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# The interRAI Detection of Indicators and Vulnerabilities for Emergency Room Trips (DIVERT) Scale: A Brief Guide

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# DIVERT Scale

# The interRAI Detection of Indicators and Vulnerabilities in Emergency Room Trips (DIVERT) Scale: A Brief Guide

This guide offers a concise understanding of the DIVERT scale. Users should always rely on their professional judgment and local guidelines when utilizing the scale.

## Summary Overview

### What is the DIVERT Scale?

- An empirically constructed scale that predicts the risk of unplanned emergency department (ED) visits for home and community care patients.
- Provides scores ranging from 1 (lowest risk) to 6 (highest risk) with 19 distinct outputs within these risk groups.
- Highlights cardio-respiratory symptoms, cardiac conditions, mood symptoms, functional decline, and geriatric syndromes as key determinants.

### Development and Validation of the DIVERT Scale

1. **Data Collection:** Derived from a multi-year cohort study of home care patients in Ontario and Manitoba, Canada (N=617,035).
2. **Analytical Methods:** Employed decision tree analyses, the Andersen Behavioural Model, and insights from a 5-country clinical panel.
3. **Validation:** Tested on different regions at different times, showing good risk differentiation and clinical utility.

## How to Use the DIVERT Scale

1. **Goal:** To assist in identifying and managing home and community care clients at risk of unplanned ED visits.
2. **Target Population:** Designed for home and community care patients in private settings. Not suitable for nursing home residents or institutionalized adults.
3. **Prioritizing Patients:** Begin with the newest assessment, focusing on DIVERT Scores from the last 90 days. Prioritize based on the highest scores.
4. **Practical Implications for Care:**

   - **For Home & Community Care:** Use the scale to allocate resources, especially for chronic diseases management interventions. Symptom detection and reinforcing appropriate self-management actions for better symptom control to reduce anxiety and confusion, including when to connect with primary care.

   - **For Primary Care:** Optomize existing treatments and supports to man age chronic disease symptoms, especially for patients displaying cardio-respiratory symptoms.

5. **Modes of Implementation:**

   - **Push Method:** Automate risk notifications to case managers and possibly primary care physicians based on DIVERT scores.

   - **Pull Method:** Case managers use the DIVERT scale as part of their regular decision-making processes.

6. **Note of Caution:** DIVERT is not a diagnostic tool. Users should always rely on their professional judgment when utilizing the scale.

## Frequently Asked Questions

- **What are the unique characteristics of DIVERT?**

  DIVERT focuses on identifying and managing symptoms and conditions linked to ED use. Not related with other existing interRAI scales that focus on physical and cognitive function.

- **How is DIVERT different from other ED and hospital prediction tools?**

  DIVERT is specifically tailored for home and community care patients, catering to their unique needs and health conditions.

- **Does it predict hospitalizations?**

  Yes, as most hospital admissions come from the emergency department.

- **Which DIVERT score is critical for action?**

  No one-size-fits-all; adapt resources to the identified risk level.

- **Can DIVERT be used to adjust emergency department use or quality metrics?**

  Rather than controlling for ED use, consider DIVERT to stratify outcomes.

