



# Gift of Blood

Official Organ of  
Association of Voluntary Blood Donors,  
West Bengal

## Research in Blood and Blood Donation in Different Countries

**H**ow do we get blood to people in need of blood? Working with organizations in the United Kingdom and Canada, I examine how vital it is in the context of a changing climate. At first glance, blood donation and climate change appear unrelated. In my research, I describe what turns out to be, in reality, that there is actually a close relationship between the two. Regional flooding and global warming offer two examples of how these two are interrelated.

### Flooding

In 2008, the UK's National Health Service Blood and Transplant unit (NHSBT) built a state-of-the-art manufacturing centre - the Filton Blood Centre, the largest such complex in Europe. Of all blood donated in England, 60% is tested and 40% processed at this facility. It is also home to the British Bone Marrow Registry, the National Cord Blood Bank and the International Blood Group Reference Laboratory.

In 2012, the Filton Blood Centre experienced severe rainfall. It was built to withstand a one in 200-year flood. However, a drain on an adjacent property was blocked. As a result, water pumps were overwhelmed and the Centre flooded (~20 cm). Over the course of six hours, 600 staff and 12,000 blood products were evacuated. Behind the scenes, the work of testing and manufacturing blood was redistributed to other NHSBT facilities, successfully ensuring that flows of blood products to hospitals were not disrupted.

Storm Desmond, an extra tropical cyclone, hit northern England three years later. Desmond brought record-breaking rainfall, causing extensive flooding. Long after the water receded, construction work was still being carried out on damaged roads and bridges. An established community blood donation facility was cut off due to road closures. After several months, NHSBT opted to close the facility as it was no longer accessible to staff and donors. The local blood network reconfigured but risked losing long-standing donors.

## spotlight



Association has been traditionally organising Blood Donation Camps on the Rakhi Bandhan Day when people from different linguistic groups and religious orders donate blood side by side reflecting true manifestation of National Integration with little girls tying sacred threads on the wrist of the donors. To mark this auspicious occasion, eminent personalities sign the certificates of donors. So far, luminaries like Mother Teresa, Satyajit Ray, Hemanta Mukherjee, Manna Dey and the like have signed the certificates of the donors. This year's certificates were signed by the retired Chief Justice of the Supreme Court of India, Shri Jagdish Singh Kehar who himself is a centurion blood donor.

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# editorial

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India as a member country of 193 Nation's World Health Organisation is a signatory of its resolution to achieve hundred percent voluntary blood programme by 2020. Considering only fifteen months are left, where does India stand? A data released by NACO 2018-201 shows that during 2018-2019, the country collected 12338255 units against an annual estimated requirement of 140 million units (1.4 crores) that were accounted for by all types of banks Government, Commercial and so called non-profit making private blood banks and all types of donors, voluntary donors in blood banks, outdoor camps, families, relatives, replacement and disguised paid donors. Out of this voluntary collection by Government blood banks in camps was 6281922 units.

It is well known that replacement donors are not voluntary blood donors as in many cases they are in disguise paid sellers where money is exchanged not across the blood bank counters but a little away from the blood bank door between the paid sellers in disguise and the patient's relatives. Sophisticated, private 5 or 7 star hospitals having blood banks do not promote real voluntary blood donation, putting the responsibilities of bringing blood donors on patient's relations. Many cases, coming from rural areas as they do, go out of the hospital door in quest of donors and fall in the clutches of the touts who provide donors in lieu of money, perpetuating paid donation system unchecked. These hospitals prescribe blood whether required or not required in excess and sell them at a high premium. The Supreme Court of India through its historic directive dated January 4, 1996 banned paid blood selling from January 1, 1998; World Health Organisation too has recommended phasing out of replacement or relative donation. But the paid donation racket exists in disguise of relative and replacement donation as the Supreme Court has not banned Commercial Blood Banks.

Commercial and private blood banks are organizing outdoor camps luring donors in lieu of costly gifts having considerable monetary value. These donors are not

healthy voluntary blood donors. There are many cases where there are drug addicts who suppress their history of past ailments and health habits thereby endangering the life of the recipient.

The classical internationally accepted definition of voluntary blood donation is "A Voluntary Blood Donor donates blood at his/her own free will without distinction of caste, religion, colour status of the recipient and does not expect any monetary benefit or any other incentive/reward from the collecting service or other sources at the time of donation or in future". Another emulating maxim is: "If you have to get voluntary donors, take the donors' bed as close to the donor as possible without expecting the donor to come to the blood bank".

