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REVIEW

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Incentives for plasma donation

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Abstract

Background and Objectives: This work provides an overview of the incentives used for plasma donation in Europe and beyond. The overview can provide new ideas to blood establishments.

Materials and Methods: We conducted a systematic online search of incentives used and asked national experts to validate the data across all European Union countries as well as other European and non-European countries. We categorized the data into level of incentive (using the Nuffield Council on Bioethics' rungs [2011]) and country.

Results: We analysed more than 490 organizations across 26 countries. Our findings reveal different incentives used in these countries. Snacks and pre-donation health checks are commonly provided. In addition, loyalty programmes, small gifts, vouchers, lotteries, travel compensations and time off from work extend the strategic incentive portfolio. Only seven countries offer financial compensation ranging from the equivalent of 10–35€ for European countries. In countries with a decentralized model, where more than one organization collects plasma, we observe that more diversified incentive strategies are generally used, including monetary and non-monetary incentives. In countries with a centralized model, where only one organization is allowed to collect plasma, financial compensation is usually not offered. Centralized plasma

collection without financial compensation relies on a wider range of non-monetary incentives than with financial compensation.

Conclusion: The country group analysis offers valuable insights into the relationship between incentive strategies and the prevailing centralized versus decentralized plasma collection model. This overview provides a broader understanding of incentives used by blood establishments and offers avenues for future practice.

Keywords

donor recruitment, Europe, incentives, plasma collection

Highlights

- All 26 investigated countries that are currently collecting plasma offer post-donation snacks and pre-donation health checks that are later communicated to the donors; these are either mandatory or serve as a basic incentive strategy.
- In most cases, countries with a centralized plasma collection model do not offer financial compensation, relying on a wider range of non-monetary incentives.
- In countries with a decentralized plasma collection model, more diverse incentivization strategies are generally observed regardless of financial compensation.

INTRODUCTION

Plasma donations are essential for the production of plasma-derived medicinal products or for the treatment of critical illnesses [1]. In the European Union (EU), there is an estimated annual shortfall of over 5 million litres of plasma to meet the demand [2]. As an economically important raw material, plasma is at high risk of supply disruption [1, 3].

Currently, the EU largely depends on plasma collected outside of Europe, mostly supplied by paid donors in the United States, which accounts for about 40% of the total demand [4, 5]. Due to potential global health crises such as coronavirus disease 2019 (COVID-19), or other geo-political turmoil, it is important for the EU to achieve a level of self-sufficiency and strategic independence in terms of plasma by increasing donations. The SUPPLY (Strengthening Voluntary Non-Remunerated Plasma Collection Capacity in Europe) project, which is co-funded by the EU and started in 2022, aims to increase plasma collection and strengthen the resilience of voluntary non-renumerated plasma collection programmes by blood establishments throughout the EU. This study is part of the SUPPLY project and focuses on the role of *monetary* and *non-monetary* incentives used to collect plasma in the EU.

Blood establishments strive to increase both the number of donors and the frequency of donations per donor. One individual can donate plasma up to 60 times per year in Germany and as many as 104 times per year in the United States [4], but only a fraction of these potential yearly donations is actually collected. For example, in Australia, plasma donations can be made as frequently as every 2 weeks, yet from 2017 to 2018, the average number of donations by Australian plasma donors was approximately four, with half of the donors making only one, two or three donations a year [6]. Addressing this gap between potential and actual donations is critical.

However, little is known on how to improve donors' willingness to donate plasma. Blood establishments aim to increase donations through the use of incentive strategies. By definition, incentives aim to motivate individuals to behave in a certain way [7]. For instance, they can increase the motivation to donate and hereby help to overcome the costs associated with the donation [8]. It is important to note that depending on how incentives are communicated to the donor, they can be perceived as incentives, encouragements or rewards (aimed at increasing [pre-]donation motivation) or more as compensation (aimed at overcoming potential barriers, i.e., costs associated with the donation). From a donor's perspective, we use the term *incentive* when referring to either strategy as they both ultimately aim to increase donations. In the case of plasma donation, incentives are offered to increase individuals' willingness to donate plasma and can take the form of *monetary* or *non-monetary* incentives. *Monetary* incentives can be given in the form of direct cash payment, vouchers or travel compensations, whereas *non-monetary* incentives can include gifts (e.g., snacks, mugs or bags), on-site refreshments or health checks [9, 10].

