TARMAC TRIAGE PROTOCOL

A novel QI approach to improving rural emergency care in the face of unprecedented ED closures.

50 BCEHS
years providing patient care

Thanks to

- Dr. Anders Ganstal – BCEHS Regional Medical Director
- Manisha Willms – IH Spread Quality Leader
- Dr. Lindsay Boulet – Data Specialist
- Dr. Julian Marsden – ECBC Provincial Lead
- Elizabeth Stacy – ECBC Provincial Lead
- Dr. Devin Harris – IH Executive Medical Director
- Dr. Todd Ring – ECBC Executive Medical Director
- Brent Hobbs – IH Executive Director
- Brooks Hogya – BCEHS Director DR3

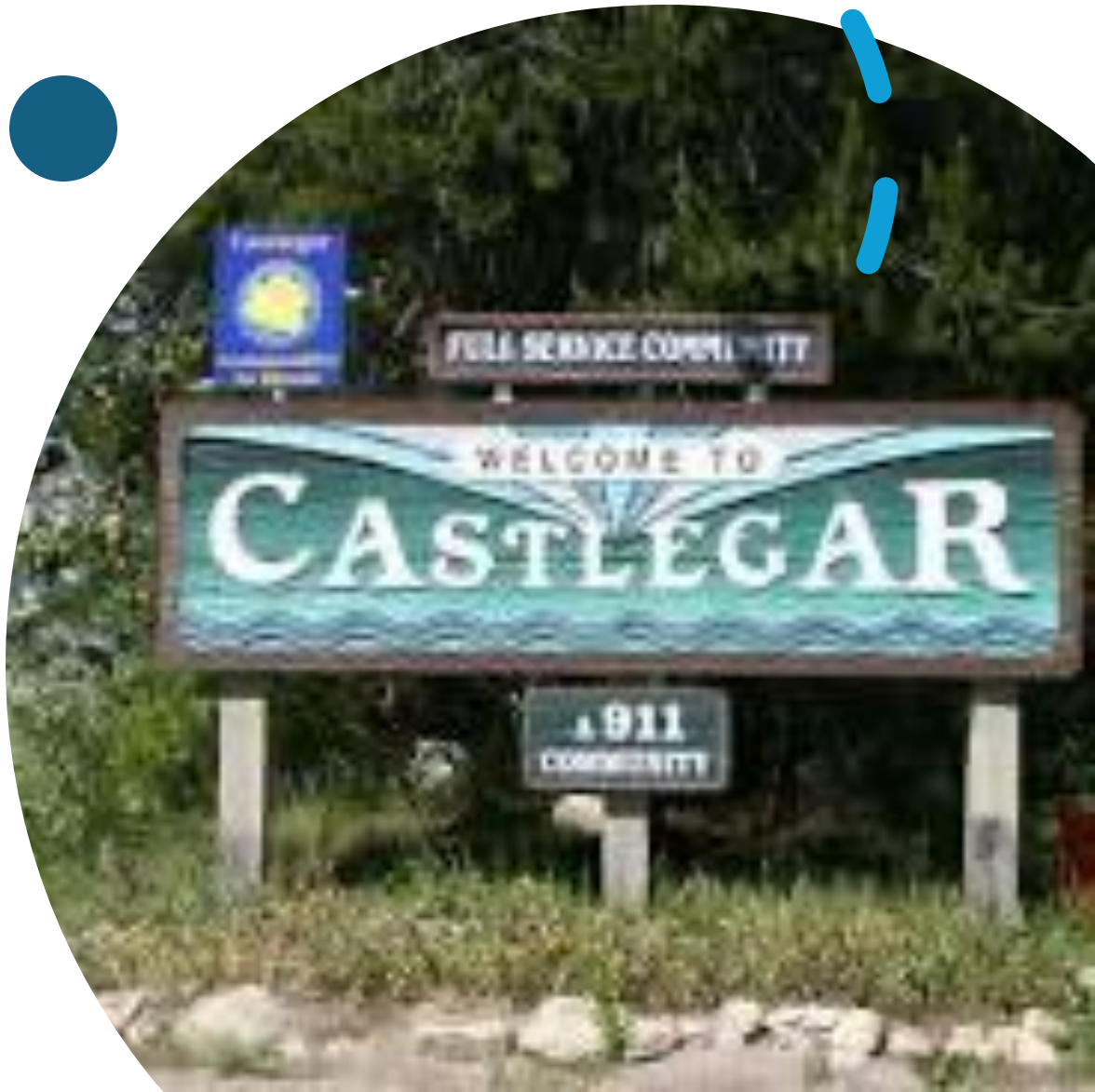
BCEHS

SQI SPREADING QUALITY IMPROVEMENT
Specialist Services Committee

Interior Health

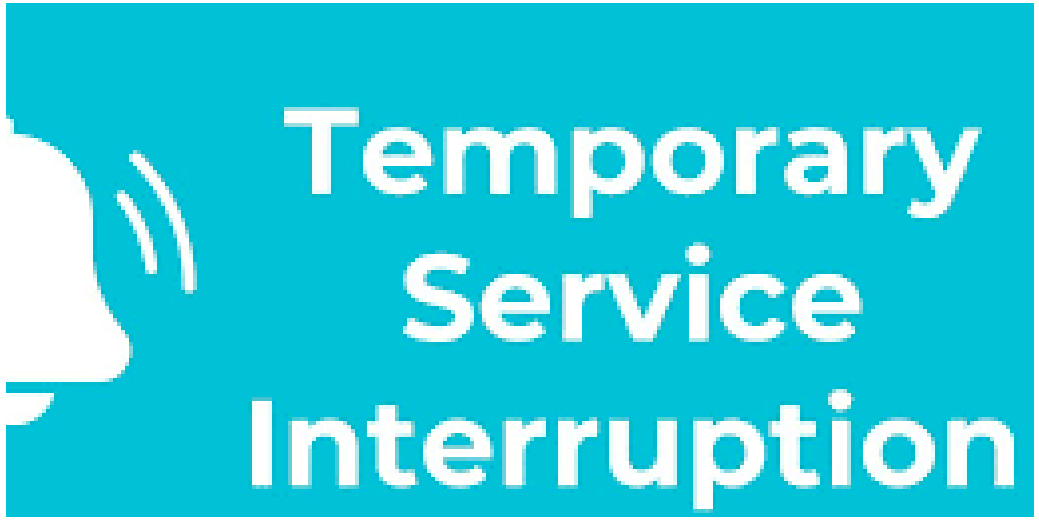
TARMAC Triage

- Originated in Castlegar to avoid unwanted ED staff overtime with daily planned closures.
- Incoming EHS crews would be rapidly assessed and pre-emptively sent to Trail if their condition superseded the resources available in Castlegar near the time of closure.