Many of the 2935 blood banks of the country are apathetic to going out of the blood bank to collect blood from camps, expecting to collect blood by sitting in the bank from replacement or relative donor.

On top of this there is absence of political and administrative support. Media, both print and electronic, are nowadays more interested to cover negative news than positive.

So far, only 62 countries of the world have achieved hundred percent voluntary blood programme. Unfortunately, India is not one of them. Will the goal post have to be shifted? Probably yes. If so, by how many years?

Is it a tall order for a country having a population of 130 crores to collect 1.4 crore units of blood per annum from real voluntary donors? Certainly not. The country has to organize 2.4 lakh camps in a year to recruit 60 real voluntary donors per camp. All blood banks should go the whole hog to collect blood from camps. Doctors have to use this precious fluid judiciously and rationally. All organisations - social, sports, commercial, political, religious, educational - should organize one camp every year as one of their routine annual activities. Massive National level campaign with political, administrative support are the need of the hour.

## letters to the editor

Thank you for your message on my being appointed as Governor of the state of West Bengal and also for the sentiments expressed therein.

I gather from your communication that the Association of Voluntary Blood Donors, West Bengal, has been working in the state for about four decades in the field of motivating, recruiting and retaining voluntary blood donors for the Govt Blood Banks of the State.

Any contribution in the health sector, for the welfare of others, is indeed commendable and calls for appreciation at all ends.

Jagdeep Dhankhar  
Governor of West Bengal

I wish to form an Association Of Voluntary Blood Donors Exclusively to motivate people to voluntarily donate blood to Government Blood Banks in Karnataka.

In this regard I kindly request for MoA and Bye Laws of your esteemed Association which would guide us in way forward.

Dr Avinash T  
Bangalore

One of the advantages of being older is that one gets a better perspective on what is really important in life. And one can give thanks for what one has received. Not all bad! I hope to get to Delhi later this year for a short visit. But like you, I am constrained to ration my time overseas but I am keeping in touch with many by the wonderful email system.

Blessings to you and your team!

Graeme Woodfeld  
New Zealand



# Research in Blood Donor Recruitment

**B**lood Banks can be gold mines of academic-minded research workers, social scientists and donor motivators. Through research work or research data of their own or of others, the motivators can develop newer technology of donor recruitment and make the path correction. They may even do away with fruitless unproductive exercises.

The most important studies would be knowledge, attitude and behaviour pattern of community towards blood banks and blood donation. Strength, weakness, opportunity and threat (SWOT) analysis of blood banks and donor recruiting organisations can be the basic areas of research.

Deferral of donor and discarding of blood after collection can give an idea of the status of donor group.

Donor recruitment with respect of recruitment strategies and techniques and in expansion of blood donation movement with time can be an useful area of research.

The blood group distribution pattern of blood donors of the region would be needed to determine maximum level and minimum level of stock in blood bank shelves to meet all requisitions irrespective of blood group. The research workers can provide these types of information to blood transfusion service.

Quality of blood supplied by different target groups and their convenient day and time of organising blood collection drives would give an insight to the donor motivators to have their blood collection programme evenly spread throughout the year.

The study of blood requisitions from clinicians and surgeons may give data about the rational use of blood.

All research workers will need proper training with knowledge about the land and people, data collection, structured or unstructured interviewing of people, scientific representative sample selection, blood banking service including its technical aspects and ability to interpret the data generated from different sources.

Effectiveness of IEC materials in changing behavioural pattern of the society can constitute an area of research.

Starting point of any investigating research work in the field of blood donor motivation, recruitment and retention is planning in a systematic, logical manner as hereunder:

One of the most important phase of formative investigation is data collection. During this phase, an order is found and a better understanding of the subject is attained. This understanding, however, cannot be gained without the effort, persistence and determination of

the research team.

## Steps to implement a formative investigation

### Implementing the Investigation

- Data collection
- Supervision.

### Organising and Analysing Data

- During data collection
- After completing the data collection
- Writing the report.

It is necessary to prepare a written report to present the results of the investigation.