Existing literature summarized incentives in 17 countries concluding that non-monetary incentives, such as small gifts or health checks, were the primary approach adopted by most countries to encourage blood donation. In contrast, a smaller group of nations opted for monetary incentives, with cash incentives being the prevailing choice [10]. Similarly, a recent study examines incentive policies for whole blood donors in 63 countries and 50 US states. This extensive data set shows that half of the sampled countries utilize financial incentives, encompassing cash and tax benefits. In addition, time off from work is a commonly extended benefit to blood donors [11]. Limited research dealt with specific incentive types for plasma donation exploring the potential of an in-centre discount voucher reward, which might increase retention and donation frequency among new and repeat

plasma donors. The Australian pilot trial indicated a notable acceptance rate (~70%) for the vouchers. Although this successfully reduced the time taken to return for donation, it did however not significantly enhance the likelihood of donors returning to donate [12].

Although some research has started to investigate the influence of incentive strategies on (blood) donations (e.g., [8], [13] and [14]), especially in the context of plasma donation, more research is needed, and a criterion-based distinction between incentive strategies is required. Hence, following a recent call to further study different types of incentives for plasma donors [11], we focus on providing a consolidated review of the respective use of different *monetary* and *non-monetary* incentives in the EU, and beyond, to gain a broader understanding of similarities and differences, as well as to identify synergies and learning effects. Moreover, we analyse the plasma collection market across countries. This article (1) provides an overview of the *monetary* and *non-monetary* incentives implemented in 26 countries that are currently collecting plasma, (2) relates the incentives to the different rungs of the intervention ladder according to the Nuffield Council on Bioethics (2011) [15] and (3) discusses different market models (centralized vs. decentralized) for plasma collection.

We study more than 1000 blood establishments belonging to more than 490 different organizations across 26 countries (we provide insights on 44 countries, with 26 countries actively collecting plasma, that generate the main results of this article) including the EU, the rest of Europe and global countries of interest outside of Europe. After conducting a systematic online search of the incentives used in each country, we let national experts officially validate the data. The identified incentives have been grouped and evaluated along the six rungs of the Nuffield Council on Bioethics' (2011) intervention ladder for promoting donations [15] covering altruistic (rung 1–4) and non-altruistic (rung 5 and 6) interventions. We apply this framework to plasma donation, and account for different plasma collection models (centralized vs. decentralized) across countries. We discuss recommendations for blood establishments based on the identified *monetary* and *non-monetary* incentive strategies.

MATERIALS AND METHODS

To provide an overview of incentive strategies throughout all countries of interest (EU, European non-EU and global), we followed a three-step approach. We were unable to sample all non-EU countries due to lack of contacts and/or non-response. Outside Europe, we included the United States and Canada because of their plasma collection models (decentralized) and the highly competitive environment, and Australia because of its relevance in the existing literature on donor studies. The first step was a thorough desk review of official websites to find as much information as possible. Then the dataset was enriched with input from country experts, mainly provided by the European Blood Alliance and obtained via e-mail or personal communication. Finally, we identified suitable contacts in each country to validate the data we had systematically collected. Each contact received the corresponding country's data for validation. We then incorporated the comments and suggested changes to enhance the dataset's completeness.

As a result, Table 1 provides a consolidated summary of the incentive strategies implemented in each target country. The first columns of the table indicate whether (validated) data are available for the respective country categorized as EU countries, other European countries and global countries. This is followed by information on whether plasma donations are collected by private, government-owned or non-profit organizations and whether the country has a centralized or decentralized plasma collection model. In centralized models, only one blood organization is responsible for plasma collection, whereas in decentralized models, multiple organizations operate. Our key findings include the specific incentives used in each country categorized along the six rungs of the Nuffield Council's on Bioethics (2011) intervention ladder for promoting donations [15]. The concept was developed focusing on different incentives to encourage individuals to donate bodily material. We assigned the identified incentives to the respective rungs based on the associated level of altruism for each incentive [16].

The full dataset (available here: http://doi.org/10.25592/uhhfdm.13407) is comprised of over 1000 blood establishments from 490 distinct organizations and offers comprehensive details including general contact information, organization type, plasma collection model and implemented incentives for each centre.

