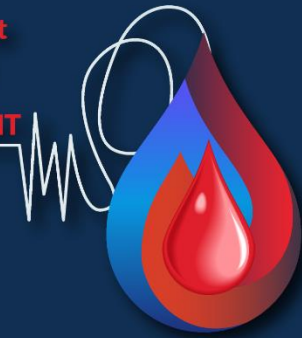


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INFLUENCIA DE LA PROMOCIÓN EN LA SEGURIDAD TRANSFUSIONAL Y SU IMPACTO EN LA HEMOVIGILANCIA

Dr. Sabin Urcelay

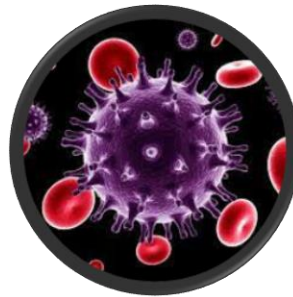
Fundación Centro Vasco de Transfusión y Tejidos Humanos. Gipuzkoa



Inocencio VIII
([Génova, 1432](#) – [Roma, 1492](#))



Francia [1994](#)



Jean-Baptiste Denys [1667](#)

Hemovigilancia



ORDEN SCO/322/2007 BOE 42 17 de febrero

Hemovigilancia: Conjunto de procedimientos organizados de vigilancia relativos a los efectos o reacciones adversas graves o inesperadas que puedan aparecer a lo largo de la cadena transfusional, desde la extracción de la sangre y componentes hasta el seguimiento de los receptores, todo ello con el fin de prevenir, y tratar su aparición o recurrencia.



Hemovigilancia es el término que se utiliza para definir el conjunto de acciones de vigilancia epidemiológica que permiten la detección, registro y análisis de la información relativa a los eventos adversos e indeseables derivados, tanto de la donación, como de la transfusión de sangre. El objetivo del programa es garantizar la supervisión en tiempo real, de los eventos notificados por las instituciones participantes para llevar el registro sistemático de los casos clínicos e introducir medidas preventivas y correctivas, que mejoren el perfil de seguridad de toda la cadena transfusional.

Manual Iberoamericano de Hemovigilancia



Se sabe que la transfusión de sangre y componentes seguros es un acto que salva vidas, sin embargo, es de conocimiento que existe un riesgo asociado tanto para los donantes de sangre y componentes, como para los pacientes que se transfunden.

Tener implementado un sistema nacional de Hemovigilancia es esencial para identificar y prevenir la aparición o reaparición de reacciones adversas y eventos no deseados, así mismo, para aumentar la seguridad, la eficacia y la eficiencia de la transfusión de sangre. Este sistema debe abarcar todas las actividades de la cadena transfusional, es decir de vena a vena, un seguimiento bidireccional del donante al receptor, y viceversa. No es un proceso estático, sino uno continuo, de recolección y análisis de datos relacionados con los procesos de la transfusión, los eventos adversos y las reacciones transfusionales. Todo con el fin de investigar las causas y los resultados, y prevenir que ocurran o que sean recurrentes en el tiempo.

la eficacia y la eficiencia de la transfusión de sangre. Este sistema debe abarcar todas las actividades de la cadena transfusional, **es decir de vena a vena** un seguimiento bidireccional del donante al receptor, y



ALCALDÍA MAYOR
DE BOGOTÁ D.C.
SALUD

Sistema Integrado de Servicios
de Salud Sur E.S.E

HEMOVIGILANCIA: Herramienta integrada de información, que se alimenta de actividades de vigilancia en los diferentes niveles del procedimiento de la aplicación o transfusión de hemocomponentes desde la captación de un donante por un Banco de Sangre hasta su destino final, pasando por: la reserva, la solicitud, el transporte, los dispositivos y equipos médicos que en ella intervienen, la aplicación o transfusión, la evolución del paciente transfundido y el manejo de los sobrantes hasta su destino final, con el objetivo de implementar, medidas correctivas, guías y protocolos entre otros.



Es precisamente la recolección y análisis de la información sobre reacciones indeseables producidas con la utilización de sangre y hemocomponentes, a la que se le ha dado en la Hemovigilancia mayor connotación, ya que su diagnóstico, tratamiento y vigilancia permite implementar acciones inmediatas a fin de prevenir su apareamiento o su recurrencia.