The report should contain:

- Table of contents
- Abbreviations
- Executive summary
- Introduction
- Objectives
- Description of the study
- Methodology
  - Sample selection (units and segments)
  - Techniques and instruments
  - Selection and training of the research team
  - Duration of research
  - Limitations
- Results
- Discussion
- Recommendations
- Bibliographical references
- Appendices



## Warming

Under a changing climate, global average temperatures are increasing. Insects such as mosquitos thrive in a warmer and wetter climate, a link well established in India. Mosquitoes transmit bloodborne diseases to humans, including malaria, Zika and West Nile Virus. Individuals who have had one of these diseases are restricted from donating blood. In the UK, a person who has had malaria cannot donate for one year. Malaria, in particular, illustrates the link between blood and climate change. Children infected with malaria are more likely to become anaemic, have low iron in their blood and require blood transfusions. More blood transfusions require more blood donors. In short, human bodies and the global environment are linked. Climate change threatens to make blood donation more complex, from temporary infrastructure disruption to a smaller pool of potential donors due to disease transmission risk. Through my research on vital mobilities, I identify areas of resilience and vulnerability in blood supply chains. Impacts are variable. Factors include the type and scale of the blood system in a given country; numerous ways that blood is transported from the point of donation to the point of care, such as by motorcycle, plane or even by drone, as experienced in Rwanda. Along with all this, there are specific regional impacts of climate, ranging from heat waves to snow storms, from flooding to drought. Health and climate change are inextricably interwoven.

Dr Stephanie Sodero,  
University of Edinburgh, UK

## Could blood donation be used as a tool of social integration of immigrants?

My name is Morteza Hashemi, a sociologist at the University of Edinburgh, UK. My current research project, Integration through Blood Donation, investigates the British Shia Muslim immigrants' strategies of

integration into the larger society. It will explain how Shias in London, Birmingham and Edinburgh have tried to integrate through civic engagements and how their engagements have resulted in theological adjustments at home. My main hypothesis in the project is that the civic engagements of the British Shia minority in the Imam Hussain Blood Donation Campaign has had the mutual effect of changing its sense of belonging to Britain as well as adapting its religious perspectives to a European multi-cultural society.

There are several policy tools and instruments that are used to integrate immigrants in local areas of the UK; for example, job search support, education, language learning, and local networking. One of the policy related questions of this research is: to what extent can a theologically backed blood donation be considered a tool of social integration? Do these civic engagements challenge, reinforce or transcend current ethnic and political cleavages among Shia immigrants and other British groups and ethnicities? The project investigates the dynamics of religiosity that are shaping Shia immigrants' experience of 'the others' who are the recipients. Does the campaign change the Shia immigrants' understanding of 'non-believers'? In what ways might their contribution to the campaign affect their perception of Sunnis, Christians, Jews and atheists? One of the interesting findings of my research is that the blood donation campaigns constitute a 'post-secular' sense of belonging. In a way, the campaigners expect to see their blood donation activities as a way of being accepted into the larger society not despite their religion but because of their religiously supported ritual of blood donation. That is to say, we do not need to ask immigrants to ignore or privatise aspects of their belief system in order to become part of the larger society. There are ways of integration through one's belief system that needs to be activated by encouraging civic engagements.

Dr.Morteza Hashemi  
University of Edinburgh, UK

## Haematologies: The Political Life of Blood in India

In 2013, a Pathology Lab medic posted a Hindi poem on its Facebook page. It was written in the voice of blood itself (in Hindi, literally, "Blood tells its own tale by its own tongue").

Whether a Hindu or a Muslim,  
Sikh or Christian, weak or strong.  
They'll keep searching, but won't be able  
to find any difference in me.

No political borders are strong enough to stop me. I can reside in any country, I don't mind.

Bush or Obama, whichever name you take, I am above racial differences: arteries are my only destination.

Do not make the mistake of dragging me into politics. To flow in humans' veins, is my only essence.

"Do not make the mistake of dragging me into politics," says blood. My new book with Dwaipayan Banerjee of the Massachusetts Institute of Technology (*Hematologies: The Political Life of Blood in India*, Cornell University Press, 2019) concerns the many manifestations of that "mistake" as found in a variety of north Indian contexts.

"Where blood was, there politics shall be," writes the scholar Gil Anidjar. There is an interesting sense of pursuit in the remark: politics seems to pursue a path that blood seeks to evade, that abases its essence: all blood wants, in the words of the poem, is to "flow in humans' veins."

