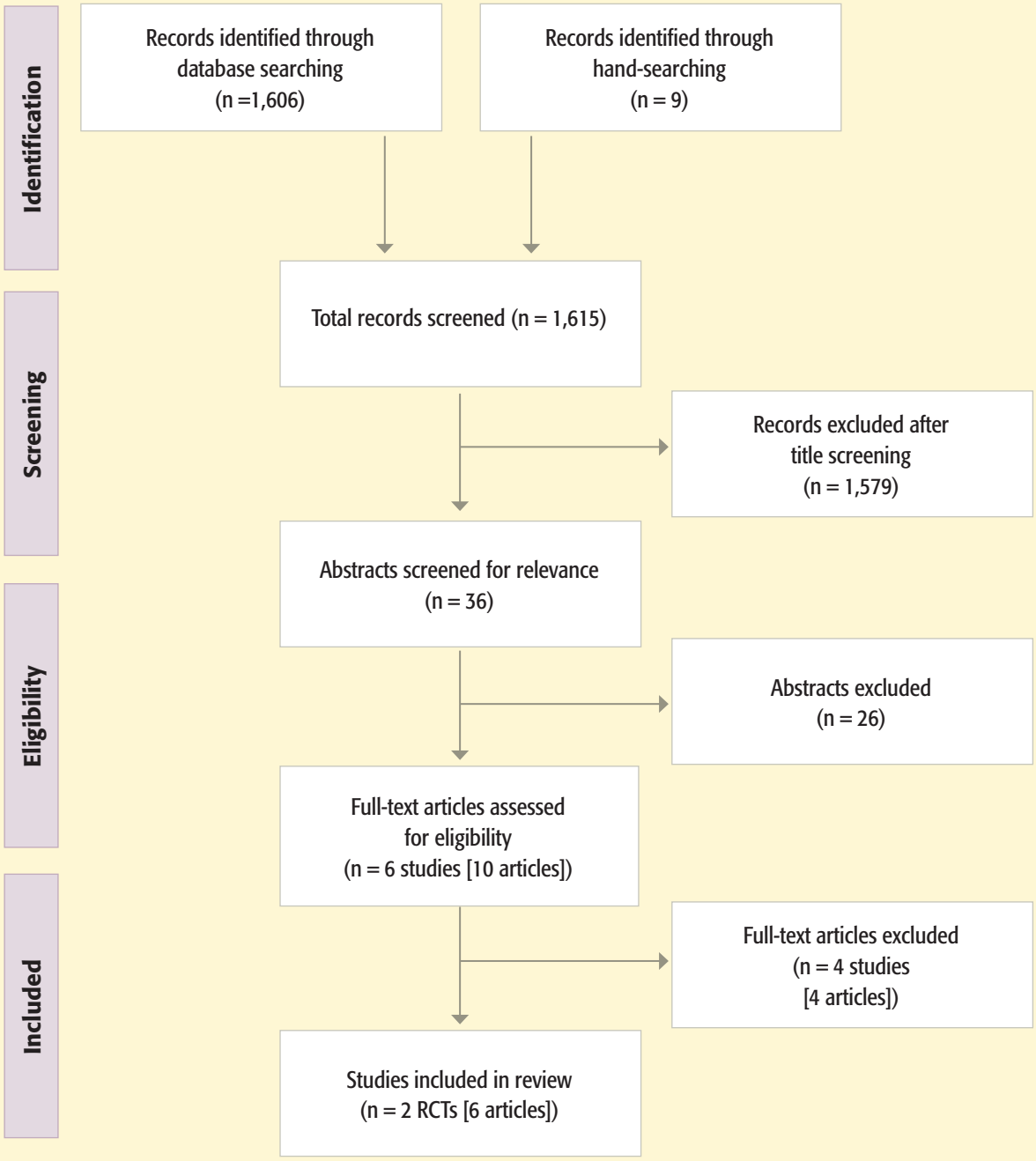
**Figure 1: Search Process for RCTs**

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## RESEARCH TERMS EXPLAINED

Practitioners and policy-makers need good evidence about whether a given intervention works to best help children. **Randomized controlled trials** (RCTs) are the gold standard for assessing whether an intervention is effective. In RCTs, children are randomly assigned to the intervention group or to a control group. By randomizing participants — that is, by giving every young person an equal likelihood of being assigned to a given group — researchers can help ensure the only difference between the groups is the intervention. This process provides confidence that any benefits found are due to the intervention rather than to chance or other factors.

To determine whether the intervention provides benefits, researchers analyze relevant outcomes. If an outcome is found to be **statistically significant,** it helps provide certainty the intervention was effective rather than results appearing that way due to chance. In the studies we reviewed, researchers used the typical convention of having at least 95% confidence that the observed results reflected the treatment's real impact.

The use of randomized controlled trials in decision-making is growing given policy-makers' increased reliance on research evidence to guide policy.

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BC government staff can access original articles from BC's Health and Human Services Library. Articles marked with an asterisk (*) include randomized controlled trial data that was featured in our Review article.


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