SUMMARY OF THE RESEARCH

Title of the research:	Drug Wastage: Observational Study in Intensive Care Units in France.
Acronym based on French tittle:	GAME-OVER (*GAspillage MEdicamenteux : Etude ObserVationnelle En Réanimation en France*)
Project Director:	Dr Erwan D'Aranda *- Intensive Care Unit, Sainte-Anne Military Teaching Hospital, Toulon, France* *- Sustainable Development Committee for Anaesthesia and Intensive Care,* *French Society of Anaesthesia and Intensive Care (SFAR), Paris, France*
Project carried out as part of a thesis/dissertation/university work:	☐yes ☒no If yes, name of PhD student: / If yes, name and contact details of thesis or dissertation supervisor: / If yes, specify the planned date of the defence: /
Publication(s)	Planned publication in the journal "Intensive Care Medicine" (grade A)
Research category:	☐ RIHS ☐ 1 ☐ 2 ☐ 3 ☐ RIHS3 which only involves questionnaires or interviews (specific RIHS3) ☒ Excluding RIHS based on prospective or retrospective data
Sponsor/administrator (=organisation responsible for data processing):	Centre Hospitalier Intercommunal Toulon - La Seyne sur Mer (C.H.I.T.S)
Data Controller:	Director of the Centre Hospitalier Intercommunal Toulon - La Seyne sur Mer (C.H.I.T.S). Contact details for the CHITS Data Protection Officer: dpo@ch-toulon.fr
Head of Statistical Analysis:	Dr Pierre-Julien Cungi *Intensive Care Unit, Sainte-Anne Military Teaching Hospital, Toulon, France*
Data entry into database	☒ Investigating centre (eCRF) ☐ Specify (name of person and facility of affiliation):
Type of research location:	☒ Hospital unit ☐ Medical practice ☐ School ☐ Other, please specify:

SUMMARY OF THE RESEARCH

Investigating centres:	1. Sainte-Anne Military Teaching Hospital, Intensive Care Unit, TOULON, FRANCE: Dr Erwan D'Aranda 2. Centre Hospitalier Intercommunal Toulon-La Seyne, Intensive Care Unit, TOULON, FRANCE: Dr Laurent Ducros 3. Groupe Hospitalier Pitié-Salpêtrière, General Surgery Intensive Care Unit, PARIS, FRANCE: Dr Stéphanie Pons 4. Bichat-Claude Bernard Teaching Hospital, Anaesthesia and Intensive Care Unit, PARIS, FRANCE: Dr Enora Atchade 5. Centre Hospitalier de Montélimar, GHPP, Intensive Care Unit, MONTELIMAR, FRANCE: Dr Mathieu Schoeffler Non-exhaustive list: the research will be proposed to all intensive care units in French health establishments via the French Society of Anaesthesia and Intensive Care (SFAR) Research Committee. Around twenty centres are expected to take part.
Investigator or, if applicable, Coordinating Investigator:	Dr Erwan D'Aranda Telephone: +33 483 162 443 Fax: +33 483 162 723 Email: erwan.daranda@gmail.com
Central laboratory if applicable:	Not applicable
Does the research relate to a health product*? e.g.*: *drugs, reagents, contraceptives, dietetic foods intended for special medical purposes, micro-organisms and toxins, tattoo products, etc.*	☐ Yes, please specify (name + in connection with a marketing authorisation (MA) or off-label): ☒ No
Rationale:	Awareness of environmental challenges is rising and has prompted the healthcare sector to consider its responsibilities and possible courses of action[1]. Combating drug wastage is known to reduce costs and saves time when preparing medications.[2] Depending on their bioaccumulation, toxicity, and persistence characteristics as well as where they are discarded, drug residues can have a major environmental impact.[3,4]. In France, drug residues should be disposed of via an incineration system, but in practice this is not always the case[5]. Drug wastage is studied in anaesthesia. In intensive care, data is scarce and often integrated with anaesthesia data[2,3,6,7]. This observational study should make it possible to assess drug wastage in intensive care units in France, and to suggest ways of improving our practices.
Hypothesis:	There is significant drug wastage in intensive care units, which can be reduced by changes in habits.

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Justification of the public interest nature of the research	Our aim is to assess drug wastage in French intensive care units, the reasons for this wastage, the methods used to dispose of drug residue waste, and the use of an alternative using oral intake. There is no data specific to intensive care in the literature, and this data could contribute to improving our practices and helping to reduce the environmental impact of our care.
Main objective:	Quantify the wastage of IV medication prepared in ICUs
Primary endpoint:	Ratio of the volume in mL of medicines prepared and discarded to the total volume of medicines prepared over a 24-hour period.
Secondary objectives:	1. Describe the various reasons leading to drug residues over a 24-hour period. 2. Describe the various channels for eliminating drug residues over a 24-hour period. 3. Evaluate the use of enteral therapies in patients in intensive care during the 24 hours of data collection. 4. Evaluate the cost of overall drug wastage over a 24-hour period and according to the reasons leading to drug residues.

SUMMARY OF THE RESEARCH

Secondary endpoints:	1. The various reasons for disposing of drug residues will be described according to the following categories: 1/ Advance preparation not used, 2/ Systematic change at treatment start time, 3/ Prescription change, 4/ Change due to care anticipated, 5/ Drug no longer needed, 6/ Preparation error and 7/ Other reason. 2. The various channels for disposing of drug residues will be recorded by means of a questionnaire on nursing staff practices, indicating: - disposal of Non-Hazardous Healthcare Waste (NHHW): incinerated or landfilled, - whether syringes containing drug residues are emptied before being discarded (yes/no), - the place where syringes are emptied (HAHW, NHHW), washbasin), - where empty syringes and syringes with drug residues are discarded (HAHW, NHHW, plastic sorting), - the place where crystalloid residues are discarded (HAHW, NHHW, washbasin), - the habit of preparing non-prescribed syringes in advance, - the systematic change of syringes at the start of treatment. 3. The possibility of opting for enteral therapies will be analysed based on the accessibility of the patient's enteral route, and the administration route for paracetamol and proton pump inhibitor (PO, IV), depending on the reason for and date of admission to the intensive care unit. 4. An estimate of the cost of drug residues will be calculated for each drug, depending on the reason for disposal, using the following formula: volume of drugs discarded x theoretical price The total cost will be the sum of the cost of each drug.
Provisional timetable for the study:	Duration of unit/patient participation: 24 hours Duration of inclusion period / estimated duration of data collection: 24h / ICU Estimated start of data collection: October-November 2022