Our new research argues that blood flows both away from and towards politics. It has varying destinations: other bodies as well as letters, petitions, and portraits of politicians.

The research asks: How and why did publicly enacted blood extractions become such a central form of political enunciation or communication in India?

Complementing this approach, the research also focuses on less overt, 'small p' politics: debates and contestations about blood and its use as well as contestations enacted through use of blood. What is contested are: definitions,



## bookshelf

*People who have helped the world*  
**FLORENCE NIGHTINGALE**

The tough British campaigner who was the founder of modern nursing



People only have helped the World  
Florence Nightingale by Pam Brown  
Orient and Longman Limited  
Price Rs 30/-

Blood Donor Motivation is a demanding task. Sometimes donor motivator may succeed and sometimes not. So what donor motivation needs is self-motivation first. It is well known that the person can motivate himself or herself from the Book of Knowledge, Book of Life, Book of Nature. Biographies are the books of life that can help them to be self-motivated. One such recommended biography is this book: The Biography of Florence Nightingale. The year 2020 will be the two hundredth years of Florence Nightingale who was born on May 12, 1820 in Florence, Italy although her parents were British.

Florence Nightingale was the founder of modern nursing. She became iconic as the saintly "Lady with the Lamp", moving among the wounded in the Crimean war of 1854.

But she was much more than this. She was a tough, resourceful lady, whose fight to get better conditions in hospitals won her respect throughout the World.

For years her family stopped her from

becoming a nurse, because nurses had a bad reputation. They were regarded as the dregs of the society, given to drinks and prostitutions.

Florence Nightingale changed all this. She plunged into pioneering research and became Britain's acclaimed expert on every aspect of hospital care. She challenged the military leaders and government ministers who opposed her reforms. For fifty years, she worked tirelessly both for nurses and for several other suffering groups of the society.

By the time she died at the age of 90, she had achieved a magical transformation. Hospitals were clean, life-saving places and nursing had become the respected skilled profession as obtained today.

Her academic discipline was Mathematics. She was a prolific writer and wrote many books. She wrote the first textbook for nurses in 1859 titled "Notes on Nursing" She opened the Nightingale Training School for Nurses on June 24, 1860.

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economies and practices of blood.

The research reveals dynamic relations between overtly political blood flows, and an imaginary of blood as an aspiration to transcend politics, finding that new ways are constantly discovered to take politics out of blood, yet each attempt ends in a kind of failure: the "amoral" world of the political inexorably tarnishes the secular and techno-scientific utopias imagined through the substance. It is, as a substance, laden with hopes, wishes and possibility: it is a subjunctive substance, but in as much as a negative a positive sense, where its sense of possibility always includes the dangerous threat of its future spillage.

### Bloodscape of Difference

Like in the poem, blood also has a voice in Italo Calvino's short story "Blood, Sea" (written in 1967), in which the transiting substance conveys something of its "sensations of movement" within and outside of human bodies; different

rhythms and currents, some languorous, some explosive - as when it is ejected from a driving human body in a car accident and re-immersed in the sea from whence it came.

In his meditation on the story, Stefan Helmreich (2014) employs the phrase "bloodscape of difference" to describe how variations in cardio-grammatic blood-wave profiles, reveal health inequalities along axes of race and gender: "information about cardiac waves maps out a sea of difference, an ocean of blood burbling inside people and populations with different life chances".

In seeking to account for ways in which the giving and receiving of blood has shaped social and political life in north India in the twentieth and twenty-first centuries, this research is also concerned with a bloodscape of difference. Across a range of field sites and extractive contexts, the research traces how the substance congeals political ideologies, biomedical rationalities and activist

practices. From anti-colonial appeals to blood sacrifice as a political philosophy to contemporary portraits of political leaders drawn with blood, from the use of the substance by Bhopali children as activist material to biomedical anxieties about the excess and/or lack of blood donation, the research seeks to show how tracing a bloodscape of difference in the Indian body-politic offers new entryways into thinking about politics and economy.

For instance, we explore how blood was central to Gandhi's political thought as a substance that indexed the extractive quality of British rule, while also being a marker of the consanguinity of nationalist activists with that of the 'others'. The research also describes Gandhi's fascination with the hydraulic economy of his own blood, as he equated his obsessive desire to control his own blood pressure with the truth of his wider vision of politics.