The Problem

- Unprecedented rate of ED closures
- Expected to worsen
- Rural disparity



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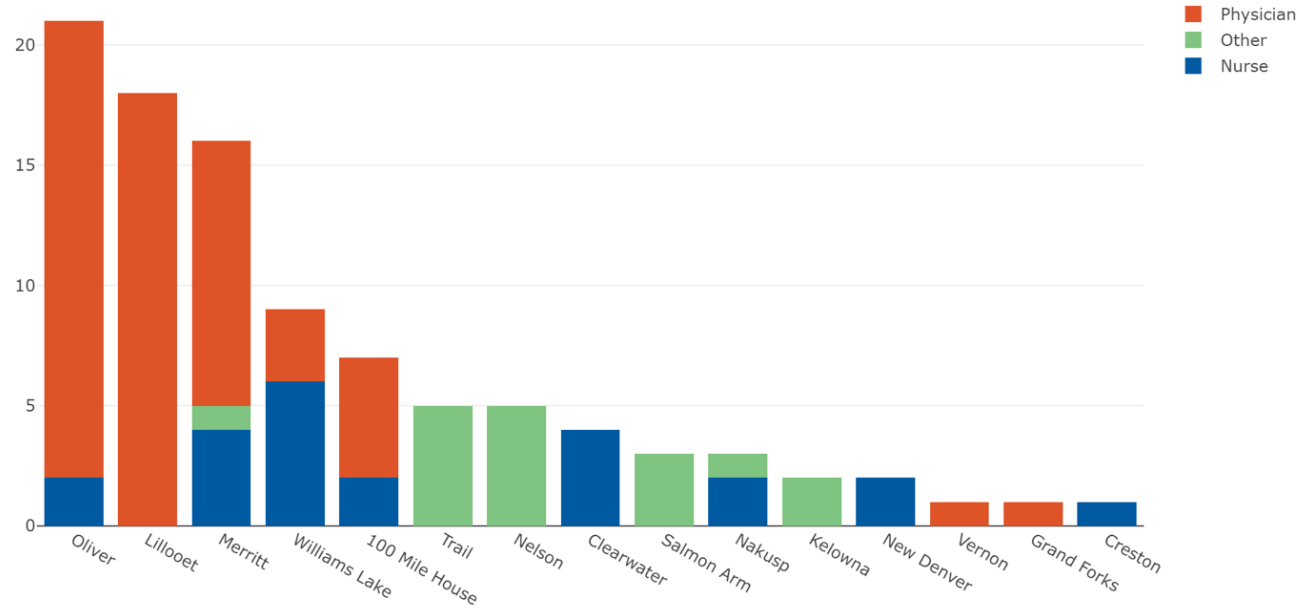
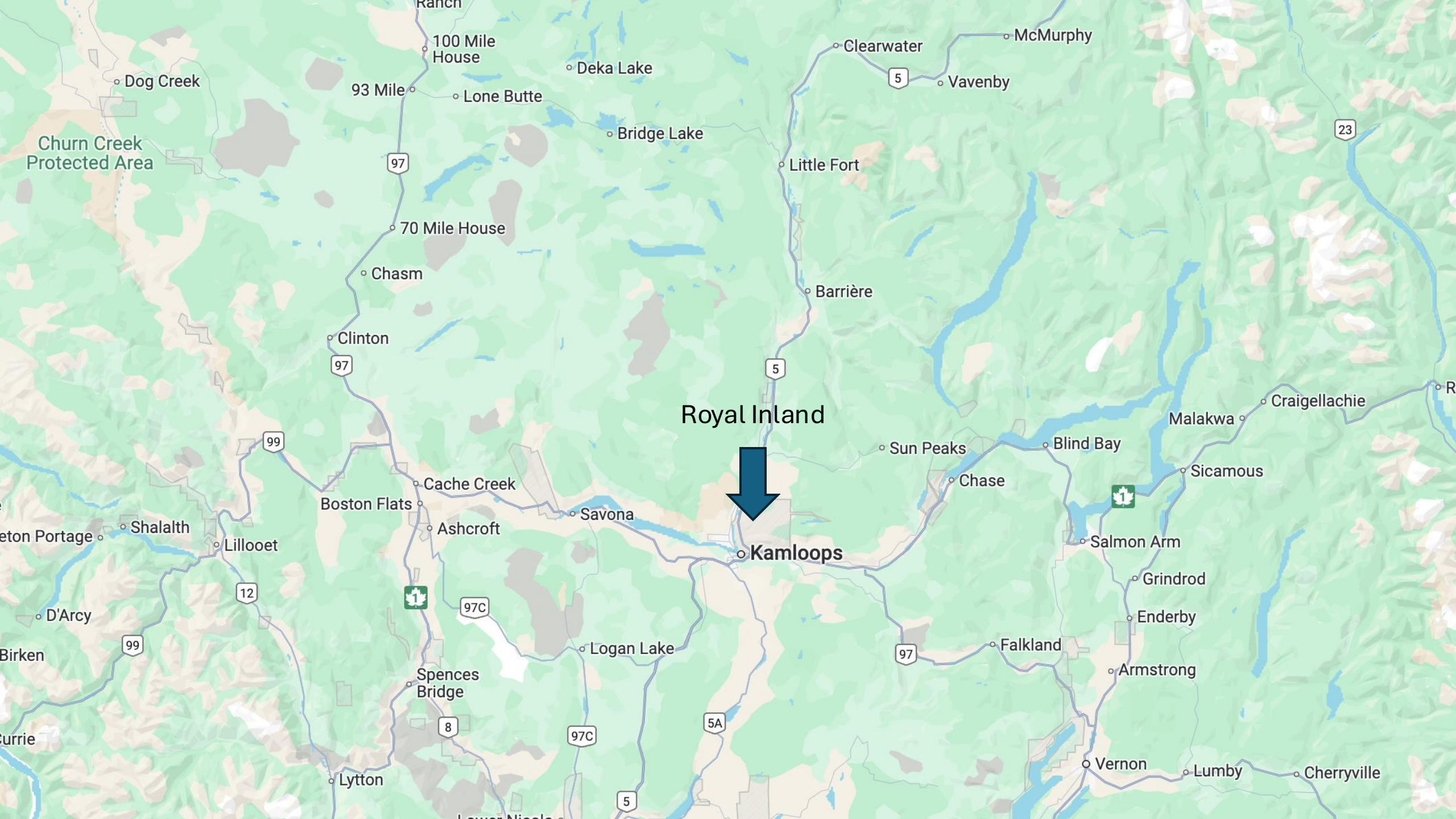