Hemovigilancia

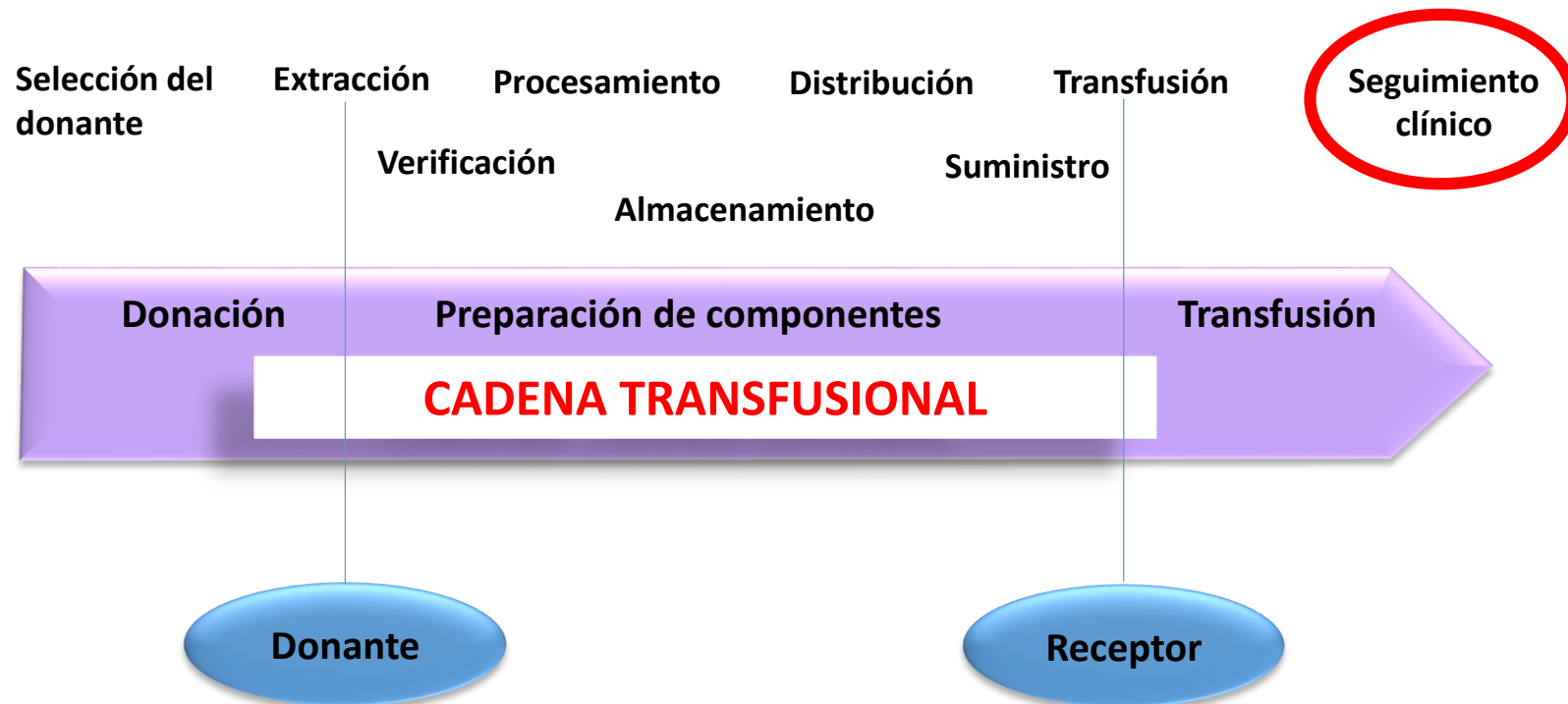


El ámbito de la Hemovigilancia integra todos los eslabones de la cadena transfusional, por lo que el informe se basa en tres apartados dedicados a los incidentes relacionados con la transfusión, la donación y, los ligados a la calidad y seguridad de componentes (principalmente incidentes en la preparación).



Hemovigilancia

Promoción



"La mejor transfusión es la que no se hace"

04-06-2019

"El mejor trozo de pan es el que no se come"



"48,000 personas mueren al año por falta de sangre"

1.- ¿A qué responde la iniciativa "Por ti, mi Sangre"?

Según la Organización Panamericana de la Salud (OPS), nuestro país necesitaría 600,000 unidades de sangre al año para ser auto eficiente en su abastecimiento, pero solo alcanzamos un promedio de 250,000 unidades. En respuesta, este movimiento tiene como objetivo hacer una campaña de recolección de sangre por mes, mediante un bus itinerario que recorrerá todo el país.

2.- ¿Cuántos mueren por falta de donación de sangre?

Al año un aproximado de 48,000 personas muere por falta de sangre, una de las principales causas de muerte en nuestro país. De hecho, en las provincias la situación es más alarmante, pues la falta de sangre por hemorragia materna es la principal causa de muerte.



La sangre es como los paracaídas. Si no está cuando la necesitas, seguramente no la volverás a necesitar

12.

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Promoción



Dr. Oscar Torres



Promoción
Suficientes donantes
Responsables
Informados/Formados
Habituales (fidelizados)



Gift relationship

Richard M. Titmus

London. George Allen & Unwin Ltd. 1970

El donante retribuido:

Personas que donaban de manera circunstancial atraídos por una manera puntual de ganar dinero. El precio variaba dependiendo de la oferta y demanda del momento. Esta compra y venta se anunciaban sin ningún tipo de pudor en los periódicos de la época. Muestra de ello es este anuncio que se publicaba en Miami en 1.945 “ *Gane más de 200 \$ al mes en su tiempo libre*”

El donante profesional:

Personas que donaban de manera regular, estaban registrados y podían recibir suplementos de hierro, supervisión médica y dietas hiperprotéicas, además del dinero. En su mayoría eran donantes que acudían a sesiones de plasmaféresis una o dos veces por semana.

El donante voluntario inducido económicamente:

Donantes que recibían un pago en metálico, pero decían que su motivación primaria no era el cobro de dinero. Había algunos sindicatos que ofrecían 10\$ o 15\$ mediante “grupos de presión” en fábricas o barrios, para estimular la donación de sangre y además competían entre ellos para ver que grupo obtenía más donaciones a final de año

Los donantes responsables de reponer la sangre transfundida:

Los hospitales podían solicitar una reposición de la sangre transfundida o el pago de una tasa compensatoria. Tras una intervención importante con un consumo de 25 unidades o más, a un paciente se le podía solicitar el pago de 1250\$ de 1968 o la reposición de las unidades mediante donantes “voluntarios” que él mismo debía persuadir para que donasen.

El donante para el seguro familiar:

Personas que mediante una donación anual tenían aseguradas las transfusiones que necesitasen los miembros de su familia directa : cónyuge e hijos solteros y menores de 19 años. Donando en más ocasiones se podrían incluir padres y abuelos

Los donantes Voluntarios cautivos: donantes en situación de sumisión o subordinación ante una autoridad que les requería o esperaba que donase. Esta situación se podría dar en el ejercito, en las prisiones...

Donantes voluntarios con beneficios complementarios:

Donantes que eran atraídos por la perspectiva de una recompensa tangible que no sea dinero. Estos beneficios podían ser días de vacación, regalo de alimentos, entradas para espectáculos deportivos o de otra índole, privilegios en centros sanitarios.



Los donantes de sangre pueden ganar abonos de entrada a piscinas de

El objetivo de esta campaña del Banco de Sangre es impulsar la donación de sangre durante las fechas estivales. Las personas que donen sangre del 15 de julio al 30 de agosto entrarán en el sorteo semanal de un abono de diez entradas a las piscinas municipales.

NOTICIA ACTUALIZADA 8/7/2021 A LAS 22:47 EP



activa la campaña de verano para promocionar la donación de sangre

Los donantes de sangre recibirán tickets para canjear por hamacas y sombrillas y descuentos en el cine

El donante voluntario comunitario: el donante que donaba por ayudar a su comunidad. La principal característica de estas donaciones es la ausencia de recompensas tangibles inmediatas bien sean monetarias o no.

Además de los tipos de donantes descritos por Tittmus, podríamos añadir otros tipos de donantes que se pueden dar en nuestro entorno

El donante reivindicativo:

El donante que quiere donar por que cree que tiene derecho a pesar de no cumplir algunos criterios de exclusión

REGIÓN

Salud investigará caso de discriminación en donación de sangre

MILENIO
20 años

El donante que utiliza la donación como protesta:

El donante que dona (generalmente en grupo) para generar una noticia con la que reivindicar algo totalmente ajeno a la donación de sangre

Una **Andalucía** **los**

cár **"Los políticos nos la chupan
nosotros la donamos"** **lado**

28 Agosto 2 **Con este lema, policías, bomberos y Guardia Civil donan sangre en
protesta por los "recortes" del Gobierno** **el**

Lanza / MA



El donante que piensa que la donación le “hace bien”:

El donante que dona porque le parece que le puede beneficiar en su salud o en el control de la misma

infosalus / asistencia

Actualizado 06/10/2014 19:34 CET

Pacientes de Hemocromatosis piden donar sangre con más frecuencia de la que marca la ley



El donante con ansia de “normalizarse” :

El donante que dona para formar parte de la “normalidad” que le rodea y que con la donación piensa que se está integrando

Más de 300 inmigrantes practican la solidaridad de donar sangre en León

La Fundación Española de Donantes de Sangre realiza una campaña de captación de donantes entre la población extranjera con ayuda de Caja España

CÁRCELES

acoge la primera donación de sangre dentro de un centro penitenciario

EFE

03-01-12 | 12:59



Estas donaciones son "un gesto solidario, generoso y altruista jamás antes realizado", ha explicado en declaraciones a Efe el presidente de la asociación, "Este tipo de cosas dignifica la imagen de los presos", ha explicado , quien ha elogiado el gesto de los internos, "cuando alguien necesita sangre no importa de quién proceda".

