Referral Rate Measure Fact Sheet

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Referral Rate Measure

The Referral Rate is the rate of hospital referrals of potential organ donors made to the Organ Procurement Organization (OPO) from within the OPO's Donation Service Area (DSA) in a calendar year.

Referral Rate Per 100:

$$\frac{\text{Number of Referrals for OPO in Calendar Year}}{\text{Total Number of Potential Donors for OPO in Calendar Year}} \times 100$$

Overview

AOPO and Quality Improvement

The Association of Organ Procurement Organizations (AOPO) leads the nation's organ donation community with a clear mission: save more lives. Central to that mission is a commitment to continuous quality improvement—advancing donation and transplantation practices, collaborating with stakeholders, and sharing best practices across its OPO member network.

In 2025, AOPO launched the Organ Procurement Organization Performance Measurement Project to redefine how OPO performance is measured. The project aims to create independently validated, scientifically sound, data-driven metrics aligned with the CMS measurement framework—promoting quality improvement, transparency, trust, and stakeholder alignment while accounting for medically complex donors and the operational realities of the donation and transplantation system.

Background on Referrals

Referral of a potential donor to an OPO is a critical first step in the donation process and a federal requirement in the United States under the Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509) and under 42 CFR § 482.45, CMS "Conditions of Participation." Timely referrals give OPOs sufficient time to assess donor medical suitability and have appropriate conversations with the donor or next of kin.

Referral Rate: Why It's a Priority

- Referrals are the starting point of OPO procurement activity, requiring hospital staff to recognize clinical triggers and notify the OPO in a timely manner.
- OPOs currently count referrals inconsistently; standardizing this measure enables meaningful comparisons and quality improvement.
- Breaking down referral data by race, gender, and hospital can surface potential bias and variation in individual hospital participation.
- Improving referral rates directly supports the ultimate goal: more viable organs available for transplant and fewer deaths on the waiting list.
- Referral Rate data inform OPO education and outreach efforts targeting hospital staff.
- Tracking this measure increases OPO accountability for hospital engagement—a primary driver of timely referrals.
- Effective OPO–hospital engagement includes training on clinical markers of imminent death, OPO roles and processes, reference resources, and regular face-to-face contact with OPO coordinators.
- Strong OPO–hospital relationships build procurement partnerships and increase the likelihood of future referrals.

Measure Specifications

The Referral Rate measure is the rate per 100 deaths of ventilated hospital referrals to the OPO of the potential donor population in the OPO's DSA within a calendar year. It is calculated at the OPO level and stratified based on age, race, and sex. See the definitions section of this document for relevant terms and definitions.

OPOs will extract the referral data from their electronic donor record (EDR) via tabular data files (e.g., CSV) and upload them to an AOPO site on a quarterly basis. The referral data will be used to calculate the measure numerator. AOPO will retrieve the Multiple Cause of Death (MCOD) data for the calculation. Refer to the AOPO Data SOP document for the Referral Rate Measure for details on data standardization, variable format, and measure calculation.

Referral Rate Per 100:

Numerator

- The numerator is the number of ventilated patients in the OPO's DSA referred to the OPO in a calendar year, regardless of whether a donation resulted from the referral. The OPO receives telephonic or electronic notification from a donor hospital of a potential donor based on clinical criteria agreed upon by the OPO and the donor hospital in a Memorandum of Understanding (MOU).[1]
- Referrals are attributed to the calendar year (time between 12:00 a.m. on January 1 of a calendar year and 11:59 p.m. on December 31 of that same year) based on the referral date, not the date of death.
- OPOs capture the ventilator status in their EDR at the time of referral from the donor hospital.

$$\frac{\text{Number of Referrals for OPO in Calendar Year}}{\text{Total Number of Potential Donors for OPO in Calendar Year}} \times 100$$

Denominator

The denominator is the potential donor population number in the OPO's DSA in the calendar year. The denominator uses the National Vital Statistics System (NVSS) MCOD data, which are mapped by county in the OPO's DSA. The NVSS MCOD data are compiled from data provided by the 57 vital statistics jurisdictions through the National Center for Health Statistics' (NCHS) Vital Statistics Cooperative Program. Potential donors are then apportioned to OPOs in counties with a waiver hospital based on the percentages calculated by CMS in their OPO Annual Public Aggregated Performance Report.