Types of Closures in BC

Regularly Planned Closures	Rural health clinics operating as emergency departments that have scheduled hours. Ex: Chase Health Clinic open from 8 am - 3 pm M-F.
Short Notice Unplanned Closures	The most challenging due to lack of preparation time. Often due to sick call or burnout.
Unplanned Closures	Known closures with multiple weeks of notice. Operational and logistical.
Disaster Related	Unique closures due to disaster related events such as floods, fires etc.


Royal Inland
Kamloops
100 Mile House
Deka Lake
Clearwater
McMurphy
Vavenby
Dog Creek
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Bridge Lake
Churn Creek Protected Area
Little Fort
70 Mile House
Chasm
Barrière
Clinton
Sun Peaks
Blind Bay
Malakwa
Craigellachie
Chase
Sicamous
Cache Creek
Boston Flats
Savona
Ashcroft
Shalalth
Lillooet
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Enderby
D'Arcy
Logan Lake
Falkland
Armstrong
Spences Bridge
Lytton
Vernon
Lumby
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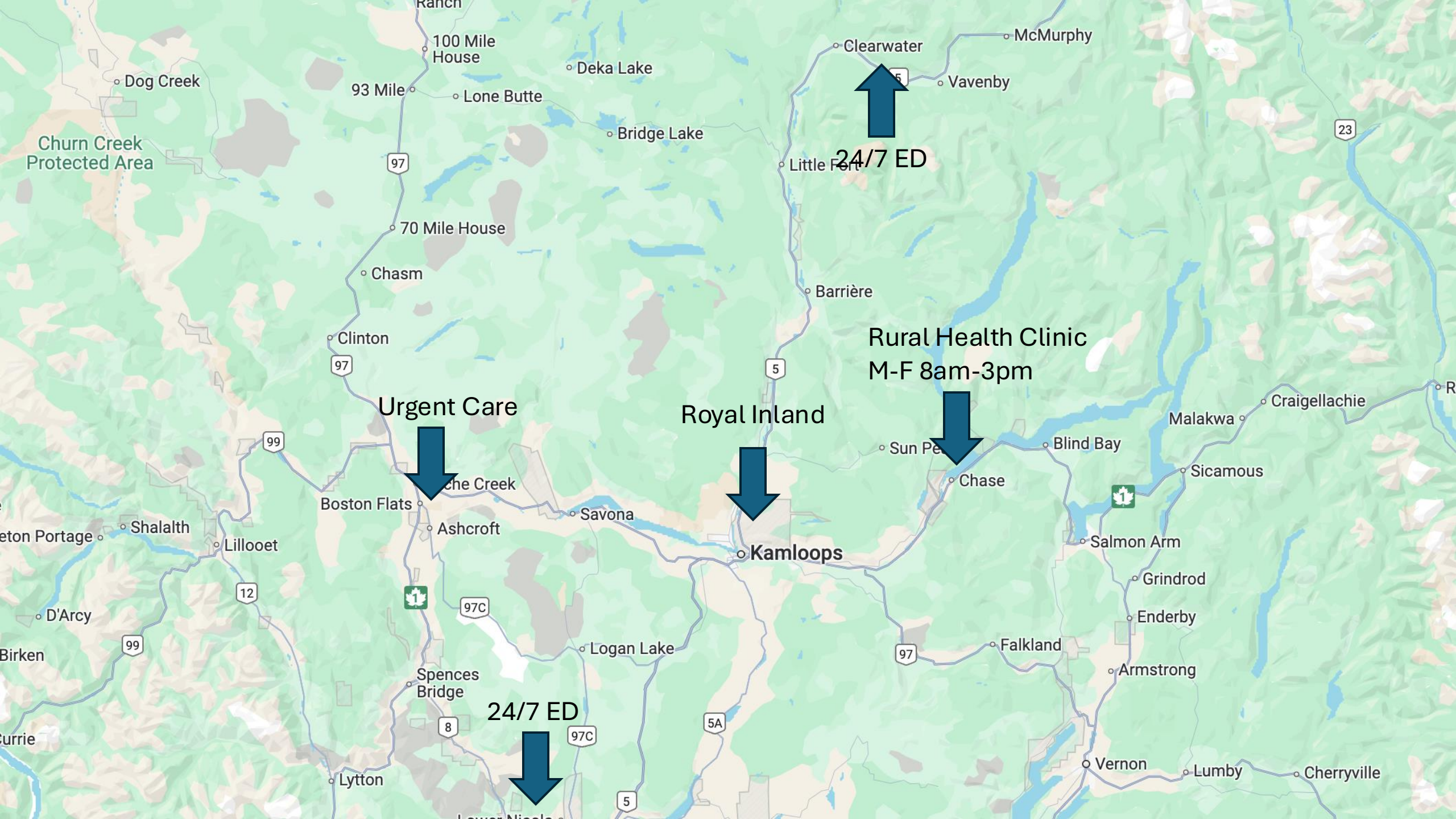
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Rural Health Clinic
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Where do we see impacts of ED closures?

- EMS Agencies
- Patient Outcomes
- Staff
- Alternate Sites

EMS Agencies

- US based data
- Increased transport times
- Increased total number of incidents responded to
  - Out of proportion compared to number of overall presentations to the ED.
  - For someone who may have self transported, they are now calling an ambulance instead.
- Reduction in number of inter-facility transports

- Limitation – Largely US based data difficult to extrapolate to BC context
  - Permanent closure
  - System differences

Patient Outcomes

- Adult non-traumatic OHCA – Korea
  - No change in survival to hospital discharge
  - Improved neurological outcomes – limited sample size, confounding factors and selection bias.
- Acute Conditions – California
  - No difference inpatient mortality – difficult to extrapolate. Study population had minimal change in transport distance ~1 mile
- Acute MI – California
  - 1 year AMI mortality, 30 day readmission rate and likelihood of PCI
  - Mortality increase 2.39%, 2% increase 30-day readmission, likelihood of receiving PCI decrease by 2.06%.
- Overall mortality – England
  - Consolidation of emergency resources
  - Addition of urgent care
  - No change in overall mortality

