## Ontario Transfusion Quality Improvement Plan Narrative (Red Blood Cells)

### Overview

The US National Summit in the USA on Overuse (2013) identified five overused treatments that are detrimental to patient safety and quality health care: one of the five was blood transfusion. The Agency for Healthcare Research and Quality Healthcare cost and utilization project (2007) reported that blood transfusions occurred in 1 in 10 hospital stays with a procedure.

The Blood Programs Coordinating Office (BPCO) of the Ontario Ministry of Health and Long-Term Care (MOHLTC) pays for blood components and products used by Ontario patients (approximately half a billion dollars per year and equal to approximately half of the blood components and products used annually in Canada, excluding Québec). There are two complementary programs funded by the BPCO to promote safe transfusion practices: the Ontario Transfusion Coordinators (ONTraC) program and the Ontario Regional Blood Coordinating Network (ORBCoN).

The ONTraC program plays an important role in promoting and facilitating best practices in blood transfusion, with a focus on perioperative Patient Blood Management (PBM) for selected surgical procedures. The program, initiated in 2002, has placed PBM coordinators in 25 Ontario hospitals. It has contributed to a significant decrease in the perioperative use of red blood cells (RBCs) in participating hospitals, through extensive collaboration between the ONTraC coordinators and medical and hospital staff to optimize hemoglobin in preoperative patients and to minimize or avoid red blood cell (RBC) transfusion. ONTraC has performed audits of transfusion practice to allow for benchmarking and evaluation of the program's success. For example, between 2002 and 2014, the provincial transfusion rate in knee surgery declined from 22% to 3%, and in coronary artery bypass graft surgery from 60% to 21%. The program also focuses on hip surgery, cardiac valve surgery, abdominal aortic aneurysm repair, gynecologic surgery, and prostatectomy, with similar 65-90% reductions in provincial transfusion rates. ONTraC data consistently demonstrate that when transfusion is avoided there is a significant reduction in length of stay and in postoperative infections. The program has been cost-effective and cost-efficient.

ORBCoN, initiated in 2006, has a mandate to provide an organized and integrated approach to blood management in Ontario. It was also created as a mechanism to engage hospitals and Canadian Blood Services (CBS, the blood supplier), coordinate educational initiatives, facilitate the adoption of best practices in blood transfusion, improve patient safety, assist with implementing aspects of the provincial Blood Utilization Strategy, and carry out quality improvement projects. ORBCoN's mission is: "Inspiring and facilitating best transfusion practices in Ontario". Its vision is: "To be an innovative and valuable resource for promoting appropriate, standardized and safe transfusion practices". Since its inception, ORBCoN has developed resources for physicians, nurses, technologists and patients. It has achieved measureable success working with hospital partners, particularly the staff of hospital transfusion medicine laboratories. Blood product inventory management has improved, product wastage had decreased through redistribution and other programs, and significant cost savings have been achieved. In 2014, ORBCoN added to its staff two part-time Clinical Project Coordinators (a physician and a nurse) to provide on-site educational programs to hospital and medical staff upon request.

### Focus

The Quality Improvement Plan (QIP) aims to improve and standardize RBC ordering and transfusion practices in Ontario hospitals. As Beal wisely said in 1976: "Blood transfusion is a lot like marriage. It should not be entered into lightly, unadvisedly or wantonly, or more often than is absolutely necessary".

Blood transfusion is costly and not without risk. Recent literature has clearly shown that a restrictive approach to blood transfusion is a safer approach for many patient groups, conserves the blood supply, and reduces cost to the health care system. The Choosing Wisely® and Choosing Wisely Canada campaigns have both highlighted transfusion practices that should be questioned by patients and their physicians. Examples of questionable transfusion practices include transfusion of blood products when they are not indicated, and transfusing blood products in insufficient or excessive doses. ORBCoN-

sponsored audits of the utilization of RBCs, frozen plasma, intravenous immune globulin, and prothrombin complex concentrate (a plasma product used to reverse the anticoagulant effect of warfarin) have revealed variation in ordering practices in Ontario hospitals, with some inappropriate ordering of each of these blood products.