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ISBT

International Society
of Blood Transfusion

NOISUNBTL DOOIL TO



CÓDIGO ÉTICO RELATIVO A LA MEDICINA DE TRANSFUSIÓN

Objeto

Este código define los principios éticos y profesionales que la International Society of Blood Transfusion (Sociedad Internacional de Transfusión Sanguínea, en lo sucesivo, la Sociedad), como organismo de profesionales de la Medicina de Transfusión, cree que deben sostener el establecimiento y las actividades de un Servicio de Transfusión Sanguínea e identifica estándares éticos y profesionales para los profesionales sanitarios activos en este campo.



Introducción

La disponibilidad de un suministro de sangre y hemoderivados (en lo sucesivo, "*sangre*") seguro, efectivo y suficiente, así como su uso óptimo para pacientes, constituyen el pilar en el que se apoya la práctica de la Medicina moderna. La *sangre* es un producto médico de origen humano y su disponibilidad depende de la contribución del *donante*, quien dona *sangre* a beneficio de otros sin ningún beneficio físico para sí mismo(a). Por lo tanto, es importante que se respete la contribución de los *donantes* y su donación y que se tomen todas las medidas razonables para proteger su salud y su seguridad y que existan salvaguardias adecuadas para garantizar que los productos derivados de la donación se utilicen de manera adecuada y equitativa para los pacientes.

Asegurar el suministro

Uso óptimo : adecuado y equitativo

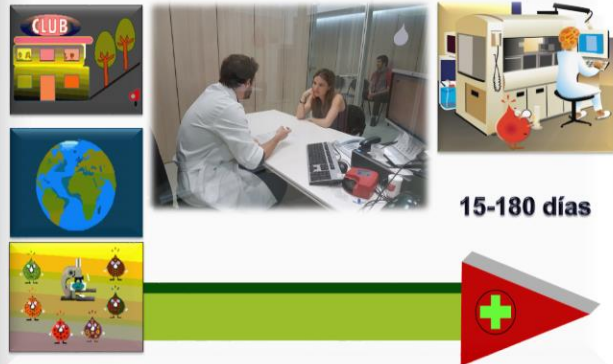
Donante altruista

Proteger la salud del donante

3.2 Dignidad y no maleficencia

3.2.1 Los criterios de selección de donantes deben aplicarse para proteger la salud de los receptores y de los *donantes*. Debe informarse a los *donantes* de su responsabilidad de no perjudicar al receptor.

Período Ventana



Responsable

Segura

Altruista



En línea con lo anterior, insistimos en la importancia del principio de donación voluntaria no remunerada como base para el establecimiento y el desarrollo de Servicios de Transfusión Sanguínea.

Los derechos y responsabilidades de *donantes* y pacientes son de igual importancia y la salud, la seguridad y el bienestar del *donante* no deberían verse comprometidos para satisfacer las necesidades de los pacientes.

Dra. Silvina Kuperman

1

2

3

1 unidad de sangre: 250 mg de hierro

Hay grupos de donantes con mayor riesgo de Ferropenia?

Poblaciones vulnerables:

- ✓ Donantes jóvenes
- ✓ Mujeres pre menopáusicas
- ✓ Donantes frecuentes
- ✓ Donantes en el límite del criterio de aceptación

Ferropenia sin anemia

Se recomienda un nivel de hemoglobina de no menor de 12.5 g/dl para las mujeres y no menor de 13.0 g/dl para los hombres.

	Normal	Deficiente	Ferropenia	Normal
Deposito de Hierro	Alto	Medio	Bajo	Medio
Transporte y Hierro Funcional	Alto	Medio	Bajo	Medio

	60	+15	-15	+15
Ferritina Sérica (µg/L)	60	+15	-15	+15
Saturación Transferrina	35	35	+15	+15
Hemoglobina (g/L) mujer	120	120	120	+120
Hemoglobina (g/L) hombre	130	130	130	+130



Dr. Carlos Enrique Meza-Solis

Peso: Mínimo 50 Kg.

Estatura: Su altura no debe ser menor de 1.60 m. Si es menor, se debe garantizar que el volumen extraído no supere el 10% del volumen sanguíneo total.

Volumen Sanguíneo:

Fórmula de Hädler

Hombres = (0.3609 × talla en m³) + (0.03210 × peso en kg) + 0.6041

Mujeres = (0.3551 × talla en m³) + (0.03308 × peso en kg) + 0.1833

Sexo Altura Peso

Volemia

Introducción

La disponibilidad de un suministro de sangre y hemoderivados (en lo sucesivo, "sangre") seguro, efectivo y suficiente, así como su uso óptimo para pacientes, constituyen el pilar en el que se apoya la práctica de la Medicina moderna. La *sangre* es un producto médico de origen humano y su disponibilidad depende de la contribución del *donante*, quien dona *sangre* a beneficio de otros sin ningún beneficio físico para sí mismo(a). Por lo tanto, es importante que se respete la contribución de los *donantes* y su donación y que se tomen todas las medidas razonables para proteger su salud y su seguridad y que existan salvaguardias adecuadas para garantizar que los productos derivados de la donación se utilicen de manera adecuada y equitativa para los pacientes.

Asegurar el suministro

SÍ



4.1.3 Cualquier forma de incentivo⁵ que pueda influir en el motivo subyacente para la donación de *sangre* debería rechazarse y debe prohibirse si afecta a la seguridad de la *sangre*, resulta en la explotación del *donante* o provoca desigualdad de acceso para los receptores.

“48,000 personas mueren al año por falta de sangre”



Dr. Edwin Cárdenas

4.1.4 La donación es un acto cívico a beneficio de otros y contribuye a la cohesión social. No existe el derecho a donar.

REGIÓN

Salud investigará caso de discriminación en donación de sangre

Mala Praxis

4.2.2 Debería evitarse desperdiciar *sangre* para proteger los intereses de todos los posibles receptores y del *donante*.