Patient Outcomes

- Volume – outcome relationship in the emergency department
  - Likely differential impact across the province.
  - Chase / RIH =/= Castlegar / Trail
- Decrease accessibility to care → not presenting to hospital

Impact on Staff

Operational challenges

Increased workload

Burnout among paramedics

Impacts on community

Nursing burnout

Difficulty retaining expertise

Alternate ED Destinations

- England – large teaching hospital with nearby closures.
  - Rate of admission 22% to 27%
  - ED visits increase by 33.72%
- California – ED with nearby rural hospital closure
  - ED visits increase 10.22% 2 years post closure vs 3.59% 2 years prior to closure

Gaps in available literature

No Canadian specific data

Permanent vs temporary closures

Bridging the Gap – Where we see impacts in BC

DIRECT HEALTHCARE CHALLENGES

FINANCIAL IMPLICATIONS

INDIGENOUS AND RURALITY

Direct Patient Care

Challenges with repatriation

- Cost associated with return trips/air resources if required.

Resource allocation

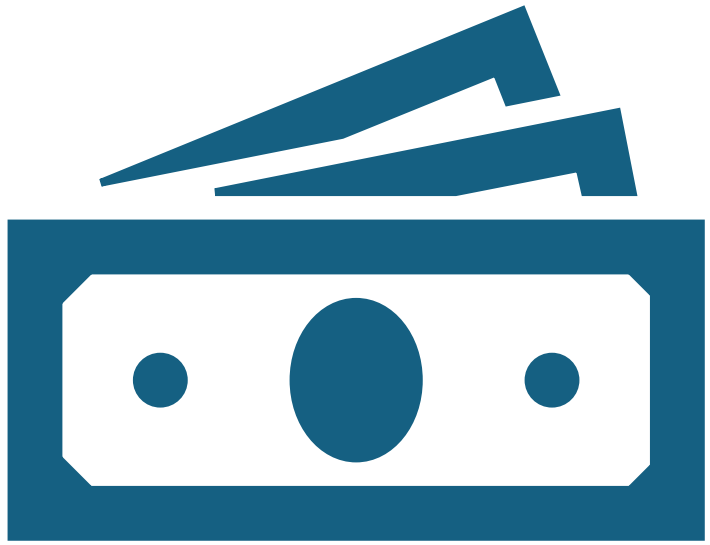
- Increased demand and overload at alternate sites (RIH).
- EMS impacts

Patient outcomes

- Delayed diagnostics and treatment.
- Impaired patient trust in system.

Other non-emergency services

- Non-emergency patient transfers mediated through BCEHS may be delayed. Especially in northern communities.



Financial – Cost Shifting

- Increased patient load at alternate sites and associated costs.
- Repatriation costs.
- Example: BCEHS upstaffing and travelling paramedic program.