It also discusses activism about human blood rather than activism that employs

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## around the world

Pauskura, West Bengal, India  
October 18-20, 2019  
33<sup>rd</sup> State Conference of Social Workers  
connected with the Voluntary Blood  
Donation  
Movement of West Bengal  
Email: khar1987yasin@gmail.com

Jalandhar, Punjab, India  
November 1-4, 2019  
Transcom 2019  
36th Annual Conference of ISBT  
Email: isbt@gmail.com

Kolkata, West Bengal, India  
December 7-8, 2019  
State Level Workshop on Voluntarism  
Email: avbdwb@gmail.com

Islamabad, Pakistan  
December 20, 2019  
Pakistan PSBT, Course/Workshop  
Dengue, Epidemiology and Challenge to  
Blood Transfusion Services  
Email: communication@isbtweb.org

Kolkata, West Bengal, India  
January 20, 2020  
40th Anniversary of Association of  
Voluntary Blood Donors, West Bengal  
Email: avbdwb@gmsil.com

Kolkata, West Bengal, India  
February 3, 2020  
40<sup>th</sup> Annual Frank Worrell Day  
Day long Mass Blood Donation Camp at  
the Eden Gardens  
Email: avbdwb@gmsil.com

Malacca, Malaysia  
March 4-5, 2020  
MBTS Malaysian Blood Transfusion  
Society  
Email: communication@isbtweb.org

Antalya, Turkey  
March 8-12, 2020  
BBTST Blood Bank & Transfusion Society  
pf Turkey  
Email: communication@isbtweb.org

## home and abroad

### Korea

38<sup>th</sup> Annual Congress of the Korean Society of Blood Transfusion (KSBT) was held at Daegu from May 31 to June 1, 2019, attracting 375 participants involved in blood services and transfusion medicine in Korea. There were four international experts: from Hong Kong, United Kingdom, Singapore and Japan to share their latest scientific work.

The Congress opened with the plenary session in which Professor Wai Kay Seto of the University of Hong Kong discussed the implication of occult hepatitis B&C in blood safety. His talk was followed by a lecture of Dr Ashley M Toye of the University of Bristol on enhancement of red cell transfusion compatibility using CRISPR mediated erythroblast gene editing.

Professor Yonggon Cho of the Cheonbuk National University, Korea discussed the novel technologies to prolong the shelf life of platelets. Like most of the technical organisation meets, the important thing of transfusion medicine and blood banking Blood Donor Motivation, Recruitment and Retention was not raised.

### West Bengal

Introduced in 2011, the 8th Annual World Thalassaemia Day was observed by the Association of Voluntary Blood Donors, West Bengal with a day long awareness campaign, exhibition and Blood Donation Camp at the Sealdah Railway Station on May 8, 2019.

30,000 campaign brochures prepared for the occasion were distributed by the volunteers of the Association, senior students of Loreto Day School, Sealdah and volunteers from Bharat Scouts and Guides among the daily commuters and passersby. There was an exhibition. Also organized was a day long blood donation camp where 196 donors participated. In addition, there was a campaign, broadcast through the public address system of the Railway during the entire programme. The donors of the last seven years were invited by letters and SMS. Hoardings in the city carried the message of the day for a period of one month. The messages were displayed at the camp site too. The blood donors' certificates were signed by the internationally famed Astro-Physicist Dr Debiprasad Duari, himself a blood donor and a friend of the blood donation movement of the state. He was present at the camp and spent some quality time with the donors.

### India

Here is the recently released collection figure of 2018-19 obtained by the National AIDS Control Organisation:

### Gift of Blood in Internet

The current issue of Gift of Blood is available in the AVBDWB website

<http://www.angelfire.com/sc/avbdwb/rakta.html>  
and can be sent by e-mail to the readers on request to avoid postal loss or delay.