RESULTS

We identify various incentives in the countries of interest and classify them as *monetary* and *non-monetary* incentives following Chell et al. [17] (see Table S1).

Although cash payments by definition serve as *monetary* incentives to increase donation behaviour, we also observe more indirect forms of *monetary* compensation. Some aim at maintaining a financial neutrality for the donor (travel cost reimbursement, paid time off work during donation), others at creating a synergy between two altruistic donations (redirection of compensation towards a charitable cause) or aim at donors' financial gain (tax deductions, additional paid time off). In some countries, there are also less common *monetary* incentives, such as free medication delivery or the possibility of receiving a state-sponsored pension after years of donating. Vouchers, lotteries and loyalty programmes can be interpreted as either *monetary* or *non-monetary* depending on their design [17]. If the incentives can be redeemed at specific shops and provide actual discounts, they are considered *monetary*. However, if they can be redeemed for specific events, additional health check results or gifts (e.g., keychains, magnets, coffee mugs, picnic blankets), then they are considered *non-monetary*. Pre-donation (mandatory) health checks, snacks, small gifts and entertainment (e.g., streaming movies, music, free available wi-fi) that donors receive while donating are *non-monetary* incentives. Recognition, such as certificates or badges, and thank you messages are also considered non-monetary.

TABLE 1 Synthesized overview of the incentives used in all countries of interest with currently active plasma donation program.

	Market attributes				Incentives[a]										
		Organization type			Rung 6	Rung 5	Rung 4	Rung 4	Rung 2	Rung 4	Rung 3	Rung 3	Rung 2	Rung 2	Rung 2
Country	Centralized plasma collection model	Profit	Government	Non-profit	Cash payment [amount in euros][b]	Vouchers [amount in euros][b]	Lottery [amount in euros][b]	Gifts [amount in euros][b]	Health check	Loyalty program	Travel compensation	Time off work	Snacks	Entertainment	Recognition
EU countries															
Austria	No	×		×	30–35				×[c]	×			×	×	
Belgium	Yes			×	-	2.50		1	×[d]	×	×		×		
Czechia	No	×		×	30	×	×	×	×[d]	×			×	×	
Denmark	Yes		×	×	-		×	4–160		×			×		
Estonia	Yes		×		-	5–10	×	2	×[c]	×			×		
France	Yes		×		-			×	×[d]		×		×	×	×
Germany	No	×	×	×	Up to 45	10	Up to 100	5–20	×[c]	×	×		×		
Hungary[e]	No	×			13–26	×	×		×	×			×	×	
Italy	No		×	×	-	0–20		0–5	×[c]	×		×[f]	×		×
Latvia	Yes		×		17				×[d]			×[g]	×	×	
Lithuania[e]	Yes		×		12				×	×					×
Luxembourg[e]	Yes			×	-				×				×		
The Netherlands	Yes			×	-			×	×[d]	×	×		×		
Poland	Yes		×						×	×	×	×[g]	×		×
Portugal	No		×	×									×		
Slovakia	No	×	×		-			×					×		
Slovenia	Yes		×		-								×		
Spain	No		×		-			1	×[c]	×			×		×
Sweden	No			×	10–15	Max. 10	×	Max. 10			×		×		
Non-EU countries in Europe															
North Macedonia[h]	Yes		×		-				×	×		×[f]	×		
Norway	No		×					×					×		
Switzerland	Yes			×	-			×					×		
United Kingdom: England	Yes		×						×	×			×	×	×

TABLE 1 (Continued)

	Market attributes				Incentives[a]										
		Organization type			Rung 6	Rung 5	Rung 4	Rung 4	Rung 2			Rung 3			
							Rung 5	Rung 5	Rung 4	Rung 4	Rung 3	Rung 5	Rung 2	Rung 2	Rung 2
Country	Centralized plasma collection model	Profit	Government	Non-profit	Cash payment [amount in euros][b]	Vouchers [amount in euros][b]	Lottery [amount in euros][b]	Gifts [amount in euros][b]	Health check	Loyalty program	Travel compensation	Time off work	Snacks	Entertainment	Recognition
Worldwide countries															
Australia	Yes		×						×[d]	×		×	×		
Canada	No	×		×	48–305				×[d]	×					
United States[e]	No	×			Up to 95				×	×					

Note: We did not include referral programmes in this table. The following countries provide referral programmes that vary in the incentives offered: Belgium, Czechia, Denmark, Germany, Hungary, the Netherlands, Slovakia and Canada. However, in the Netherlands, donors do not receive any reward for recruitment. They are provided with brochures, etc. to recruit other donors.