Indigenous and Rural Consideration

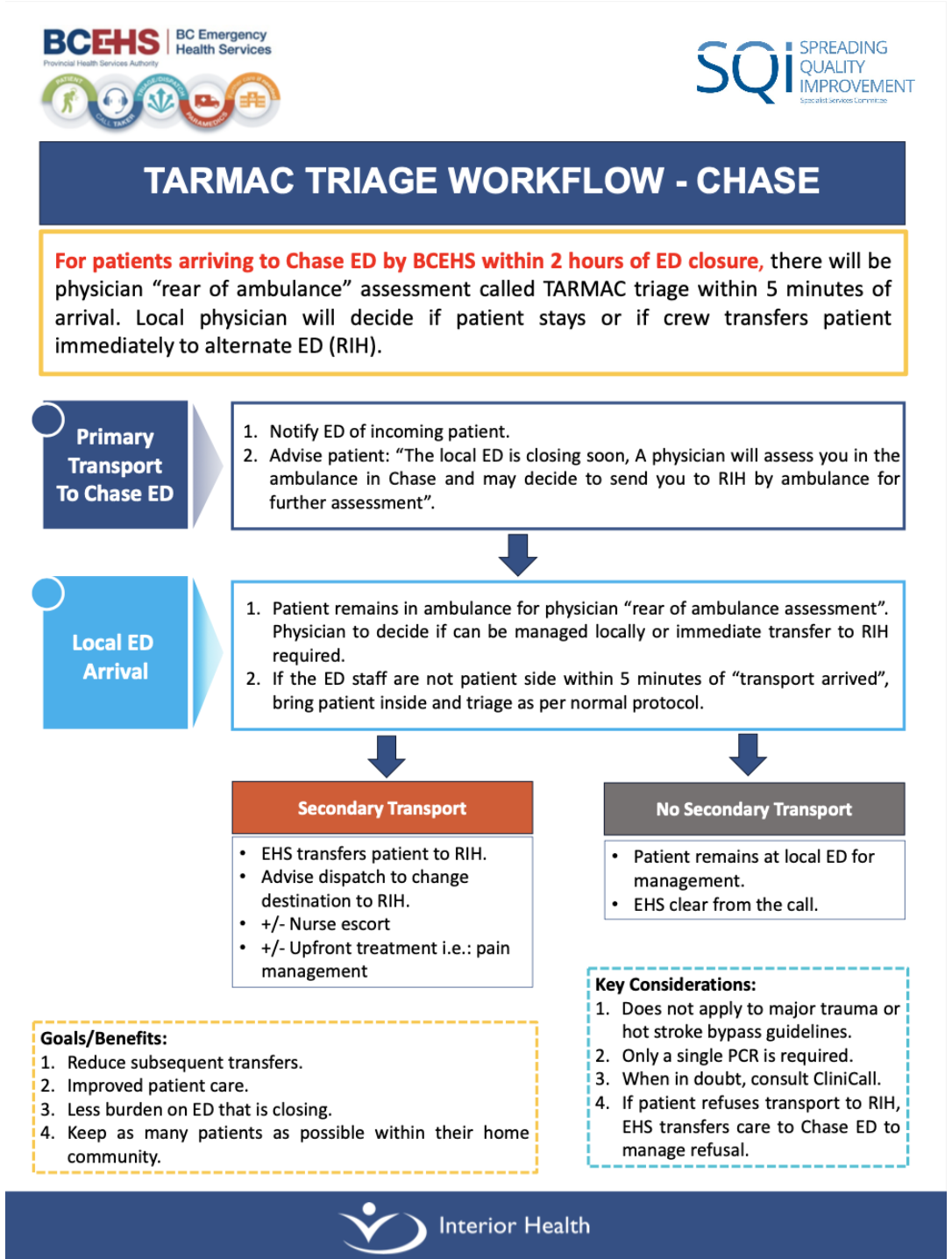
- Often identified as the most impacted populations.
- Indigenous nursing stations often used for emergency presentations but overlooked in overall planning.

Actions taken in BC so far

- RTVS - VERRa
- ECBC Locum Pool
- Site specific algorithms for closures
- BCEHS Travelling Paramedic Program & Summer Upstaffing
- Improved coordination and collaboration between partner agencies/public
- **TARMAC Triage**

TARMAC Triage Workflow

- Goal to bring patients to the most appropriate facility, reducing burden on local and receiving sites.
- Monitor impact of ED closures on BCEHS.
- Monitor patient outcomes
- Use data to guide further change and adaptations.



Future TARMAC Considerations

Currently limited to 2 hours prior to closure – can this be applied during all open hours?

Local considerations – should generic UPCC destination guidelines be applied to Chase Health Clinic?

How can this be spread provincially?

How do we take into account different closure types?