Hemovigilancia INCIDENTES



Reac. adversas

Reacción del donante

Mareos (+ ++ +++ +++++)

Otras patologías...

Daño al donante

Hematomas

Analíticas positivas

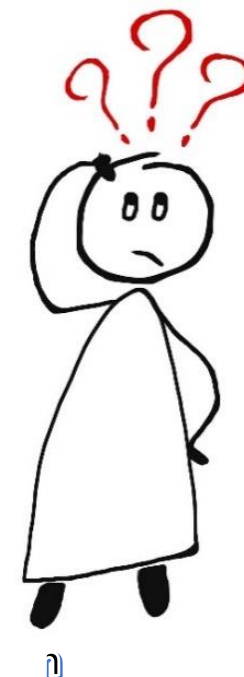
Donantes que ocultan

Interés

Presión

Desconocen el proceso (p. ventana)

Promoción



]

La ONG aseguró que es imposible que haya otros afectados por el contagio, ya que la sangre infectada estaba en una única bolsa.

Inmunodeficiencia Adquirida (VIH) a

bir donación de

La Cruz Roja explicó que analiza con las más modernas técnicas toda la sangre donada, pero reconoció que siempre existe un riesgo mínimo de que no se detecte sangre contaminada.

trastuamos nuestras condoleencias a la

En este caso concreto, la Cruz Roja supone que el donante se había contagiado poco antes de acudir a donar sangre.

va que la sangre infectada estaba en

Las posibilidades de que una situación así ocurra son de 1 entre 2,5 millones, un riesgo mínimo que, según la Cruz Roja, es inevitable con las actuales técnicas de diagnóstico.

otra persona.

En su comunicado, la ONG recordó que en los últimos 15 años ha recogido seis millones de bolsas de sangre y salvado la vida de incontables personas sin que se haya registrado nunca un episodio de este tipo.

un episodio de este tipo.

Aparte de los análisis, la Cruz Roja explicó que cada donante ha de rellenar un formulario con preguntas sobre si ha estado sometido a prácticas de riesgo antes de acudir a entregar su sangre.

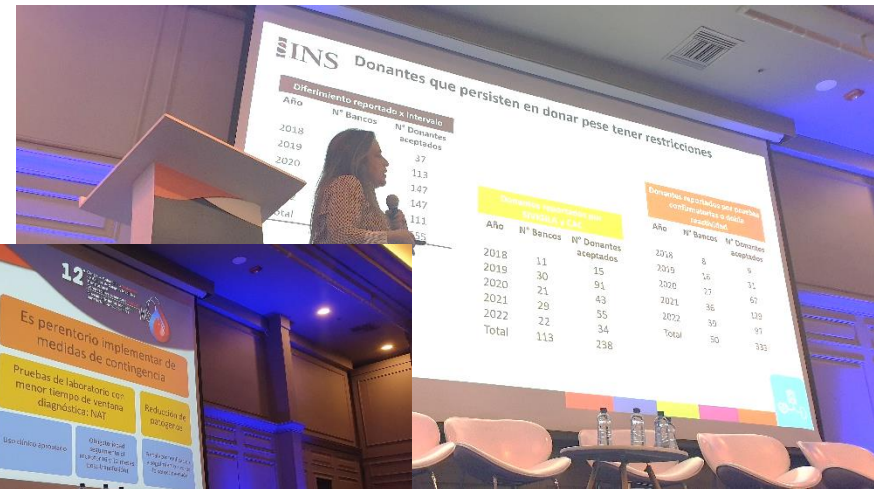


Motivación?

Dra. M. Isabel Bermúdez

¿Que argumentario hemos utilizado para atraer a este donante?

Dra. Adriana Urbina



¿A qué viene?

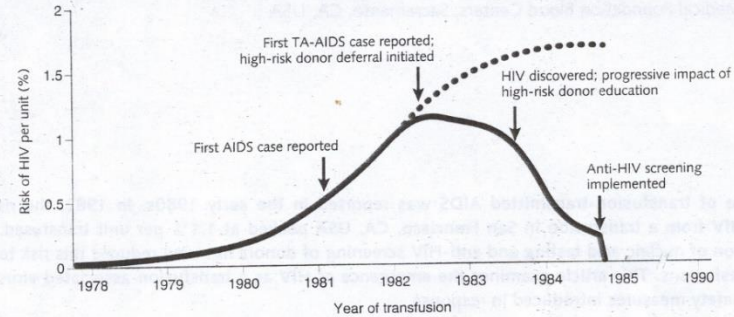
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El donante voluntario comunitario: el donante que donaba por ayudar a su comunidad. La principal característica de estas donaciones es la ausencia de recompensas tangibles inmediatas bien sean monetarias o no.

Figure 1. Risk of HIV-1 infections from transfusion in San Francisco, CA, USA before anti-HIV screening. Solid line represents estimated risk of recipient infection per unit transfused. Dashed line indicates what the risk would have been if high-risk donor referral measures had not been implemented. The risk in the USA as a whole probably trailed that in San Francisco by approximately 1 year, and the peak risk was of lower magnitude.



TA: transfusion-associated. Reprinted with permission [13].

Although NAT can detect HIV by an average of 22 days after exposure to the virus, the actual infectious portion of the window period may be shorter. When a person first becomes infected with HIV, viral replication takes place in the liver and lymph nodes; but HIV is not present in the blood. This portion of the window period, known as the 'eclipse' phase, lasts 10–15 days [11]. In the remainder of the window period, known as the 'viremic' phase, viral replication also takes place in the peripheral blood. Blood donations made during the viremic phase of the window period are capable of transmitting HIV [11]. This period of time lasts approximately 11 days, with current NAT methods [12].