[a]An incentive is marked in black only if it is used in every establishment in the country; if not, the incentive is marked in grey.

[b]Local currencies converted to Euro.

[c]Mandatory health exam plus option of receiving additional health check information.

[d]Mandatory pre-donation health exam.

[e]Data are not validated by national experts.

[f]Donors receive extra time off work for their donation; for example, in Latvia, donors receive up to five paid days off per year.

[g]The time spent for donation does not need to be reworked.

[h]In planning.

Nuffield Council on Bioethics (2011) intervention ladder

Next, we propose a categorization of the incentives along the six rungs of the Nuffield Council on Bioethics (2011) intervention ladder for promoting donations [15]. The incentives ranging from rung 1 to rung 4 are defined as more altruistic interventions, including interventions targeting individuals who already donate and/or are more altruistically motivated. In contrast, incentives of rungs 5 and 6 are considered non-altruistic strategies as individuals' motivation to donate is connected to an incentive's appeal [16]. Thus, the evaluation of rungs 1–4 and rungs 5 and 6 also focuses on assessing whether, or to what extent, the donor's material, financial and personal well-being is neutralized or improved after their donation when given a specific incentive. Although rung 6 refers to direct financial compensation, the definition of all other rungs may include (indirect) monetary or non-monetary incentives. In addition, depending on their design, some incentives may be included in more than one rung.

As rung 1 aims to spread information about the need for donations, this step rather aligns with communication or marketing activities. Rung 2 focuses on recognizing altruistic donations through various incentives like snacks, mandatory pre-donation health checks, entertainment programmes, redirection of compensation towards a charitable cause or thank you messages. Rung 3 addresses interventions for potential donors already willing to donate by providing the time to donate and the means to get to the donation site (e.g., time off for the donation, travel cost reimbursement). Rung 4 provides additional incentives and rewards donors that are already motivated to donate through incentives like loyalty programmes, additional health check results (post-donation) and free medication delivery. Furthermore, rung 5 provides incentives to encourage individuals who would not typically consider donating. Examples include vouchers and additional time off from work.

Some incentives can be assigned to more than just one rung; for example, lotteries and gifts can be used for both encouragement and as a reward for existing donors (rung 4) or to attract new donors (rung 5). Communication framing plays an important role in how these incentives are perceived by donors. Moreover, there are different uses for time off work, either for the time of donation (rung 3) or as additional time off work (rung 5), and for health checks, either as a pre-donation health check (rung 2) or additional health check results post-donation (rung 4). Lastly, rung 6 involves financial incentives personally benefiting the donor after donating, such as cash payments, tax deductions or pension benefits. In conclusion, we identify incentives along the entire intervention ladder, except for communication tools (rung 1), in our dataset.

Incentives in the EU and other countries

In total, we identify 26 countries (19 from the EU) that collect blood plasma. We first analyse incentives that are used in more than two different countries (see Table 1) and then individually discuss incentives used in less countries.

Starting with rung 6, our findings show that plasma donors can receive *financial compensation* in Austria, Czechia, Germany, Hungary, Latvia, Lithuania, Sweden, Canada and the United States, ranging from the equivalent of 10–35€ for European countries. In Germany, the amount of money usually varies between 17 and 30€. However, depending on the donation volume and the number of donations, donors receive up to 45€. Given that you can donate up to 100 times yearly in the United States, plasma donors can earn an additional 9500€ yearly from donating plasma. Along rung 5, we find *that redeemable vouchers* are only used in Belgium, Czechia, Germany and Hungary. While Germany provides vouchers for burger restaurants or the cinema, Belgium issues thank you tokens that can be exchanged for small *gifts* like towels. The monetary value of vouchers varies from 2.50 (e.g., in Belgium) up to 20€ in Italy. Moreover, donors receive additional time off from work (rung 5) in Latvia (up to 5 days) and North Macedonia (plasma collection in planning; 2 days). *Lotteries* (rung 4/5) are only used in seven European countries and the value of the lottery ranges from 10 to 100€ in Germany, whereas *gifts* (rung 4/5) are more commonly used in 14 countries. For example, Czechia gives out wine, Estonia focuses on coffee mugs and chocolate, donors in Finland get reflectors and Slovenia distributes New Year's gifts. The monetary value of the gifts ranges from 1 (e.g., in Belgium or Spain) up to 160€ in Denmark. In addition, some countries (e.g., Germany, Belgium and Denmark) offer referral programmes where a donor is recruited by another donor and both receive a reward. Referral programmes are not displayed as a separate category in Table 1, as they refer to the other incentives used to motivate plasma donations.