SUMMARY OF THE RESEARCH

Study population:	☒ Patients ☐ Healthy volunteers Inclusion criterion: 1. Adult patients in the ICU during the 24 hours of data collection. Exclusion criterion: 1. Objection to participate in the research expressed by the patient or trusted support person if the patient is not capable of being informed. ☒ ICU Inclusion criterion: 1. ICU voluntary adult
Number of subjects:	The study will be proposed to all intensive care units in France. Each ICU contains an average of 12 beds. The participation of around twenty ICUs in France should make it possible to obtain data on a population of around 240 patients.
Recruitment of participants:	This prospective study will take place over 24 hours in intensive care units in France. It involves both the collection of data on professional practices and the collection of admitted patient data for the duration of the data collection period (24 hours).
Methods of providing information and tracking non-objection/consent:	Patients who can read and understand the research, or the trusted support person if the patient is not able to be informed, will be informed through a hand-delivered information letter written in clear and perfectly understandable language. A tracking system will be set up within the intensive care unit. In the event of objection, the investigating physician will have to permanently delete all data associated with the patient.
Description of patient follow-up as part of routine practice:	*Describe here the routine patient follow-up procedures (visits, frequency, interval and duration of visits, tests carried out, etc.)* Not applicable to this research, which focuses on drug wastage and not on the monitoring of a specific pathology.
Research process:	Study with data collected over a 24-hour working day. Collection begins when the day shift starts (at 7:00 am) and ends when the night shift leaves (at 7:00 am the next day). Collection shall be carried out for each "closed" unit. (NB: if a hospital has several intensive care units, a separate collection process shall be carried out for each separate unit. Not all units are obliged to participate within the same hospital). The investigator shall fill in the following forms:

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	- Demographic data of the site (Appendix 2). Data entry will be carried out by the centre's investigator. The estimated duration is 5 minutes; - Epidemiological data of patients in the unit (Appendix 3). The estimated duration is 4 minutes per patient; - Questionnaire on nursing practices administered by the investigator to the day nurses present at the time of data collection (Appendix 4). The estimated duration is 3 minutes per nurse. There will be no bias due to a change in nursing practice on the day of collection. Specific collection bins shall be placed in each patient room, as well as a bin in the nurses' preparation area to collect syringes prepared in advance but not assigned to a patient at the end of the 24-hour period. When a patient is discharged and a new patient is admitted during the 24-hour collection period, the bag shall be changed in the room's collection bin, along with the reasons sheet, so that there is one bag per patient. Staff shall discard labelled syringes containing medicines (name + dilution of the drug) in these bins: o Empty syringes (≤ 2ml) should be discarded directly. o If the syringe is not empty (> 2mL): the nursing staff shall number the syringe and fill in a form for immediate use (Reason for Disposing of a Discarded Syringe with Drug Residue Form - Appendix 6) to indicate the reason. o After 24 hours of collection: the investigator shall fill in the discarded syringes form (Investigator Collection Form for Discarded IV Drugs: Analysis of Collection Bins - Appendix 5).
Statistics	Statistical analysis will be carried out using R 4.1.1 (CRAN) software. Quantitative variables will be compared using parametric Student's t-test or non-parametric Mann-Whitney U tests depending on their distribution. Qualitative variables will be compared using the chi-square test or Fisher's test. The risk of Type I error is set at 5%. A multivariate model can be produced after studying the various factors and, if possible, to determine which elements are associated with greater drug wastage by using a multiple linear regression model or a logistic regression model.
Does the research involve any particular procedure? (magnetic stimulation, etc.)	☐ Yes, please specify: ☒ No
Methods:	National multicentre observational, descriptive, prospective study to evaluate practices.

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Data to be collected:	*Describe here a non-exhaustive list of the data you would like to collect for this research* ☒ Clinical data from routine follow-up ☐ Additional clinical data ☐ Examination, lab tests, imaging, etc. as part of routine monitoring ☐ Examination, lab tests, imaging...in addition, **please specify:** In case of imaging collection: ☐ Reports ☐ Images
Are samples required for this research? *This indicates whether the sample collection procedure is carried out for research purposes or whether an additional volume is collected. If it is simply a matter of collecting the results of an analysis carried out as part of the routine monitoring of the patient tick no.*	☐Yes, please specify (urine, blood...+ volume): ☐ Sample collection for research ☐ Extra tube/volume for the research ☒No If so, can they be analysed at each investigating centre or is it necessary to pool the samples for centralised analysis? ☐Local laboratory ☐Central laboratory
Source of data collected:	☒ Medical records ☒ Healthcare professionals ☐ GP ☐ Patients/participants ☐ Family and friends ☐ Survey/cohort/registry excluding data from the French National Health Data System (SNDS) ☐ Survey/cohort/registry including data from the French National Health Data System (SNDS) ☐ National French Medicalisation of Information Systems Programme (PMSI): MCO (medicine-surgery-obstetrics), SSR (follow-up and rehabilitation care), HAD (home hospitalisation), Psy (collecting and processing data on medical activity in psychiatry), RSA (anonymous discharge summaries), ANO File, FichComp (supplementary file), MED ☐ Other, please specify:
Data retention period:	Retention period: up to 2 years after the last publication of the research results or, if not published, up to 3 years after the end of data collection. They will then be archived on paper or computer for a period of 15 years in compliance with current regulations.
Does the project require the purchase of equipment?	☐yes ☒no If yes, please specify:

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Does the project require the purchase of any special software?	☐yes ☒no If yes, please specify:
Is collaboration with an external partner (outside the investigating centre) planned?	☐yes ☒no If yes, please specify:
Has a source of funding already been identified?	☒yes ☐no If yes, please specify: A request for internal funding by the CHITS will be requested when the study is submitted to the Medical Commission for Clinical Research (scheduled for September 2022).
Additional information:	1. McGain F, Muret J, Lawson C, Sherman JD. Environmental sustainability in anaesthesia and critical care. Br J Anaesth. 2020;125(5):680-692. doi:10.1016/j.bja.2020.06.055 2. Barbariol F, Deana C, Lucchese F, et al. Evaluation of Drug Wastage in the Operating Rooms and Intensive Care Units of a Regional Health Service. Anesth Analg. 2021;132(5):1450-1456. doi:10.1213/ANE.0000000000005457 3. Mankes RF. Propofol Wastage in Anesthesia. Anesth Analg. 2012;114(5):1091-1092. doi:10.1213/ANE.0b013e31824ea491 4. Ramström H, Martini S, Borgendahl J, Ågerstrand M, Lärfars G, Ovesjö ML. Pharmaceuticals and Environment: a web-based decision support for considering environmental aspects of medicines in use. Eur J Clin Pharmacol. 2020;76(8):1151-1160. doi:10.1007/s00228-020-02885-1 5. Directorate-General for Health. Towards Good Management of Waste Produced by Health and Socio-Medical Establishments Social Drug Waste. Liquid Waste. Ministry of Social Affairs and Health; 2016. 6. Atcheson CLH, Spivack J, Williams R, Bryson EO. Preventable drug waste among anaesthesia providers: opportunities for efficiency. J Clin Anesth. 2016;30:24-32. doi:10.1016/j.jclinane.2015.12.005 7. More SR. Drug Audit of Intravenous Anaesthetic Agents in Tertiary Care Hospital. J Clin Diagn Res. Published online 2015. doi:10.7860/JCDR/2015/14159.6815

GAME-OVER Study

Appendix 1
Example of a GAME OVER Study Set-Up

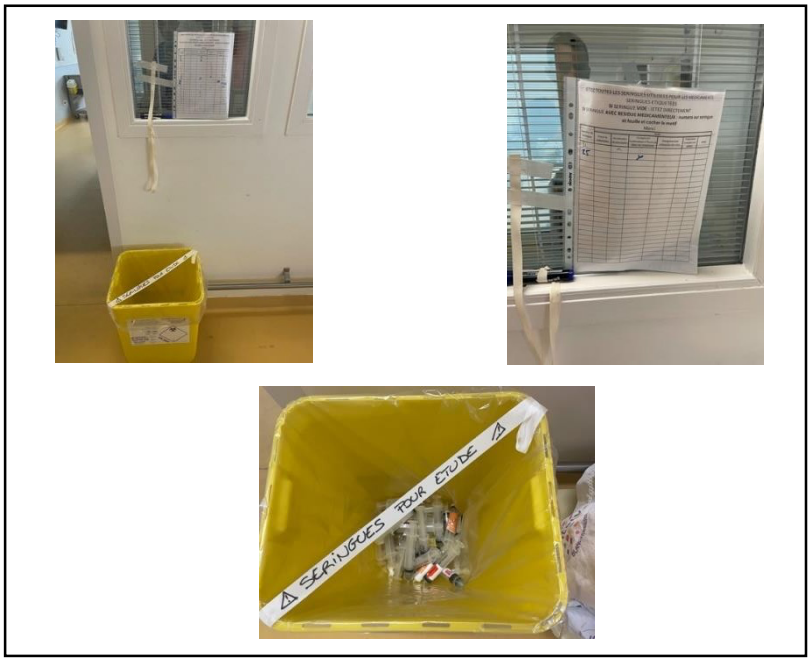
The day before the day chosen for the collection process:

a. **Inform the nurses present on the day of the GAME-OVER study** (by email, etc.):
Example of email template:
The unit is taking part in a national observational study to assess drug wastage in intensive care. There is no data in the scientific literature.

On (date), we request all care staff in the intensive care unit to dispose of syringes and the bags/vials used to administer medicines in the specific bins located in each room of the intensive care unit. Syringes must be labelled with the medicine's name and dilution. Empty syringes (≤ 2mL) should be discarded directly. Syringes with drug residues must be numbered (on the form and on the syringe) and the reason for disposal must be indicated. The duration of collection is 24 hours and begins when the day shift starts (at 7:00 am) and ends when the night shift leaves (at 7:00 am the next day).
Thank you for your participation.

b. Install a collection bin: 1 bin per patient room and 1 bin at the nurses' preparation area to collect syringes/bags prepared in advance but not assigned to a patient at the end of the 24-hour period.

We have opted for a bin with a transparent bag, and the reasons form and a marker are attached above it:



GAME-OVER Study

Appendix 1
Example of a GAME OVER Study Set-Up

The day of collection for nursing staff

Collection begins when the day shift starts (at 7:00 am).

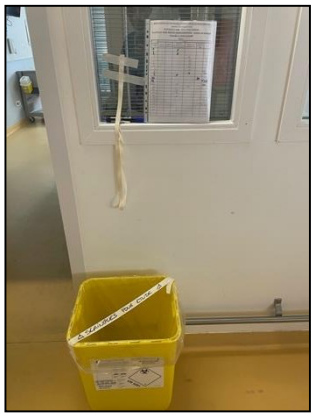
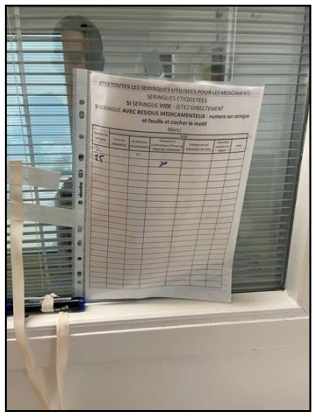
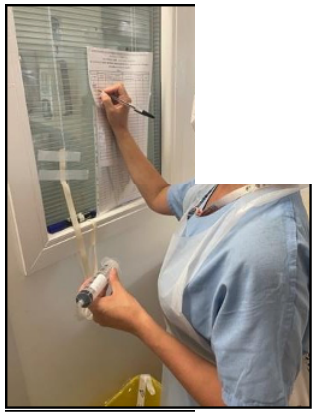
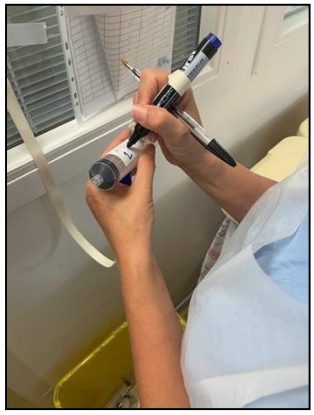
All used syringes and all bags/vials used for medicines must be disposed of with their labels:

If empty (≤ 2 mL)

Dispose of the syringe or bag/vial directly into the bin provided for the research

If drug residues are present

1. Record the number of the syringe/bag/vial on the form posted above the bin and tick the reason for disposal
2. Write this number directly on the syringe or bag/vial
3. Discard the syringe or bag/vial directly into the dedicated bin

Explain the procedure to the night shift on changeover.

If **a patient is discharged** during the 24-hour collection period, close the corresponding bag, making sure to enclose the patient's reasons form in the bag.
Similarly, if **a new patient is admitted during the 24 hours,** a new transparent bag is placed in the room's bin with a new patient-specific reason form.

When the night shift leaves, close the bags in each room (1 bag per patient), making sure to put the reasons form in each corresponding bag without mixing them up.
Also close the bag in the preparation room when the night shift leaves.

The collection of syringes/bags/vials for research purposes ends when the night shift leaves (at 7:00 am the next day).

GAME-OVER Study

Appendix 1
Example of a GAME OVER study set-up

The day of collection for the investigating physician

Instructions:

a. Pick a first nurse who's willing to **explain** the process **to the day care team**.
b. **Recap the process** before the treatment round starts.
c. Pick a second nurse who's willing to **explain the process to the night team**.
d. The second nurse will close the bags at the end of his/her shift, while placing the reasons form (identifiable by patient ID) in each bag without mixing them up.
e. The collection bag at the nurses' station is labelled "unit" and is used for all preparations not specifically assigned to a patient. Errors in preparations for a patient should be disposed of in the bag in the patient's room.
f. In the event **a patient is discharged and a new patient is admitted** the transparent bag is also changed, along with the reason form.

On the day of data collection, the investigating physician must complete 3 questionnaires:

Nursing practices
Questionnaire to be completed with each nurse on the day team

3 minutes/nurse

Patient data
Form to be completed for each patient in intensive care on the day of collection

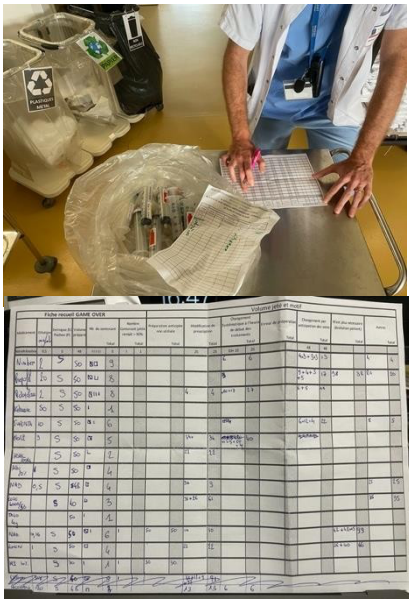
4 minutes/nurse

Unit data
Questionnaire to be completed with demographic data of the unit

5 minutes

The day after collection for the investigating physician

Once the data has been collected, the investigator fills in the form for discarded IV drugs (one form/patient and one form for the preparation room):



a. Open the bags collected the previous day, one by one (one bag/patient + one bag for the preparation room). Remember to clearly identify data per patient.
b. **For all syringes and bags/vials,** complete the first columns.
For syringes/bags/vials with drug residues, also fill in the volume in the reason box designated by the number on the syringe or bag/vial and the reasons form.

NB: In case of a **mixture of several molecules** in the bags, only the main medicine is noted (e.g. if a bag of paracetamol is mixed with nefopam, indicate only the paracetamol).

Do not enter: KCl ions, Ca, albumin, TKVO or NaCl carrier
If **ATB not identified** fill in "ATB" line
If the syringe is not labelled, fill in "**unidentified**" line

c. Fill in the eCRF.

GAME-OVER Study

Appendix 2
Demographic Data of the Site

Date of data collection (DD/MM/YYYY):	|_|_| / |_|_| / |_|_|_|_|
Facility type:	☐ University teaching hospital ☐ Public hospital ☐ Private for-profit hospital ☐ Private non-profit hospital ☐ Military teaching hospital
Postcode of location of practice:	|__|__|__|__|__|
Activity:	☐ General ☐ Surgical ☐ Medical ☐ Burn victims
Total number of beds	|_|_|
Number of open beds	|_|_|
Total number of patients present at 2:00 pm	|_|_|
Number of admissions during the 24-hour collection period	|_|_|
Number of discharges during the 24-hour collection period	|_|_|
Number of nurses during the day	|_|_|
Number of nurses at night	|_|_|
Number of student nurses present on the day	|_|_|
Number of senior doctors present on the day	|_|_|
Number of interns present on the day	|_|_|
Do you know whether your NHHW (black bin) stream is *NHHW: Non-Hazardous Healthcare Waste*	☐ Incinerated ☐ Landfilled ☐ DK
Do you have a DW stream? *DW: Drug waste: for drug residues (excluding return of unused medicines to the pharmacy)*	☐ YES ☐ NO

Do you have a process for recycling GLASS? *Glass, in particular vials/ampoules, is sorted for recycling*	☐ YES ☐ NO
Do you have a process for recycling METAL?	☐ YES ☐ NO
Do you have a PLASTIC recycling process?	☐ YES ☐ NO
Do you have a process for recycling PAPIER? *For paper in the unit, not just in the administrative office*	☐ YES ☐ NO