**Alignment**

This plan aligns with ORBCoN's and ONTraC's values, with emphasis on engaging hospital and physician partners, standardizing transfusion practice, and optimizing patient safety. It also aligns with several of the Institute of Medicine's six dimensions of quality, including safe, effective, patient centred, efficient, timely, and equitable care. Additional alignments include those with the Choosing Wisely Canada campaign and Ontario hospitals' generic quality improvement plans, encompassing both patient safety and system efficiency. These global targets are contained in most hospitals' Health Service Accountability Agreements (HSAAs), so the transfusion initiatives described in this plan would easily align with Ontario hospitals' HSAAs and HOQ-modeled QIPs. Local Health Integration Networks (LHINs) also incorporate these quality improvement factors. Accrediting organizations active in Ontario, such as Accreditation Canada and the Institute for Quality Management in Healthcare (formerly Ontario Laboratory Accreditation), both support best practices in transfusion medicine in the laboratory and clinical settings.

**Engagement of Partners**

The ORBCoN program is operated from three regional offices in the province, and is overseen by a Steering Committee whose membership includes stakeholders from the BPCO, laboratory technologists, nurses, physicians, hospital administrators, and experts in knowledge translation, physician education, and patient safety. Representatives from ORBCoN report regularly to the Ontario Blood Advisory Committee (OBAC), which advises the BPCO on transfusion medicine issues. ORBCoN also works closely with CBS through the Ontario Blood Collaborative, Many transfusion medicine physicians provide their expertise to ORBCoN as volunteers in the development of educational resources and to provide presentations at educational events organized by ORBCoN.

Each year, representatives from the ORBCoN regional offices, together with staff from CBS, meet with transfusion medicine and administrative staff at every Ontario hospital to review blood product inventory management practices, local blood product use and wastage, and to provide an update on ORBCoN and CBS blood product management and educational projects. These visits are followed by a summary letter to the hospital's Chief Executive Officer and Chief of Staff, in an effort to raise awareness of local transfusion medicine issues and performance. The cost of the blood products used locally is also shared. Although hospitals do not pay directly for the blood products themselves, hospital employees receive, manage, process, and deliver blood products to patients. Hospitals also absorb the cost of caring for patients who experience adverse transfusion events.

ONTraC also has membership on OBAC and is overseen by a Steering Committee with a membership of diverse transfusion stakeholders. The ONTraC program also covers a wide geography in Ontario and engages 25 hospitals. ONTraC freely shares its transfusion improvement data with stakeholders and others. Its website (www.ontracprogram.com ) outlines its organization, participants, and approaches to PBM.

Ontario's RBC Transfusion QIP has been developed with extensive input from key stakeholders. An initial Quality Focus Day was held on February 25, 2014, during which the need for and focus of a Quality Improvement Program, and its possible quality indicators, were discussed. Stakeholders who contributed to the discussions included a patient representative, technologists, nurses, administrators and transfusion medicine physicians from community and teaching hospitals throughout the province, and representatives from the BPCO, CBS, Health Quality Ontario (HQO), and ONTraC. A community hospital Director of Quality Management provided advice on the development of an effective QIP, and a transfusion medicine expert from Britain attended as a guest, to provide insight into the Quality Improvement initiatives

underway there. A guest from another province also discussed blood conservation strategies, particularly with the more rare O Rh negative RBCs. A Working Group, and subsequently the Ontario Transfusion QIP Committee, composed of some of the thirty original attendees to the Quality Focus Day and other transfusion stakeholders then met on November 6, 2014, to draft the QIP with the assistance of an expert facilitator. The facilitator had also attended the Quality Focus Day, and worked closely with ORBCoN staff to prepare for the Working Group's November meeting.