## Understanding the DIVERT Scale

### What is DIVERT?

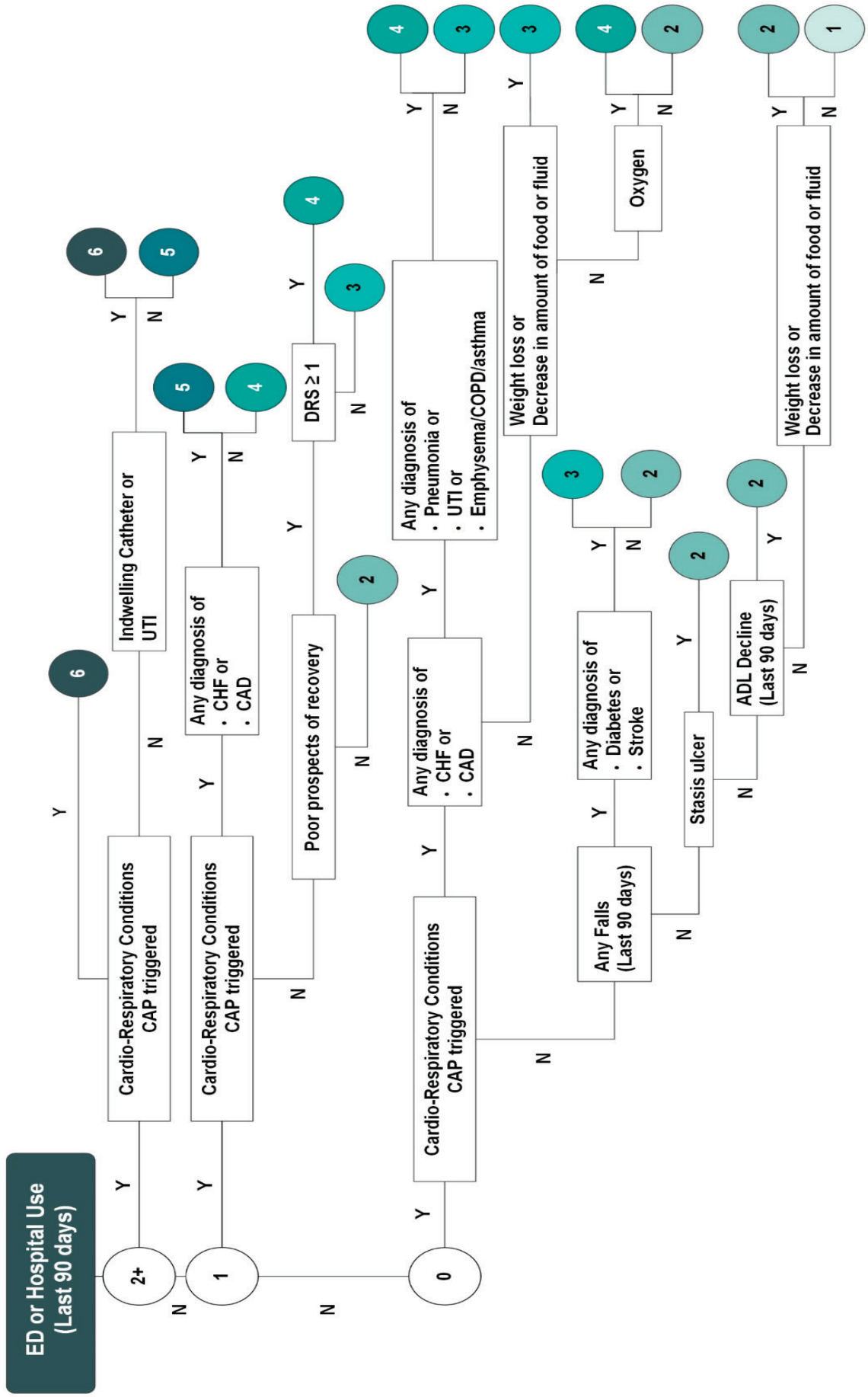
The Detection of Indicators and Vulnerabilities for Emergency Room Trips (DIVERT) scale is a decision-support tool that identifies a person's likelihood of future unplanned emergency department (ED) visits.

### How does it work?

The DIVERT assigns 1 of 6 risk levels to each home care client based on information from interRAI Home and Community Care instruments. Higher values indicate that the person has a higher risk of future ED use. The level assigned is determined using a range of criteria. Persons fall into a given risk level by several pathways that represent different combinations of these criteria.

### What are the assessment items and scales used to calculate the DIVERT score?

- Past hospital/ED Use
- Cardio-Respiratory Conditions CAP
- ADL Decline
- Good prospects of recovery from current disease or conditions, improved health status expected.
- Indwelling Catheter
- Diseases: Cerebrovascular accident (stroke) / Congestive heart failure (CHF) / Coronary heart disease / Pneumonia / Urinary tract infection (UTI) / Diabetes / Emphysema / Chronic obstructive pulmonary disease (COPD) / Asthma / Renal failure
- Falls Frequency
- Unintended weight loss of 5% or more in last 30 days (or 10% or more in last 180 days)
- In last 3 days, noticeable decrease in the amount of food person usually eats or fluids usually consumes
- Stasis ulcer
- Oxygen
- Depression Rating Scale




Source: Canadian Institute for Health Information (CIHI). Job Aid. May 2018.

Many of the risk pathways in the DIVERT Scale describe "ambulatory care sensitive conditions" – those that are generally agreed to be preventable by interventions in community-based primary care. For example:

- Cardio-respiratory symptoms best differentiate home care patients' risk regardless of previous use.
    - These symptoms are common presenting complaints among older patients reflect immediate and, often, distressing events that prompt emergency department use.
- Cardiac conditions (CHF and CAD) further differentiate the presence of cardio-respiratory symptoms.
    - The presence of cardiac conditions in the DIVERT scale likely differentiates the real or perceived severity of the preceding cardio-respiratory symptoms.
- The relationship between cardiac conditions and other complex conditions represents the decompensating influence of other complex conditions and infections.
- Patients with poor prospects for functional improvement and mood symptoms are at higher risk of emergency department use than those without mood symptoms.
    - This demonstrates that a patient's mood symptoms moderate the effect of functional decline.
- The grouping of previous falls with a diagnosis of diabetes or a recent stroke represents an increase risk and, potentially, severity of future falls.
    - This increased risk may reflect the visual, spatial, and gait challenges associated with diabetes and stroke.
- Some geriatric syndromes differentiate the risk of emergency department visits among patients with no previous emergency department use or cardio-respiratory symptoms, including: falls, ADL decline, and nutritional status.
    - These factors might be a reflection of underlying chronic conditions (incl. dementia), medications, social isolation, frailty, or environmental factors.
- A stasis ulcer differentiated the risk of emergency department visits for patients without previous ED use or cardio-respiratory symptoms.
    - Stasis ulcers account for the majority of chronic wounds among older adults.