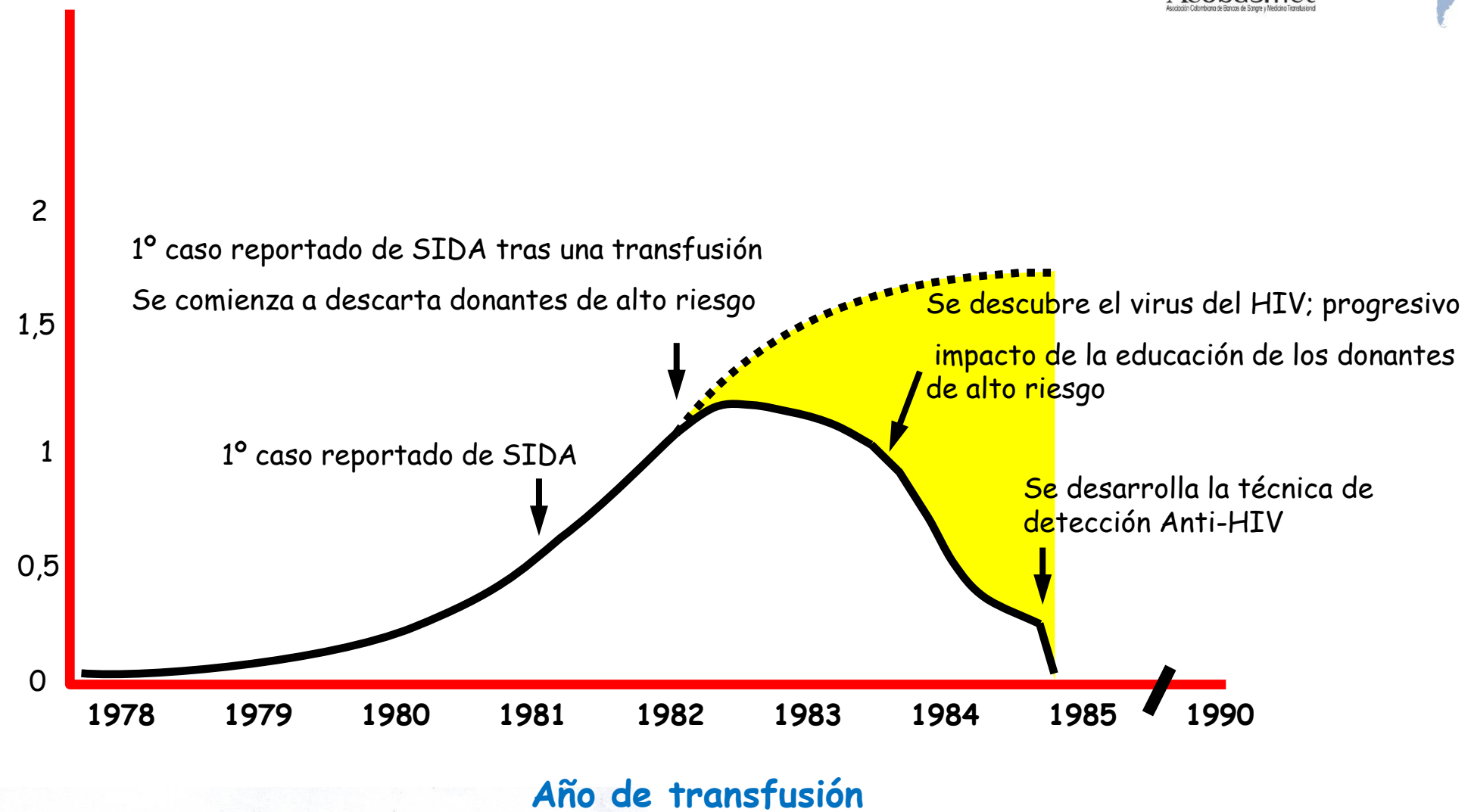
The combination of screening donors at high-risk of transmitting HIV and testing blood donations for HIV has effectively controlled the transmission by transfusion of this once emerging virus. From 1978–82, HIV went from being a previously unknown virus to infecting >1% of transfusion recipients in certain metropolitan areas of the US. Over the ensuing 20 years, the risk of HIV infection from transfusion has decreased to approximately 1 in 1 million transfusions; this is less than the risk of a fatal acute hemolytic transfusion reaction [12].

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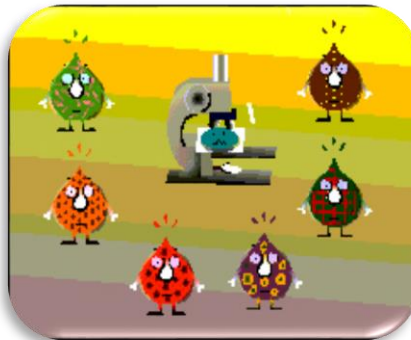
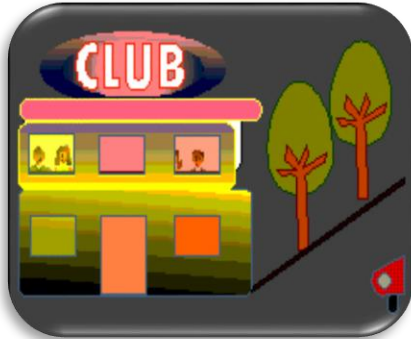
Riesgo de HIV por unidad (%)



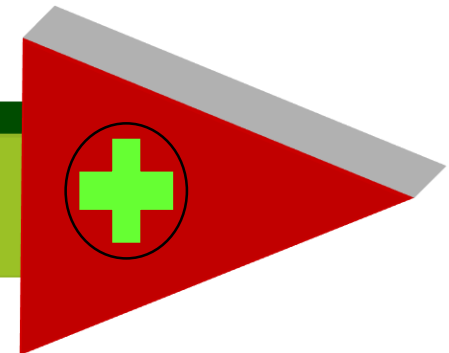
PATRICIA M KOPKO AND PAUL V HOLLAND

Figure 1. Risk of HIV-1 infections from transfusion in San Francisco, CA, USA before anti-HIV screening. Solid line represents estimated risk of recipient infection per unit transfused. Dashed line indicates what the risk would have been if high-risk donor referral measures had not been implemented. The risk in the USA as a whole probably trailed that in San Francisco by approximately 1 year, and the peak risk was of lower magnitude.

Segura



15-180 días



BLOOD DONORS AND BLOOD COLLECTION

Interventions to reduce the vasovagal reaction rate in young whole blood donors

Peter Tomasulo, Hany Kamel, Marjorie Bravo, Robert C. James, and Brian Custer

BACKGROUND: There have been multiple reports concerning the predictors of fainting reactions in blood donors, but few attempts to reduce the rates of fainting reactions with concomitant rigorous attempts to monitor the success of the interventions.

STUDY DESIGN AND METHODS: We used a retrospective observational cohort study design, comparing the likelihood of reaction from 213,031 allogeneic whole blood donations made by 17- to 22-year-old donors in two separate 12-month periods before and after the implementation of interventions to reduce reactions. The interventions were 1) a limit on the maximum percentage of estimated blood volume young donors could donate, 2) encouraging applied muscle tension during donation, and 3) providing approximately 500 mL of water before donation. Reactions were defined by severity and time in relation to the end of phlebotomy and documented according to standard procedures. Data analysis included comparison of stratified reaction rates and multivariable logistic regression analysis.

RESULTS: The interventions decreased the aggregate reaction rates in male and female donors by 24% ($p < 0.0001$). There was a 25% decrease in delayed reactions ($p = 0.0006$) and a 38% decrease in off-site reactions ($p = 0.001$) in female donors. The impact of the three interventions together on reaction rate was greater than the combined impact of exercises and water provision. Multivariable modeling showed that the interventions reduced reactions but did not prevent their occurrence in identified higher risk groups.