One of the most used incentives is the pre-donation health check (rung 2), which is part of a donor health programme or eligibility check. Some countries also provide additional *health check* results after the donation (rung 4), including measures like cholesterol and thyroid-stimulating hormone in Estonia at every first and tenth donation. Similarly, Austria and Germany offer additional measures once a year. Italy and Spain communicate all post-donation laboratory results automatically to their donors. *Loyalty programmes* (rung 4) are widespread but vary in design. For example, Austria, Hungary and Canada increase cash payments for loyal donors, whereas Czechia's loyalty programme includes additional health checks, vouchers and lotteries. Estonia offers additional health checks for every tenth plasma donation. Belgium combines both factors and awards 2.50€ vouchers and cinema tickets after every third donation. In England, France, Italy, Lithuania, Poland and Spain, loyal donors are rewarded with recognition through items like badges and certificates. High frequency donors (200 donations in 10 years) are eligible for an additional pension. Denmark and the Netherlands provide gifts on donation anniversaries.

Rung 3 incentives aim to overcome donor barriers. Belgium, France, Germany, the Netherlands, Poland and Sweden cover *travel* and *parking expenses* (in France and the Netherlands only upon request). Poland and Italy offer *time off* from work for the donation day.

Out of 26 plasma collecting countries, 23 countries offer *post-donation snacks* (rung 2), either to ensure donor health safety or as a reward incentive. Snacks range from sweets and refreshments to

well-stocked buffets of home-cooked food. Austria, Czechia, France, Hungary, Latvia and England offer variations of on-site *entertainment*, like free wi-fi, books, series or music.

In addition to the more common incentives listed in Table 1, we found some less widespread incentives. German and Swedish donors have the possibility to *donate the financial compensation received to charity organizations*. After the donation, Spain and Germany send *thank you messages* to donors, whereas Poland offers *free medication delivery*. Polish donors receive further *benefits within the healthcare system* if they reach a certain amount of donations and obtain the title of 'honorary donor'. Instead of healthcare benefits, Lithuania offers the possibility to receive a *state pension* after 200 plasma donations over 10 years. In terms of financial incentives, the United States offers *prepaid Mastercard cards*, whereas Czechia (partially) and Poland provide *tax deductions*.

Synthesis on country level

Pre-donation health checks (rung 2) and post-donation snacks (rung 2) are the most common incentives, implemented by more than 18 (health checks) and 23 (snacks) out of 26 countries with a plasma donation programme. Next, we created different country groups based on whether they (1) have a centralized or decentralized plasma collection model, (2) use any form of financial compensation and (3) the extent of their incentive portfolio. We define countries who offer incentives from rung 2 (recognition-based incentives) and a maximum of two other incentives as having a basic incentive strategy. Table 2 provides an overview of the resulting country groups.

Within the group of paying countries, Austria, United States, Latvia and Lithuania provide the basic level of incentives (e.g., pre-donation health checks and post-donation snacks), and Latvia and Lithuania have a centralized collection model, meaning the incentive strategy is the same within the country. In contrast, Canada, Czechia, Germany, Hungary and Sweden, with a decentralized model, use a wider range of incentives, including loyalty programmes and seasonal specials like offering ice cream. Germany implements nearly every identified incentive except for providing time off from work.