## Additional sources regarding Development and Validation of the DIVERT Scale:


- Costa AP, Hirdes JP, Bell CM, Bronskill SE, Heckman GA, Mitchell L, Poss JW, Sinha SK, Stolee P. Derivation and validation of the detection of indicators and vulnerabilities for emergency room trips scale for classifying the risk of emergency department use in frail community-dwelling older adults. J Am Geriatr Soc. 2015 Apr;63(4):763-9. doi: 10.1111/jgs.13336. PMID: 25900490.

- Mowbray FI, Jones A, Schumacher C, Hirdes J, Costa AP. External validation of the detection of indicators and vulnerabilities for emergency room trips (DIVERT) scale: a retrospective cohort study. BMC Geriatr. 2020 Oct 20;20(1):413. doi: 10.1186/s12877-020-01816-0. PMID: 33081709; PMCID: PMC7576700.
- Rönneikkö JK, Huhtala H, Finne-Soveri H, Valvanne JN, Jämsen ER. Classifying home care clients' risk of unplanned hospitalization with the resident assessment instrument. Eur Geriatr Med. 2022 Oct;13(5):1129-1136. doi: 10.1007/s41999-022-00665-x. Epub 2022 Jun 27. PMID: 35759120; PMCID: PMC9553799.


## Use of the Divert Scale

### General Suggestions

Interventions and models of care should be adapted to the unique needs of each subgroup identified by the DIVERT Scale. The resource intensity of each DIVERT subgroup intervention should be proportionate to the identified risk level and involve existing chronic disease management guidelines as well as appropriate clinical discretion for each person.

The key to addressing the risks identified by the DIVERT Scale is to identify the underlying issues and address them using local guidelines and chronic disease management guidelines.

### Modes of Implementation

interRAI Home and Community Care instruments are mandated for home and community care patients in many jurisdictions. DIVERT can be generated from the interRAI Home and Community Care instruments at no additional cost. Software specifications or other coding can be obtained by software vendors from interRAI. Two broad methods can be used:

1. "Push Method": The home and community care agency's decision support or IT unit can send automatic 'risk notices' regularly to case mangers based on the DIVERT scores generated from interRAI Home and Community Care instruments a specified time period. If patient primary care physician information is available, then automatic 'risk notices' could also be sent (electronically if possible) to primary care physicians by the decision support or IT unit directly. Automated patient health profiles, based on the DIVERT scale, could be developed to augment risk notices.
2. "Pull Method": Home and community care case managers can integrate the DIVERT scale into their practice decisions the same way as any interRAI risk scale that are available on the interRAI home and community care instruments. Guidelines for intervention should be developed to train and support case managers on how to take appropriate actions.

## Implications for Home and Community Services

The DIVERT scale can be used as a tool to help direct home care resources designed to aid chronic disease management. These can include:

- symptom self-management training,
- medication review and administration support (e.g., multi-compartment compliance aids),
- inhaler technique training and attachments, and
- coordination with medical care providers (see below).

## Implications for Primary Care

Research suggests that faster access and stronger links to primary health care is an indispensable component of emergency department avoidance strategies. The DIVERT scale can used by case managers to target home care patients who need attention in primary care. Referrals could be made directly to primary care providers for appointments, after hours primary care access, or home visits.

- For example, patients with cardio-respiratory symptoms, but without a formal diagnosis, may particularly benefit from early identification and management in primary care.
- Evidence suggests that many home care patients with cardiac conditions are not receiving ideal pharmacotherapy. Also, some persons with one or more severe chronic conditions have not made a treatment plan with their primary care provider in over a year.

## Additional sources and examples of approaches to using the DIVERT Scale:

- https://www.divertcare.ca/
- Schumacher C, Lackey C, Haughton D, Peirce T, Boscart VM, Davey M, Harkness K, Heckman GA, Junek M, McKelvie R, Mitchell L, Sinha SK, Costa AP. A Chronic Disease Management Intervention for Home Care Patients with Cardio-Respiratory Symptoms: The DIVERT-CARE Intervention. Canadian Journal of Cardiovascular Nursing (CJCN), 2018, 28(3): 18-26.
- Dash D, Schumacher C, Jones A, Costa AP. Lessons learned implementing and managing the DIVERT-CARE trial: practice recommendations for a community-based chronic disease self-management model. BMC Geriatr. 2021 May 11;21(1):303. doi: 10.1186/s12877-021-02248-0. PMID: 33975541; PMCID: PMC8111935.