CONCLUSION: The interventions to reduce vasovagal reactions in whole blood donors were effective. Future efforts to reduce reactions in blood donors can build on the strengths and avoid the weaknesses identified while conducting and analyzing the data from this study.

Blood donors generously give their time and blood to help patients. Unfortunately, injuries can occur and in a recent report, 0.41% of donors had moderate and severe reactions. Of these reacting donors 2.4% suffered head trauma or other injury and 8.3% required outside medical care.¹ Reducing risks to donors is inherently important. Moreover, adverse events, whether mild or severe, reduce the likelihood of future donations by the reacting donors.²⁻⁵ Donor centers can make efforts to reduce sources of controllable risk to blood donors, and rigorous attention to adverse events from blood donation (donor vigilance) is being applied by many organizations. This attention has begun to yield valuable data for reducing donor reactions.^{1,2,6,7}

The Council of Europe standard is that donors should not give more than 13% of their estimated blood volume (EBV).⁸ This standard is probably based on observations made by physiologists from as long ago as 1941⁹ in which phlebotomized healthy volunteers consistently became symptomatic and some fainted when they lost more than 15% of their EBV. In the United States, the AABB standard for the minimum donor weight is 50 kg (110 lbs) and the maximum donation amount is 10.5 mL/kg body weight.¹⁰ The lowest weight donor is allowed to donate up to 525 mL. Because the relationship between blood volume and weight as used in the AABB standard is not precise, a 525-mL donation can exceed 15% of some donors' EBV.

ABBREVIATIONS: BMI = body mass index; EBV(s) = estimated blood volume(s); LOC = loss of consciousness; UBS = United Blood Services.

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BLOOD DONORS AND BLOOD COLL

Simple standing test predicts and water ingestion prevents vasovagal reaction in the high-risk blood donors

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Predicción efecto adverso a la donación por medio de una red neuronal artificial (oral 15:00 en la Sala Cítara)

donors of the second group reduced HR increase with standing before BC (-6.6 ± 13.6 bpm, $p < 0.02$ vs. HR increase before water ingestion) and significantly suppressed VVR rate (2 of 45 donors with high risk, 4.4%, $p < 0.04$ vs. the first group; 6 of 31 high-risk donors, 19.4%).

CONCLUSION: HR response to standing before BC may detect the high-risk donors for VVR. For the high-risk donors, 300 mL of water ingestion may be a simple and effective way of prevention against syncope VVR.

Approximately 5 million blood donations are performed yearly in Japan (Japanese Red Cross, unpublished data). A major complication of donation is vasovagal reaction (VVR) with syncope, which occurs in 0.08% to 0.34% of donations.¹⁻⁶ Although this frequency is not high, the summed numbers of the victims is huge. Another important feature of syncope VVR is that the donors who experienced VVR have a lower return rate.⁷⁻⁹

Some characteristics of donors such as youth, female, first-time donors, high heart rate (HR), or smaller estimated blood volume have been related to a higher VVR incidence.^{5,6,10-12} Among them, high HR and low diastolic blood pressure (BP) before donation have been suggested as hemodynamic risk factors,^{6,10,17} although the latter is debatable.¹⁵ Water ingestion before blood collection (BC) reduced VVR by 21% to 47% in high school or novice donors.^{10,12} Caffeine intake,²⁰ mental distraction,²¹ and application of muscular tension during BC^{22,23} or the combination of water ingestion and applied muscle tension²⁴ also attained some favorable results.

ABBREVIATIONS: BC = blood collection; bpm = beats per minute; ECG = electrocardiogram; HR = heart rate; VVR(s) = vasovagal reaction(s).

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Predonation hydration and applied muscle tension combine to reduce presyncopal reactions to blood donation

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BACKGROUND: A randomized controlled trial was conducted to test the effects of hydration and applied muscle tensing on presyncopal reactions to blood donation. Both interventions are designed to prevent the decreases in blood pressure that can contribute to such reactions, but due to the distinct physiologic mechanisms underlying their pressor responses it was hypothesized that a combined intervention would yield the greatest benefit.

STUDY DESIGN AND METHODS: Before blood donation, first- and second-time blood donors (mean age, 20.2 years; SD, 4.9) were randomly assigned to 1) standard donation, 2) placebo (leg exercise before venipuncture), 3) predonation water, or 4) predonation water and leg exercise during donation.

RESULTS: Main effects of group were observed for phlebotomist classification of vasovagal reactions ($\chi^2(3) = 8.38, p < 0.05$) and donor reports of presyncopal reactions ($\chi^2(3) = 13.16, p < 0.01$). Follow-up analyses of phlebotomist classifications revealed fewer reactions in the predonation water and predonation water and leg exercise groups relative to placebo but not standard donation. Follow-up analyses of self-reported reactions revealed that women, but not men, had lower scores in both the predonation water and the predonation water and leg exercise groups relative to both placebo and standard donation.

CONCLUSIONS: Predonation hydration and a combination of hydration and leg exercise may help attenuate presyncopal reactions in relatively novice donors, although future studies with larger samples are required to confirm this effect.

In 2006, 9.6 million donors, or just 3.2% of the US population, provided the nearly 15 million units of blood needed for transfusions.¹ Although the blood supply is adequate to meet the need much of the time, shortages are common due to seasonal variation in donation behavior, fluctuations in regional demand, and limited availability of certain blood types. The biggest concern, however, is the future. Because individuals aged 69 and older account for 50% of all transfusions, our progressively aging society is facing a steadily increasing annual demand for blood for use in surgeries and cancer treatments.^{2,3}

A crucial component of the effort to meet the growing demand for blood is the recruitment and retention of young novice donors. Ideally, these new recruits would become lifelong donors, contributing up to six times per year and hundreds of units of blood in a lifetime. In reality, most young donors do not go on to donate on a regular basis.⁴⁻⁷ Syncopal and presyncopal reactions (e.g., fainting, dizziness, and nausea), which are most common in younger and novice donors, are primary deterrents to both recruitment and retention.⁸⁻¹² In a 1-year prospective study of 89,587 donors of all ages, we demonstrated a return rate of 64% for those who did not react versus 40% for those who did.¹³ Similarly, in a recent large-scale study of 16-year-old high school donors, Eder and colleagues¹² revealed a 21% difference in the rate of return among those who experienced a reaction versus those who did not (52% vs. 73%; odds ratio [OR], 0.40; 95% confidence

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Effect of applied muscle tension on cerebral oxygenation in female blood donors

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BACKGROUND: Applied muscle tension (AMT), which involves rhythmic tensing of the muscles of the core and lower extremities, has been associated with attenuation of presyncopal reactions among whole blood donors. This study was designed to examine whether the salutary effects of AMT may be mediated by increases in cerebral oxygenation during blood donation.