We identify four different groups among the countries that do not pay for plasma donations. Although Norway and Portugal operate a decentralized model with several different plasma donation organizations, these countries only offer basic incentives. The same rather low level of incentive diversity applies to centralized countries like Australia, England, France, North Macedonia, Luxembourg, Slovenia and Switzerland. However, in the decentralized markets of Italy, Slovakia and Spain, incentives are more advanced and broader in content; for example, loyalty programmes and a paid day off. In contrast to paying countries, we find several centralized countries with advanced incentive strategies such as Belgium, Denmark, Estonia, the Netherlands and Poland.

In conclusion, our extensive dataset indicates that countries using financial compensation within a centralized model tend to have less diversity in incentives when to encourage plasma donations. Conversely, we find more advanced incentive strategies within decentralized models, possibly due to the presence of different plasma donation organizations. However, we observe that in non-paying countries, even centralized models offer a wider range of non-monetary incentives—potentially due to the prohibition of financial compensation.

DISCUSSION

This study provides a systematic overview of different incentives that are used for plasma donations. All 26 investigated countries that are currently collecting plasma use incentives to promote donation behaviour.

TABLE 2 Country groups based on their incentive strategy and market situation.

	With financial compensations		Without financial compensations	
	Basic incentive strategy	**Advanced incentive strategy**	**Basic incentive strategy**	**Advanced incentive strategy**
Decentralized plasma collection model	Austria USA	Canada Czechia Germany Hungary Sweden	Norway Portugal	Italy Slovakia Spain
Centralized plasma collection model	Latvia Lithuania	-	Australia England France North Macedonia Luxembourg Slovenia Switzerland	Belgium Denmark Estonia The Netherlands Poland

Note: A basic incentive strategy refers to incentives from rung 2 (recognition-based incentives) and a maximum of two other incentives, whereas offering more incentives is considered an advanced incentive strategy.

Future avenues for blood establishments

We observe that post-donation snacks are—beyond donor health-related reasons—used to show gratitude for an altruistic donation (rung 2), which is implemented by 23 out of 26 active plasma collecting countries. For new blood establishments, a starting point could be to offer snacks to plasma donors pre- and post-donation, as studies show that certain nutrients may prevent fainting [18, 19]. Additionally, 18 of these countries offer pre-donation health checks, and 5 of these also offer additional health check results after the donation. Health checks may be worth considering, as they appear to be effective in both short- and long-term retention and the cost of providing health parameters is relatively low [20]. Beyond efficacy and return behaviour, further studies are needed to assess the potential risks of such a strategy for transfusion safety, as health checks may also encourage donors with potential risks.

Second, our data shows that interventions to overcome barriers (rung 3) are very important. Only a few countries grant time off from work, which is not easy to implement without government involvement. However, fostering cooperation with companies that offer the possibility to donate as part of their employee healthcare programme might be promising. In addition, it is worth considering that donation locations have free parking and are also easily accessible by public transportation. Blood establishments should evaluate whether the reimbursement of travel costs (if necessary, only upon request) could be an option to facilitate the access to plasma donation for new plasma donors. The incentives reviewed in this study may prove useful in reducing some extrinsic donation barriers. However, it also seems important to develop interventions aiming at reducing (potential) donors' intrinsic donation barriers, such as fear or misperceptions about plasma donation [21, 22]. Such interventions could focus on intrinsic motivations to donate, for example, by increasing donors' *warm glow* or sense of donor identity [23], as is partly done in Denmark, Germany and Sweden.

Regarding loyalty programmes, our country examples show that their designs vary. Blood establishments that do not currently reward loyal donors may consider testing the implementing of a systematic loyalty programme. This can be as simple as acknowledging regular donations by sending donors *thank you messages* and rewarding them with certificates or badges at certain milestones. More advanced programmes can financially reward donors or allow them to collect points that can be redeemed for gifts or vouchers that may already be part of the incentive strategy. Additional gifts or vouchers that are already used to incentivize can also be rewarded to donors who bring friends or recommend the blood establishment. There are several ways to test what donors prefer, especially with regard to gifts and vouchers. Partnering with local restaurants, shops or entertainment companies may help attract new donors.