GAME-OVER Study

Appendix 3
Epidemiological Data of the Patients

Patient identifier	|__|__| - |_|_| Centre number - chronological inclusion number
Date of admission to intensive care (DD/MM/YYYY)	|_|_| / |_|_| / |_|_|_|_|
Age	|_|_| years
Sex	☐ Male ☐ Female
Weight	|_|_| kg
Height	|_|_| cm
Type of admission	☐ Elective surgery ☐ Emergency surgery ☐ Medical ☐ Trauma
Reason for admission	☐ Neurological head ☐ Neurological spine ☐ Respiratory / thoracic ☐ Cardiology ☐ Vascular ☐ Digestive ☐ Renal ☐ Hepatic ☐ Orthopaedics ☐ ENT ☐ Metabolic ☐ Haematology ☐ Obstetrics / Gynaecology ☐ Organ resuscitation MOR ☐ Burns ☐ Complex trauma

SOFA score (on the day of collection)	
Neurology: GCS	☐ 15 ☐ Between 13 and 14 ☐ Between 10 and 12 ☐ Between 6 and 9 ☐ Less than 6
Cardiovascular	☐ Absence of hypotension ☐ Mean arterial pressure < 70 mm Hg without vasoactive drugs ☐ Use of Dopamine (dose ≤ 5µg/kg/min) or Dobutamine (any dose). ☐ Use of Dopamine (dose > 5 µg/kg/min) or Noradrenaline/Adrenaline (dose ≤ 0.1 µg/kg/min) ☐ Use of Dopamine (dose > 15 µg/kg/min) or Noradrenaline/Adrenaline (dose > 0.1 µg/kg/min)
Respiratory	☐ $PaO_2/FiO_2 > 400$ ☐ $PaO_2/FiO_2 > 300$ and ≤ 400 ☐ $PaO_2/FiO_2 > 200$ and ≤ 300 ☐ $PaO_2/FiO_2 > 100$ and ≤ 200 with artificial ventilation ☐ $PaO_2/FiO_2 ≤ 100$ with artificial ventilation
Hepatic: Bilirubin	☐ < 20 µmol/L. ☐ ≥ 20 µmol/L and ≤ 32 µmol/L ☐ ≥ 33 µmol/L and ≤ 101 µmol/L ☐ ≥ 102 µmol/L and ≤ 204 µmol/L ☐ > 204 µmol/L
Platelets	☐ > $150.10^3/mm^3$ ☐ > $100.10^3/mm^3$ and ≤ $150.10^3/mm^3$ ☐ > $50.10^3/mm^3$ and ≤ $100.10^3/mm^3$ ☐ > $20.10^3/mm^3$ and ≤ $50.10^3/mm^3$ ☐ ≤ $20.10^3/mm^3$
Renal: Creatinine	☐ < 110 µmol/L. ☐ ≥ 110 µmol/L and ≤ 170 µmol/L ☐ ≥ 171 µmol/L and ≤ 299 µmol/L ☐ ≥ 300 µmol/L and ≤ 440 µmol/L or diuresis < 500 mL/24h ☐ > 440 µmol/L or diuresis < 200 mL/24h
Sedated	☐ Yes ☐ No
Upper airway access	☐ Orotracheal intubation ☐ Trach

	☐ None
Mode of oxygen delivery	☐ Mechanical ventilation ☐ Therapeutic NIV ☐ HFNC ☐ Simple oxygen ☐ None
Extrarenal purification	☐ Yes ☐ No
The patient's enteral tract is accessible *(i.e. no contraindication to use enteral route)*	☐ Yes ☐ No
Is the patient's enteral route used? *(i.e. for food)*	☐ Yes ☐ No
Paracetamol is administered by	☐ Intravenous ☐ Oral ☐ Not prescribed
The proton pump inhibitor is administered by	☐ Intravenous ☐ Oral ☐ Not prescribed
Was the patient discharged from intensive care during the 24-hour collection period?	☐ Yes ☐ No

GAME-OVER Study

Appendix 4
Questionnaire on Nursing Practices for the Investigator

Questions for the nurses on the day from the investigator											
Nurse		1	2	3	4	5	6	7	8	9	10
Do you know whether your NHHW (black bin) stream is *NHHW: Non-Hazardous Healthcare Waste*	Incinerated										
	Landfilled										
	DK										
Do you empty your syringes before discarding them?	NO										
	YES only those without medication										
	YES all										
If so, where do you EMPTY your syringes? *HAHW: Hazardous or Assimilated Healthcare Waste*	Washbasin										
	Black bin (NHHW)										
	Yellow bin (HAHW)										
	Specific collection bin										
Where do you DISCARD your syringes containing drug residues?	Black bin (NHHW)										
	Yellow bin (HAHW)										
	Plastic selective sorting										
	Not applicable										
Where do you DISCARD your empty syringes?	Black bin (NHHW)										
	Yellow bin (HAHW)										
	Plastic selective sorting										
Where do you DISCARD crystalloid residues?	Washbasin										
	Black bin (NHHW)										
	Yellow bin (HAHW)										
Are you in the habit of preparing <u>non-prescribed</u> syringes in advance for: an emergency, a potential admission, etc.?	YES										
	NO										
At the start of treatment, do you systematically change all the syringes? *(i.e. do I systematically change all the syringes at the start of treatment or just the empty ones?*	YES										
	NO										
Can medicines have a major toxic impact on aquatic environments?	TRUE										
	FALSE										
	DK										

GAME-OVER Study

Appendix 5: Investigator's Record Form for Discarded IV Drugs: Analysis of Collection Bins