[1] OPOs maintain MOUs with donor hospitals regarding hospital notification of imminent deaths. These MOUs are specific to each hospital and generally require hospitals to make referrals within 1 to 3 hours of a ventilated patient meeting any of the following established clinical triggers and prior to the withdrawal of mechanical and/or pharmacological support: (a) patient with a neurological and/or life-threatening injury, (b) loss of neurological function without sedation, (c) patient meeting a Glasgow Coma Scale (GCS) of 5 or less, (d) anticipated family meeting to discuss end-of-life care, or (e) prior to the discontinuation of ventilator support, the family asks to discuss donation options.

Definitions

Donor

A deceased individual from whom at least one organ was recovered for transplant, regardless of whether the organ was transplanted. An individual would also be considered a donor if only the pancreas is procured and used for islet cell research or transplantation.

Organ

Human kidney, heart, lung, liver, pancreas, or intestine.

Potential Donor Population

The potential donor population consists of deaths occurring within an OPO's DSA that meet all the following criteria, as determined using the NCHS Provisional NVSS MCOD file. Where deaths occur in counties shared across DSAs, they are apportioned to each OPO according to waiver percentages listed in the OPO Public Performance Report.

Included deaths are those of individuals who:

- Were age 80 or under at the time of death;
- Died inside a hospital;
- Had a discernible cause of death; and
- Had one of the following ICD–10–CM codes listed as the primary cause of death:
  - I20–I25 (ischemic heart disease)
  - I60–I69 (cerebrovascular disease)
  - V01–Y89 (external causes of death: blunt trauma, gunshot wounds, drug overdose, suicide, drowning, and asphyxiation)

Excluded deaths are those in which any of the following ICD–10–CM codes appear among any listed cause of death:

Viral:
- B20 (HIV infection by serologic or molecular detection)[2]
- A82 (rabies)
- A83-86, B33.3, B97.3 (retroviral infections including viral encephalitis)
- B27 (acute Epstein-Barr virus (mononucleosis))
- A92.3 (West Nile virus infection)
- A98.4 (Ebola virus)

Bacterial:
- A15-A19, B90 (tuberculosis)
- K46.1, K45.1 (gangrenous bowel)
- K63.1 (perforated bowel)
- A40-A41 (intra-abdominal sepsis)

Fungal:
- B45 (active infection with cryptococcus)

Parasites:
- B55 (leishmania)
- B78.7 or B78.9 (strongyloides - widespread infection)
- B50-B54 (malaria (plasmodium sp.))

Prion:
- A81.0 (Creutzfeldt-Jakob disease)

D60-D61 (aplastic anemia)

D70 (agranulocytosis)

C00-C97 (current malignant neoplasms, except non-melanoma skin cancers such as basal cell and squamous cell cancer, and primary CNS tumors without evident metastatic disease)

Z85.820 (history of melanoma)

Hematologic malignancies:
- C90.1, C91-C95 (leukemia)
- C81 (Hodgkin's disease)
- C82-C88 (lymphoma)
- C90.0 (multiple myeloma)

[2] HIV is not a contraindication to donation where HIV-positive donors and donor organs are able to be matched with an HIV-positive recipient. However, HIV-positive donors are excluded from the potential donor population count for the purposes of calculation of this measure. Over time, this measure may be amended to include HIV-positive donors and a separate stratification of HIV-positive donors and recipients to reflect what may be a growing proportion of donors and recipients.

Referral

The telephonic or electronic notification by a donor hospital of a potential donor based on clinical criteria. A referral is attributed to a calendar year based on the date of the referral, not the date of death. Referred potential donors are counted as referrals regardless of whether the referral was made using accurate clinical criteria for donation (donor referral triggers).

Resources

- Association of Organ Procurement Organizations – OPO Metrics Project
  https://aopo.org/opo-metrics-project/
- Centers for Medicare and Medicaid Services – OPO Conditions for Coverage and Participation
  https://www.cms.gov/medicare/health-safety-standards/conditions-coverage-participation/organ-procurement-organizations-opo
- Health Resources and Services Administration (HRSA) – Organ Procurement and Transplantation Network (OPTN)
  https://www.hrsa.gov/optn?from=optn.transplant.hrsa.gov
- NCHS – Mortality Data on CDC WONDER
  https://wonder.cdc.gov/mcd.html
- U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services. (2026). 42 C.F.R. § 486.328: Condition: Reporting of data.
  https://www.ecfr.gov/current/title-42/part-486/section-486.328