STUDY DESIGN AND METHODS: Seventy-two female blood donors were recruited at mobile blood drives in the American Red Cross Blood Services—Central Ohio Region. Participants were randomly assigned to engage in either AMT or repeated gentle foot flexions (i.e., distraction control) during whole blood donation. Cerebral oxygenation was monitored throughout the donation using near infrared spectroscopy.

RESULTS: Participants who engaged in AMT were shown to have attenuated decreases in cerebral oxygenation across the three intervals of the blood draw relative to the distraction manipulation ($F(1,70) = 8.144, p = 0.006$). Whereas cerebral oxygenation decreased 1.42% (SD, 2.09%) for those in the distraction-control group, oxygenation levels increased 0.13% (SD, 2.56%) in the AMT group.

CONCLUSION: AMT is associated with an attenuated decrease in cerebral oxygenation compared to a distraction-control group. Further studies are necessary to establish if the salutary effect of AMT during blood donation may be in part due to an increase in oxygen available to the brain.

Whether or not blood donors return to donate again is influenced, in part, by their prior donation experiences. For example, mild donor complications such as presyncopal symptoms (e.g., feeling faint, dizzy, or lightheaded) have been shown to decrease the likelihood of donor return for both novice and experienced donors.¹⁻⁴ The frequency of occurrence of presyncopal reactions varies depending on a variety of donor characteristics, including predonation anxiety,⁵⁻⁸ prior donation history,^{1,9-11} and total blood volume^{9,10}; however, in young, novice donors presyncopal symptoms may occur in up to 12% of all donations.^{1,2,9,12,13} Despite their relatively common occurrence in the donation context, a clear understanding of the physiological changes that accompany presyncopal reactions has yet to be attained.

Blood pressure is tonically regulated by a complex, dynamic system that quickly adapts to a wide range of internal and external demands; however, if these adaptations fail to maintain mean perfusion above 60 mmHg the brain will no longer receive sufficient oxygen and presyncopal symptoms will ensue.^{14,15} Threats to blood pressure regulation exist at multiple points in the donation process, including: 1) elevated anxiety for some donors in anticipation of the phlebotomy, leading to autonomic nervous system dysregulation¹⁶; 2) reduced vascular pressure related to decreases in total blood volume; and 3) orthostatic stress associated with standing after an extended period in a semireclined or supine position in the

ABBREVIATIONS: AMT = applied muscle tension; INVOS = in vivo optical spectroscopy.

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BLOOD DONORS AND BLOOD COLLECTION

Dismantling applied tension: mechanisms of a treatment to reduce blood donation-related symptoms

Blaine Ditto, Christopher R. France, Michael Albert, and Nelson Byrne

BACKGROUND: Blood donation-related symptoms such as dizziness, nausea, and fainting are unpleasant for the donor and a significant disincentive for repeat donation. The muscle tensing technique of applied tension (AT) reduced symptoms in several studies.

STUDY DESIGN AND METHODS: This study was a randomized controlled trial of different components of AT. A total of 1209 donors were randomly assigned to one of six conditions involving tension of different muscle groups or donation as usual. Dependent measures included a symptom questionnaire and whether or not the donor's chair was reclined to treat a reaction.

RESULTS: Replicating previous findings, donors who practiced the "full" AT procedure reported significantly fewer symptoms, were less likely to require chair reclining, and rated their chances of giving blood again as greater than those in the donation-as-usual group. Of the component groups, donors who tensed only their lower body were most similar to the full-AT group. Upper-body tension in and of itself did not reduce symptoms though another condition involving upper body tension, which directed attention away from the arm with the needle in it had several significant effects.

CONCLUSION: The positive effects of AT on blood donation outcome appear to be mediated primarily by lower-body tension though distraction also probably contributes to its impact.

Blood donation-related symptoms such as dizziness, nausea, and fainting are unpleasant for the donor, complicate the blood collection process, and are a significant disincentive for repeat donation.¹⁻⁸ Perhaps of most concern, even minor reactions that do not necessarily draw the attention of clinic personnel are related to a significant reduction in return.⁹

Applied tension (AT) is a behavior therapy intervention originally developed to treat blood and injury phobias that involve vasovagal reactions.²⁻¹² Based on its impact on symptoms during imagined and real presentation of needles and its ability to increase blood pressure and cerebral blood flow,¹³ we viewed AT as a promising technique that might reduce donation-related symptoms in the non-phobic population of blood donors. In several studies, significant positive effects of AT were observed on various donation outcomes, including decreases in self-reported symptoms such as dizziness and nausea, decreases in chair reclining by phlebotomists, and an increased likelihood of obtaining a full unit of blood.¹⁴⁻¹⁶ Despite these results, the effects of AT on blood donation-related symptoms are mixed and may vary with group characteristics. In part, this may be due to the fact that the version of AT tested in the blood donation context was simplified and abbreviated compared to the classic behavior therapy

ABBREVIATIONS: AT = applied tension; BDRI = Blood Donation Reactions Inventory.

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BLOOD DONORS AND BLOOD COLLEC

Effects of applied muscle tension on the likelihood of blood donor return

Blaine Ditto, Christopher R. France, Michael Albert, Nelson Byrne, and Julie Smyth-Laporte

BACKGROUND: Blood donation-related symptoms such as dizziness and fainting are unpleasant for the donor and a significant disincentive for repeat donation. The muscle tensing technique of applied muscle tension reduced symptoms in several studies.

STUDY DESIGN AND METHODS: Follow-up data from a randomized controlled trial of different components of applied tension were obtained. The number of subsequent blood donations in a 2-year period was determined for 1059 of 1209 donors originally assigned to one of six conditions involving tension of different muscle groups or donation as usual.

RESULTS: In general, women who were assigned to one of the applied tension conditions were significantly more likely to return than women assigned to the donation as usual condition (67% vs. 55%, $\chi^2(1) = 4.71$, $p = 0.03$). There was no significant enhancement of return among male donors. Also, there was no association between the actual reduction of symptoms in different applied tension conditions and higher levels of return.

CONCLUSION: Participation in a condition that involved learning repeated muscle tension with the expectation that this might help reduce blood donation-related symptoms was associated with a greater likelihood of return for women.

ABBREVIATION: BDRI = Blood Donation Reactions Inventory.