☐ Patient identifier: |_ |_ | - |_ |_ | OR ☐ Unit form

Centre number - Chronological inclusion number

GAME OVER Record Form										Volume discarded per reason (mL)													
INN drug	Dilution mg/mL	Syringe (S) or Bag (B)	Initial volume prepared per syringe (mL)	No. of containers discarded	Total	No. of containers with drug residue	Total	No. of discarded containers filled > 90% of the time	Total	Advance preparation not used	Total	Systematic change at the start of treatment	Total	Modification of prescription (including discontinuation of treatment/syringe pump by the doctor)	Total	Change due to anticipation of treatment (including in-advance change of syringe pumps to free time for an incoming patient/bathing/care... beyond start of treatment round)	Total	No longer required (includes syringe pumps prescribed on request/if needed that are no longer required)	Total	Preparation error	Total	Other	Total
Noradrenaline	0.5	S	50	I I I I I	5	IIII	4	I	1			25	25	10+ 15	25			48	48				

GAME-OVER Study

Appendix 6
Reason for Disposal of a Discarded Syringe with Drug Residue Form

☐ Patient identifier: |_ |_ | - |_ |_ | OR ☐ Unit form

Centre number - Chronological inclusion number

DISCARD ALL SYRINGES/BAGS USED FOR MEDICINES

LABELLED SYRINGES

IF EMPTY SYRINGE (EMPTY IF ≤ 2mL): DISCARD DIRECTLY

IF SYRINGE **WITH DRUG RESIDUE: number on form + tick reason and note the number on the syringe**

Thank you

Syringe number	Reason						
	Advance preparation not used	Systematic change at the start of treatment	Modification of prescription (including discontinuation of treatment/syringe pump by the doctor)	Change due to anticipated care (including in-advance change of syringe pumps to free time for an incoming patient/bathing/care... beyond start of treatment round)	No longer required (includes syringe pumps prescribed on request/if needed that are no longer required)	Preparation error	Other

PATIENT INFORMATION NOTE

GAME-OVER STUDY:
Drug Wastage: Observational Study in Intensive Care Units in France

Sponsor: Centre Hospitalier Intercommunal de Toulon-La Seyne sur Mer (CHITS)
Data Controller: Director of the Centre Hospitalier Intercommunal de Toulon – La Seyne sur Mer (C.H.I.T.S.)
Project Director: Dr Erwan D'Aranda – Intensive Care Unit - Sainte-Anne Military Teaching Hospital, Toulon, France
Study ID Number: 2022-CHITS-009

Version no. 1.0 dated 18 October 2022

Dear Sir/Madam,

You are currently hospitalised in an intensive care unit. As part of its efforts to improve practices, the intensive care unit is taking part in a clinical research protocol titled:

"Drug wastage: an observational study in intensive care units in France"

The aim of this document is to provide you with the information you need to understand the significance of this study. This document belongs to you and we encourage you to discuss it with your GP and your loved ones if you wish. You can also contact the investigating doctor identified below to ask any questions you may have in order to fully understand this research.

You are free to decline to take part in this study. Simply inform the investigating doctor at the hospital where you are being treated. You will continue to benefit from the best possible care.
Also, you can change your mind at any time and decide to stop participating, without providing a reason. This withdrawal will not affect your treatment, the quality of your care or your relationship with your doctor. All we ask is that you inform the doctor of your decision as soon as possible.

A few details about this study

This study is carried out in compliance with current regulations. It falls under research not involving the human subjects (RNIHS). Your written consent is not required.

This is a study based on **the practices of the healthcare team and on pseudonymised data collected from your medical records** (i.e. without any change in practices or any involvement on your part). This is a **multicentre** study, as it will be carried out in several intensive care units in France and Monaco.

Background and objectives of the study

Current environmental concerns have prompted the healthcare sector to consider its responsibilities and possible courses of action. Against this backdrop, this study is focused on evaluating the wastage of drugs administered by the intravenous route (i.e. through the veins) in intensive care units in France and Monaco, as well as the reasons for this wastage, the methods for disposing of unused drug residues and the alternative use of drugs taken by the enteral route (i.e. through the digestive tract).

There is currently no data specific to intensive care on this subject. This study could help improve the practices of healthcare professionals in intensive care units and reduce the impact of this care on the environment.

The primary objective of the study in which we are inviting you to take part is to quantify the wastage of intravenous drugs prepared in the intensive care unit by looking at the proportion of drugs prepared and discarded compared with all the drugs prepared over a 24-hour period.

Study plan

The medical data collected as part of this research is data that is strictly required to meet the objectives of the research. The data will be collected from medical records and pseudonymised by assigning each patient a number in chronological order.
It shall then be analysed at the Sainte-Anne Military Teaching Hospital in Toulon.

Category/type of data collected

To this end, the following medical/personal health data about you will be collected over a 24-hour period:

- Age, sex, weight and height,
- Date of admission to intensive care,
- Type and reason for admission to the unit,
- A score designed to monitor your state of health called the “SOFA Score",
- Whether or not sedation is used,
- Method of access to the upper airways (i.e. from the nose to the larynx): for example, by intubating the trachea,
- Mode of oxygen delivery,
- Whether or not there is a need for artificial blood purification to replace kidney function (dialysis),
- Route of drug administration (intravenous or oral).

Benefits and advantages of taking part in this research

There is no personal benefit or advantage in participating in this research. No compensation shall be provided.

Constraints associated with taking part in this research

No further consultations have been scheduled as part of this research.

Processing of personal data collected for research purposes

Pursuant to the provisions of Act No. 78-17 pertaining to data protection and the General Data Protection Regulation (Regulation (EU) 2016/679, GDPR), on the legal basis of implementing a public interest mission and in accordance with the need to process data for scientific purposes, your individual data required for the study, which is collected in coded form (pseudonymised), shall be sent to the sponsor or one of its partners for computer processing in order to analyse the results of the research based on the objective presented to you. In this format, the data can also be sent to French or foreign health authorities. This use will be carried out in accordance with the reference methodology (MR-004) relating to the processing of personal data implemented as part of health-related research.

The sponsor and persons acting on its behalf (research professionals, auditors, subcontractors, data protection officer), inspectors or other staff from the Health Authorities and staff acting on behalf of the insurance company, all of whom are bound by professional secrecy, may have access to the clinical data in your medical file for compliance checks. This shall be the case for the entire duration of the research and shall be carried out within the limits of their scope of authority in relation to their duties and under conditions that comply with the regulations.