**Information Technology**

Information technology is used to leverage the impact of the relatively small staff numbers at ORBCoN. The ORBCoN website www.transfusionontario.org contains toolkits for blood product inventory management, emergency blood management, Transfusion Committees, and utilization management of selected blood products. It also contains web-based educational programs for nurses, laboratory technologists, and physicians. Links to other relevant websites (ONTraC, the Transfusion Transmitted Injury Surveillance System [TTISS]) and guideline documents are also provided, as well as information for patients. Of particular relevance to the Quality Improvement Program are the web-based audit tools, which allow hospitals to enter data collected in audits of their local transfusion practices. Web-based tools provided by ORBCoN also facilitate redistribution of blood component and product inventory, minimizing wastage.

There is as yet no province-wide database that tracks blood product utilization, but a Proof of Concept project, funded by ORBCoN in 2014 and involving three large Ontario hospitals, has shown that the creation of such an inter-institutional database is feasible. ONTraC has developed a common database for its 25 participating hospitals.

**Challenges, Risks and Mitigation Strategies**

Both ORBCoN and ONTraC provide many resources to assist physicians and other health care professionals in providing safe and effective transfusion services to patients. However, most transfusions in Ontario are provided in the hospital setting and, although ORBCoN and ONTraC can encourage the use of their best practice recommendations, educational resources and audit tools, they cannot mandate their use, nor can they hold directly accountable hospital or medical staff for the management and use of blood products. Hospitals, although committed to patient safety and quality improvement iniatives, do not pay directly for blood products, and more compelling fiscal imperatives may direct their choice of quality improvement indicators toward other issues perceived as more pressing.

Physicians, including those who find themselves in the position of transfusion medicine medical directors or Transfusion Committee chairs, receive variable amounts of transfusion medicine education during their training. Although on-line continuing medical education programs are provided on the ORBCoN website, the tracking of their use has shown that a minority of eligible physicians avail themselves of these resources. The same is true for the Resource Manual for Medical Directors of Transfusion Medicine Services. It is encouraging to note, however, that the ORBCoN continuing education programs for nurses and laboratory technologists are widely used by hospitals, and that physicians who have completed the on-line learning programs have found them to be helpful. Hospital on-site education by ORBCoN staff has also been well received, although this approach reaches a smaller audience than on-line programs.

As the Ontario Transfusion Quality Improvement Plan objective cannot be achieved without considerable commitment and effort by hospitals, there is a risk that individual hospital resources may not be sufficient to implement the required internal processes. Two strategies will be used to mitigate this risk. Firstly, the QIP will start with a single objective. The tools and resources developed to facilitate the achievement of this objective can be adapted to other objectives in the future. Secondly, the Committee has worked closely with Health Quality Ontario to develop this plan, and is in active discussions with HQO regarding the possibility of further alignment between the Ontario Transfusion QIP and the provincial QIP. This QIP has received endorsement from the OBAC. The Committee has also linked with other quality minded organizations that support and have interest in this QIP including the Canadian Society for Transfusion Medicine, the Canadian Society of Internal Medicine, and Choosing Wisely Canada.

Both ORBCoN and ONTraC will continue to engage with hospital partners, provide on-line and live educational programs to hospital and medical staff and, with its CBS partners, will continue to provide hospitals with utilization data which they can use to compare their performance with peers. As resources allow, the development of a province-wide blood product utilization database will provide a powerful tool to further promote utilization management improvements and help to guide future educational initiatives.

**Accountability**

Shared accountability with hospital partners is one of the core values of ORBCoN and ONTraC, and these programs provide resources and support to these partners. However, the final accountability for providing a safe and effective transfusion services resides with the hospital and medical staff who are directly involved with patients. The objective of this Quality Improvement Plan, addressing as it does several of the attributes of a high-performing health system as defined by Health Quality Ontario, should be attractive to hospitals as a Quality Indicator for inclusion in their Quality Improvement Plans.

**Sign Off:**