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Blood donation-related symptoms such as dizziness, nausea, and fainting present a number of problems for blood collection organizations. They are unpleasant for the donor, complicate the collection process, decrease the chance of obtaining a full unit of blood, require treatment and monitoring of the donor, and are a significant disincentive for repeat donation.¹⁻¹⁰ As a result, there is considerable interest in interventions that may reduce symptoms and facilitate the blood collection process. Several promising interventions are under evaluation such as pre-donation hydration^{11,12} and applied muscle tension.¹³⁻¹⁶ In a previous article, we discussed the impact of several variations of the applied tension procedure on blood donation outcomes such as number of reported symptoms and whether or not the donor's chair was reclined to treat symptoms.¹⁶ In general, participants who practiced some form of gentle repeated muscle tension during blood donation had more positive outcomes than participants who underwent the standard procedure. We now report the likelihood of subsequent blood donation during a 2-year follow-up period among participants in this study.

MATERIALS AND METHODS

Participants

As part of a large randomized controlled trial of different components of applied tension, 1209 young adult volunteer donors in mobile blood clinics held in Montreal-area universities or colleges were randomly assigned to one of the six conditions described below. Of these individuals, 1109 provided written consent for follow-up data to be released to the research team. Records concerning subsequent blood donations for a 2-year period were obtained for 1059 participants. The inability to obtain follow-up data for some people who provided consent was due to ambiguous identifying information such as difficult-to-read handwriting or use of a nickname. There were no significant differences between those for whom follow-up data were obtained and not obtained in demographic characteristics. Consistent with the university environment, the follow-up sample was composed of relatively young (mean, 21.9 ± 3.4 years; range, 18-40 years), inexperienced (mean, 2.2 ± 2.3 previous donations; range,

BLOOD DONORS AND BLOOD COLLECTION

Education in donation coping strategies encourages individuals to give blood: further evaluation of a donor recruitment brochure

Christopher R. France, Janis L. France, Jennifer M. Kowalsky, and Tanya L. Cornett



chore can enhance prospective donor commitment and increase the likelihood that they will volunteer to give blood.

Educational materials, often in the form of brochures, are used by virtually all blood collection agencies to provide donors with information about the donation process and how to schedule a donation appointment. This material is typically devel-

brochure in a number of important ways. We wanted to determine whether the observed benefits of the brochure would persist beyond the immediate postreading period. To accomplish this goal we conducted a new study in which we had participants provide ratings before and immediately after reading the brochure, and then we reassessed them 1 week later. Second, we wanted to know whether the changes in ratings that were reported in our initial study would have an effect on participant behavior. To address this question, after reading the brochure we provided participants with the opportunity to formally register to give blood at an upcoming blood drive. Finally, we wanted to provide a more challenging test for the study brochure by comparing it against a potentially more

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BLOOD DONORS AND BLOOD

Right here, right now: the impact of the blood donation context on anxiety, attitudes, subjective norms, self-efficacy, and intention to donate blood

Rebekah Clowes and Barbara M. Masser

BACKGROUND: While research has established the role of anticipated emotions in augmented Theory of Planned Behavior (TPB) models of donor behavior, research has yet to consider the impact of immediate emotions that may be triggered by the blood donor context on respondents' intentions to donate blood. This study explored the impact of blood donor paraphernalia on respondents' positivity toward blood donation and on the interrelationships typically observed in TPB blood donation studies.

STUDY DESIGN AND METHODS: Seventy-six participants were randomly allocated to complete TPB questionnaires assessing attitudes, subjective norm, and self-efficacy along with intention to donate blood in either an affectively "hot" (blood donation paraphernalia) or a cold (control) condition. Anxiety about donating blood was also assessed.

RESULTS: Respondents in the affectively hot condition reported significantly greater anxiety about donating blood along with less positive attitudes, weaker subjective norms, lower self-efficacy, and lower intention to donate than respondents in the cold control condition. In support of extant TPB research, correlational analyses indicated that the relationships between attitudes, self-efficacy, and intention were not impacted upon by condition.

Donor recruitment and retention pose an ongoing challenge to blood collection agencies around the world.^{1,2} While a number of theories have been applied in the attempt to understand what motivates an individual to initially become and then remain a donor,^{3,4} one of the most enduring psychosocial theories applied in this area has been the Theory of Planned Behavior (TPB).⁵ In the context of blood donation and the TPB a consistent relationship has been observed between potential donors' attitudes (an individual's positive or negative evaluation of donating blood), their perceived control over donating (or self-efficacy—an individual's confidence in their ability to be able to donate) and intention to donate.⁶ Intention, in turn, has been consistently related to donation behavior. The third TPB predictor of intention, subjective norm (the perception of important others' support or not for the behavior), has been less reliably linked to intention in the context of blood donation.⁶

While the TPB has provided a useful theoretical framework in the blood donation context,⁷ the basic TPB model has been extended to account for other influences on behavior.⁸⁻¹¹ One such extension has involved a consideration of the influence of affective reactions on blood donation intentions and behavior.⁷ In considering blood

Parafernalia de la donación de sangre induce a la ansiedad

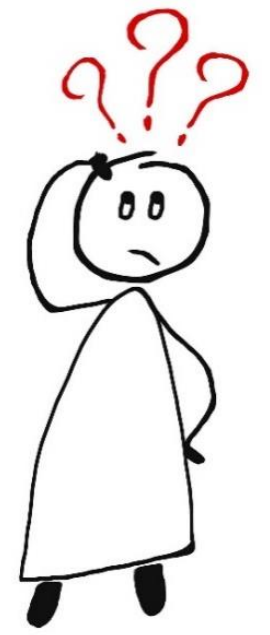
ABBREVIATION: TPB = Theory of Planned Behavior.
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How to prepare yourself to give blood

- Eat** – eat regular meals to help you avoid feeling lightheaded.
- Sleep** – a good night's sleep will boost wellbeing.
- Drink** – drink plenty of fluids 24 hours before donating, but avoid alcohol.
- Wear** – put on loose and comfortable clothing, avoid tight sleeves.
- Distract** – nervousness is normal, come with a friend or bring along a book or MP3 player so you can relax during your visit.
- Know** – knowing your medical, body piercing and travel history will save you time.
- Exercise** – Should you undertake any exercise as part of your normal routine, it is advisable to avoid strenuous activity or exercise which is not usual for you before (and after) donating blood. Also ensure you are fully recovered and well hydrated before you donate blood.

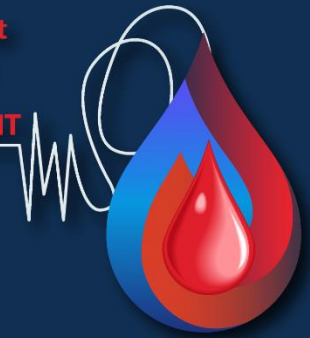
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