Direct financial compensation (i.e., cash payments) are not offered in many countries and are often regulated by law. Beyond legal restrictions, the World Health Assembly resolution additionally urges member states to encourage voluntary non-remunerated donations given the elevated risks of disease transmission and the potential harm to donors' health from excessive blood donations linked to paid donations [24]. In addition, there is a regulatory debate in the EU that has resulted in the recommendation that no financial incentives or inducements should be offered to donors. However, compensation to donors for losses (costs) may be allowed [25]. Our country-level analysis reveals that countries which financially compensate donors only seem to offer few other incentives if they operate in decentralized models. Thus, the potential to attract new donors or existing donors on a regular basis through a more advanced incentive strategy could be explored as more than half of the countries only operate with basic incentives.

In addition to the incentives in our dataset, plasma collectors may also benefit from insights from other health-related fields, such as living organ donations in Israel that are rewarded with insurance reimbursement as well as social support services [26]. In general, cooperation with health insurance companies can be very promising. In many countries (e.g., Germany), health insurance companies offer the possibility to collect points for preventive healthcare behaviour, such as regular dentist appointments. As being healthy is a prerequisite for plasma donation, it could be added to the programme to attract new donors. Moreover, similar to the Hollywood Walk of Fame, a star is embedded in the sidewalk of a German city (Muenster) for every new blood donor [27]. This donor recognition approach could also be considered as a plasma donation incentive.

Beyond the scope of health management, blood establishments could also consider transferring strategies from other areas that depend on customer loyalty. Various innovative approaches are possible when partnering with entertainment companies, such as streaming providers or publishing houses, to offer exciting and attractive incentives. Tickets to concerts and sports events can also be attractive rewards for donors and have the advantage of the media hype that these events generate. In terms of community management, digital badges for plasma donors could easily be integrated into social media channels (e.g., LinkedIn), signalling their stance and connecting them with other plasma donors. In Austria, as well as Australia, contests between universities are set up and known as 'vampire clubs/cups.' Here, two competing groups try to donate as much blood as possible and are motivated to win some type of attractive reward [28, 29]. Recent research shows that using such competitions to motivate young plasma donors is a promising way to significantly increase plasma donations during the competition [29].

Future avenues for research

We used the classification of incentives introduced by Chell et al. [17], who primarily divide incentives for blood donation into *monetary* and *non-monetary* incentives. Our study contributes to the literature by extending this framework to plasma donation and adding new incentives. Moreover, we related the incentives found in our study to the rungs of Nuffield's intervention ladder. This classification allows for a more nuanced differentiation between altruistic and non-altruistic strategies. Using the intervention ladder, we can place the

incentives on a continuum (ladder 1–6), assessing whether, or to what extent, the donor's material, financial and personal well-being is neutralized or improved after their donation, given a specific incentive.

This research has limitations. Although we have systematically scanned the blood establishments in our target countries, we acknowledge that we may have not identified all blood establishments in the target countries. However, the main targets of this study were to (1) identify commonly used incentives across EU and non-EU countries, and (2) give a consolidated summary. As plasma supply differs between countries, plasma collectors can share information on their incentive strategies and benefit from each other. Our overview of incentives presents avenues for future practice. Future research is needed to measure the effects of these incentives on donor motivation and donations and to derive implications on what incentives work best given different market situations and portfolios of incentives within a country. In addition, it would be worth looking at what specifically works in terms of recruitment and/or retention as we are not able to make distinctions between the two in our current data. Moreover, future research could test the effectiveness of innovative incentives that are used in other contexts (e.g., health insurance programme). Countries could also test these incentives in a smaller setting and evaluate their effect on plasma donation in the field.

Finally, with this study, we aim to provide a starting point for international exchange and create a space to learn from each other and to jointly develop the best practices to achieve the common goal of strengthening plasma donation behaviour in an ethical perspective required by the particular nature of this chain of interhuman solidarity.

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E.K., B.V. and A.L. performed the research and wrote and edited manuscript; E.K., B.V., A.L., J.J. and M.C. collected and analysed the data; M.C., E.-M.M., E.K., B.V., A.L. and M.S. designed the research study; J.-B.T., A.B.-T., M.S., M.L., E.S., M.O., P.K. and D.F. validated the data and reviewed the manuscript; M.C. supervised the research and edited the manuscript.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Zentrum für nachhaltiges Forschungsdatenmanagement at https://www.fdr.uni-hamburg.de/record/13407, reference number 10.25592/uhhfdm.13407.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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