	Blood Units Collected During 2018-2019								Total
	Voluntary Blood Donor				Family Blood Donor		Replacement Blood Donation		
	Blood Donation at Blood Bank		Blood Donation at Voluntary Blood Donation Camps		Blood Donation at Blood Bank		Blood Donation at Blood Bank		
	Male Donors (A)	Female Donors (B)	Male Donors (C)	Female Donors (D)	Male Donors (A)	Female Donors (B)	Male Donors (A)	Female Donors (B)	
India	3457186	83180	4793762	468150	768653	18875	2691733	56716	12338255
Andaman & Nicobar Islands	2183	9	1723	64	0	0	469	0	4448
Andhra Pradesh	292492	2059	149813	7544	29509	312	116152	390	598271
Arunachal Pradesh	4494	100	1120	187	61	1	65	1	6029
Assam	83642	1150	14355	1309	43379	842	70175	1407	216259
Bihar	56168	2253	24379	2497	31227	2418	96153	3263	218358
Chandigarh	5638	221	71550	5398	1928	30	7781	80	92626
Chhatisgarh	61292	1136	29140	2662	22420	338	106883	1018	224889
Dadra & Nagar Haveli	3186	4	5995	62	0	0	0	0	9247
Daman & Diu	1117	27	1072	29	18	0	314	5	2582
Delhi	70950	2486	101840	9050	32386	568	178727	3017	399024
Goa	3062	378	11141	2106	459	80	5053	473	22752
Gujarat	257772	3844	432909	26874	18817	179	165860	1595	907850
Haryana	89646	3320	179596	7599	23834	640	122305	2428	429368
Himachal Pradesh	13175	1052	18989	2349	935	22	8311	529	45362
Jammu & Kashmir	40750	274	9658	910	11303	108	10707	53	73763
Jharkhand	46470	1761	73111	3769	22896	354	79330	1130	228821
Karnataka	330456	9470	354707	41021	22186	292	93453	1574	853159
Kerala	243530	4305	64056	9143	21693	607	84529	1886	429749
Madhya Pradesh	281842	5582	90914	8521	30398	899	130443	1870	550469
Maharashtra	291418	8938	948034	65387	4010	75	14915	203	1332980
Manipur	921	178	4710	1127	2189	393	12493	1246	23257
Meghalaya	2994	157	2453	490	2098	67	8476	298	17033
Mizoram	3774	650	14061	3686	0	0	3068	313	25552
Nagaland	2038	723	1369	318	5394	550	2575	351	13318
Odisha	60085	1408	176669	17517	3318	57	109708	2368	371130
Puducherry	9607	357	6127	594	11006	359	16269	260	44579
Punjab	203048	2611	167289	8872	29330	352	26556	616	438674
Rajasthan	108834	2237	389954	16943	104494	314	195521	1133	819430
Sikkim	489	139	1414	472	12	3	578	78	3185
Tamil Nadu	501988	10147	305318	31025	20153	907	49148	1464	920150
Telangana	120717	1698	110957	6705	6246	74	132372	975	379744
Tripura	1220	30	19119	1723	95	11	4624	234	27056
Uttar Pradesh	204430	10565	118179	12312	241584	6654	658624	18497	1270845
Uttarakhand	26471	912	63787	6473	6356	214	27858	507	132578
West Bengal	31287	2999	828254	163412	18919	1155	152238	7454	1205718



it, moving from blood as a means of political engagement to a kind of pedagogical politics of proper usage and understanding. For instance, we describe campaigns engaged in by the Association of Voluntary Blood Donors, West Bengal concerning how doctors prescribe too much of that which has already been given (e.g. the single-unit transfusion, or the prescription of whole blood rather than specific components). The proportions of the transfusion, say clinical activists and other campaigners, are problematic in Indian medicine.

We argue that the surplus and redistribution of donated blood can provide a novel window on debates about over-prescription of drugs in the subcontinent

and elsewhere. When the drug is derived from human biological matter, different questions are raised about care and hospitality for the drug that might help impede its careless prescription.

Finally, the research considers the different temporalities of blood, a routine of dutiful repetitive bloodshed structures voluntary blood donation's civic-minded temporality.

But our research complicates the notion of the three-monthly repetition of voluntary blood donation as being simply a biomedical or biologically based routine. Instead, the three-month time lapse between blood donations comes into view as being supported by an array of temporal structures that are

invisible to biomedical authority. For example, we explore the dimension of astrological time as a determinant of the ideal, repeat voluntary blood donor, and how inheritance and political memory may be ambivalent enablers of the routinized repetition of voluntary blood donation.

In sum, we argue that differences between activism with blood and about blood blur at the edges of practice in bloodscapes that congeal the material and the metaphorical, the biomedical and the moral.

Dr Jacob Copeman,  
Edinburg, UK

## Anger Indicators



Annoyance



Bitterness



Feeling deceived



Disappointment



Disillusionment



Frustration



Furiousness



Incensement



Irritation



Rebelliousness



Needless shouting



Needless fault-finding