The Data Controller for the CHITS is the CHITS Director. Contact details for the CHITS Data Protection Officer: dpo@ch-toulon.fr

Your rights with regard to personal data

Pursuant to the provisions of Act No. 78-17 pertaining to data protection and the General Data Protection Regulation (Regulation (EU) 2016/679, GDPR), you have the following rights:

- The right to request access to data collected as part of the research, either directly or through a doctor,
- The right to rectification, deletion or restriction of the processing of data collected as part of the research,
- The right to object to the collection and sharing of your data covered by medical confidentiality. You can withdraw your consent to the collection of your data at any time.

However, you may not be able to exercise certain rights stipulated in the GDPR (restriction, deletion, objection) if doing so would compromise the achievement of the objectives of the study. In particular, if during the course of the research you no longer wish to participate in the protocol, data acquired prior to your objection may be used if its deletion seriously compromises the objectives of the research or makes it impossible to achieve them.

All these rights can be exercised by contacting the sponsor via the doctor in charge of the research at the hospital where you are being treated, who is the only person who knows your identity. You can also contact the CHITS Data Protection Officer by email (DPO@ch-toulon.fr).

Pursuant to Article 40 of Act No. 78-17 dated 6 January 1978 as amended and paragraph 3 of Article 12 of the European Regulation, personal data will be communicated as soon as possible and, in any case, within one month of receiving the request. However, this timeframe may be extended by two months depending on the complexity and number of requests.

You may also lodge a claim with the competent French data protection authority: the Commission Nationale de l'Informatique et des Libertés - CNIL. You can find information on the regulations on its website: www.cnil.fr.

Data retention

In the event of termination of participation, the data collected prior to the termination will be used.

The data collected as part of the research will be kept for up to 2 years after the last publication of the research results or, if not published, up to 3 years after the end of data collection. The data will then be archived on paper or computer for a period of 15 years in compliance with current regulations. Once the legal archiving period has elapsed, the paper data will be destroyed and the computer versions will be deleted.

If you so request, at the end of the research and after analysis of the data relating to this research, you may be informed of the overall results through the doctor treating you as part of this research, in accordance with Article L1122-1 of the French Public Health Code.

If the information provided in this document is amended, you will be informed by means of a new information note.

For further details,
To request access to your data,
To object to its use,
To obtain the overall results of the study,

You can contact the research investigating doctor.

Name	Hospital	Professional email	Professional postal address
Contact details to be adapted to each centre			

INFORMATION NOTE FOR THE TRUSTED SUPPORT PERSON

GAME-OVER STUDY:
Drug Wastage: Observational Study in Intensive Care Units in France

Sponsor: Centre Hospitalier Intercommunal de Toulon-La Seyne sur Mer (CHITS)
Data Controller: Director of the Centre Hospitalier Intercommunal de Toulon – La Seyne sur Mer (C.H.I.T.S.)
Project Director: Dr Erwan D'Aranda – Intensive Care Unit - Sainte-Anne Military Teaching Hospital, Toulon, France
Study ID Number: 2022-CHITS-009

Version no. 1.0 dated 18 October 2022

Dear Sir/Madam,

Your relative is currently hospitalised in an intensive care unit. As part of its efforts to improve practices, the intensive care unit is taking part in a clinical research protocol titled:

"Drug wastage: an observational study in intensive care units in France"

The aim of this document is to provide you with the information you need to understand the significance of this study. If you are being asked to read this document, it is because your relative is not in a position to be informed about the research. This document belongs to you and we encourage you to discuss it with your loved ones if you wish. You can also contact the investigating doctor identified below to ask any questions you may have in order to fully understand this research.

You are free to object to your relative taking part in this study. Simply inform the investigating doctor at the hospital where your relative is being treated. Your relative will continue to benefit from the best possible care.
Also, you can change your mind at any time and decide to stop your relative's participation, without providing a reason. This withdrawal will not affect his/her treatment, quality of care or relationship with his/her doctor. All we ask is that you inform the doctor of your decision as soon as possible.

A few details about this study

This study is carried out in compliance with current regulations. It falls under research not involving the human subjects (RNIHS). Your written consent is not required.

This is a study based on **the practices of the healthcare team and on pseudonymised data collected from your relative's medical records** (i.e. without any change in practices or any involvement of your relative). This is a **multicentre** study, as it will be carried out in several intensive care units in France and Monaco.

Background and objectives of the study

Current environmental concerns have prompted the healthcare sector to consider its responsibilities and possible courses of action. Against this backdrop, this study is focused on evaluating the wastage of drugs administered through the veins (i.e. intravenous route) in intensive care units in France and Monaco, as well as the reasons for this wastage, the methods for disposing of unused drug residues and the alternative use of drugs taken by the enteral route (i.e. through the digestive tract).

There is currently no data specific to intensive care on this subject. This study could help improve the practices of healthcare professionals in intensive care units and thus reduce the impact of this care on the environment.

The primary objective of the study in which we are inviting your relative to take part is to quantify the wastage of intravenous drugs prepared in the intensive care unit by looking at the proportion of drugs prepared and discarded compared with all the drugs prepared.

Study plan

The medical data collected as part of this research is data that is strictly required to meet the objectives of the research. The data will be collected from medical records and pseudonymised by assigning each patient a number in chronological order.
It shall then be analysed at the Sainte-Anne Military Teaching Hospital in Toulon.

Category/type of data collected

To this end, the following medical/personal health data about your relative will be collected over a 24-hour period:

- Age, sex, weight and height,
- Date of admission to intensive care,
- Type and reason for admission to the unit,
- A score designed to monitor the state of health called the “SOFA Score",
- Whether or not sedation is used,
- Method of access to the upper airways (i.e. from the nose to the larynx): for example, by intubating the trachea,
- Mode of oxygen delivery,
- Whether or not there is a need for artificial blood purification to replace to replace kidney function (dialysis),
- Route of drug administration (intravenous or oral).

Benefits and advantages of taking part in this research

There is no personal benefit or advantage in participating in this research. No compensation shall be provided.

Constraints associated with taking part in this research

No further consultations have been scheduled as part of this research.

Processing of personal data collected for research purposes

Pursuant to the provisions of Act No. 78-17 pertaining to data protection and the General Data Protection Regulation (Regulation (EU) 2016/679, GDPR), on the legal basis of implementing a public interest mission and in accordance with the need to process data for scientific purposes, your relative’s individual data required for the study, which is collected in coded form (pseudonymised), shall be sent to the sponsor or one of its partners for computer processing in order to analyse the results of the research based on the objective presented to you. In this format, the data can also be sent to French or foreign health authorities. This use will be carried out in accordance with the reference methodology (MR-004) relating to the processing of personal data implemented as part of health-related research.

The sponsor and persons acting on its behalf (research professionals, auditors, subcontractors, data protection officer), inspectors or other staff from the Health Authorities and staff acting on behalf of the insurance company, all of whom are bound by professional secrecy, may have access to the clinical data in your relative’s medical file for compliance checks. This shall be the case for the entire duration of the research and shall be carried out within the limits of their scope of authority in relation to their duties and under conditions that comply with the regulations.

The Data Controller for the CHITS is the CHITS Director. Contact details for the CHITS Data Protection Officer: dpo@ch-toulon.fr

Your rights with regard to personal data

Pursuant to the provisions of Act No. 78-17 pertaining to data protection and the General Data Protection Regulation (Regulation (EU) 2016/679, GDPR), your relative has the following rights:

- The right to request access to data collected as part of the research, either directly or through a doctor,
- The right to rectification, deletion or restriction of the processing of data collected as part of the research,
- The right to object to the collection and sharing of one's data covered by medical confidentiality. One can withdraw consent to the collection of one's data at any time.

However, one may not be able to exercise certain rights stipulated in the GDPR (restriction, deletion, objection) if doing so would compromise the achievement of the objectives of the study. In particular, if during the course of the research your relative or yourself no longer wish to participate in the protocol, data acquired prior to the objection may be used if its deletion seriously compromises the objectives of the research or makes it impossible to achieve them.

All these rights can be exercised by contacting the sponsor via the doctor in charge of the research at the hospital where your relative is being treated, who is the only person who knows your relative's identity. You or your relative can also contact the CHITS Data Protection Officer by email (DPO@ch-toulon.fr).

Pursuant to Article 40 of Act No. 78-17 dated 6 January 1978 as amended and paragraph 3 of Article 12 of the European Regulation, personal data will be communicated as soon as possible and, in any case, within one month of receiving the request. However, this timeframe may be extended by two months depending on the complexity and number of requests.

It is also possible to lodge a claim with the competent French data protection authority: the Commission Nationale de l'Informatique et des Libertés - CNIL. You can find information on the regulations on its website: www.cnil.fr.

Data retention

In the event of termination of participation, the data collected prior to the termination will be used.

The data collected as part of the research will be kept for up to 2 years after the last publication of the research results or, if not published, up to 3 years after the end of data collection. The data will then be archived on paper or computer for a period of 15 years in compliance with current regulations. Once the legal archiving period has elapsed, the paper data will be destroyed and the computer versions will be deleted.

If you or your relative so request, at the end of the research and after analysis of the data relating to this research, you may be informed of the overall results through the doctor treating your relative as part of this research, in accordance with Article L1122-1 of the French Public Health Code.

If the information provided in this document is amended, you or your relative will be informed by means of a new information note.

For further details,
To request access to the data,
To object to its use,
To obtain the overall results of the study,

You can contact the research investigating doctor.

Name	Hospital	Professional email	Professional postal address
Contact details to be adapted to each centre			

CLINICAL RESEARCH PROTOCOL
"GAME-OVER"

Dear Sir/Madam,

One of your relatives is currently admitted in an intensive care unit. Our hospital's mission is to provide care, train healthcare professionals and participate in medical research. This research allows us to improve our knowledge and the care we deliver to patients.

To this effect, our intensive care unit is taking part in a clinical research project titled:

Drug wastage: an observational study in intensive care units in France

Current **environmental** concerns have prompted the healthcare sector to consider its responsibilities and **possible courses of action**.

Against this backdrop, this study is focused on **evaluating the wastage of drugs administered through the veins** (*i.e. via intravenous route*) in intensive care units in France and Monaco, as well as the reasons for this wastage, the **methods for disposing of** unused drug residues and the use of an **alternative** using drugs administered via the enteral route (*i.e. through the digestive tract*).

This study could help **improve the practices of healthcare professionals in intensive care units** and **reduce the impact of this care on the environment**.

This is a study based on the practices of the healthcare team and on pseudonymised data (by assigning a patient code) collected from your medical records (or that of your relative) **without any change in practices or your involvement** (or your relative's involvement). The data collected includes demographic information (age, sex, weight and height), information about the stay (date, type and reason for admission to the intensive care unit) and information about the patient's health status and treatment (SOFA score, use of sedation, mode of access to the upper airways, mode of oxygenation, use of dialysis, route of drug administration). The data collected shall be shared between the intensive care units of several centres. The data is stored on a secure computer file, which enables it to be processed automatically. This information is pseudonymised to ensure confidentiality and respect for medical confidentiality.

You or your relative can decline collection of data for this study at any time. Naturally, this refusal will not alter the terms and conditions of care, the treatment provided or relations with the care team. You can simply inform the unit's doctors orally of your refusal. You or your relative may also access all your medical data directly or through a doctor of your choice, pursuant to the provisions of Article L. 1111-7 of the French Public Health Code. Pursuant to the provisions of the CNIL (French Data Protection Act, articles 16.1 and 16.6 of the French Civil Code), you have a right to access, rectify and object to the use of data. These rights may be exercised by contacting the doctors in charge of research within the unit. The investigators and all the doctors in the intensive care unit will be happy to answer any questions you may have. Feel free to consult the information notes.

Thank you for your cooperation.