

SPEAKERS

Jan-Thorsten Gräsner (Germany) | History of Utstein OHCA Report
Janet Bray (Australia) | Methods for the update
Judith Finn (Australia) | Dispatcher changes
Marcus Ong (Singapore) | Systems changes
Jerry Nolan (UK) | Post-resuscitation care changes
Gavin Perkins (UK) | Outcome reporting
Ziad Nehme (Australia) | Flowchart



scan to register



ONLINE WEBINAR

13th November 2024

Utstein OHCA UPDATE 2024

7:00 New York

13:00 Oslo

20:00 Singapore

23:00 Melbourne





1991

AHA Medical/Scientific Statement

Special Report



2004



Resuscitation 63 (2004) 233–249

www.elsevier.com/locate/resuscitation

Recommended Guidelines for Uniform Reporting of Data From Out-of-Hospital Cardiac Arrest: The Utstein Style

A Statement for Health Professionals From a Task Force of the American Heart Association, the European Resuscitation Council, the Heart and Stroke Foundation of Canada, and the Australian Resuscitation Council

Richard O. Cummins and Douglas A. Chamberlain, Cochairmen;
Norman S. Abramson, Mervyn Allen, Peter J. Baskett, Lance Becker, Leo Bossaert,
Herman H. Deloof, Wolfgang F. Dick, Mickey S. Eisenberg, Thomas R. Evans,
Stig Holmberg, Richard Kerber, Arne Mullie, Joseph P. Ornato, Erik Sandoe,
Andreas Skulberg, Hugh Tunstall-Pedoe, Richard Swanson, and William H. Thies, Members

Cardiac arrest and cardiopulmonary resuscitation outcome reports: update and simplification of the Utstein templates for resuscitation registries.

A statement for healthcare professionals from a task force of the international liaison committee on resuscitation (American Heart Association, European Resuscitation Council, Australian Resuscitation Council, New Zealand Resuscitation Council, Heart and Stroke Foundation of Canada, InterAmerican Heart Foundation, Resuscitation Council of Southern Africa)[☆]

Ian Jacobs, Vinay Nadkarni*, Jan Bahr, Robert A. Berg, John E. Billi, Leo Bossaert, Pascal Cassan, Ashraf Coovadia, Kate D'Este, Judith Finn, Henry Halperin, Anthony Handley, Johan Herlitz, Robert Hickey, Ahamed Idris, Walter Kloeck, Gregory Luke Larkin, Mary Elizabeth Mancini, Pip Mason, Gregory Mears, Koenraad Monsieurs, William Montgomery, Peter Morley, Graham Nichol, Jerry Nolan, Kazuo Okada, Jeffrey Perlman, Michael Shuster, Petter Andreas Steen, Fritz Sterz, James Tibballs, Sergio Timerman, Tanya Truitt, David Zideman

2015

Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports: Update of the Utstein Resuscitation Registry Templates for Out-of-Hospital Cardiac Arrest

A Statement for Healthcare Professionals From a Task Force of the International Liaison Committee on Resuscitation (American Heart Association, European Resuscitation Council, Australian and New Zealand Council on Resuscitation, Heart and Stroke Foundation of Canada, InterAmerican Heart Foundation, Resuscitation Council of Southern Africa, Resuscitation Council of Asia); and the American Heart Association Emergency Cardiovascular Care Committee and the Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation

Gavin D. Perkins, MB ChB, MD, FRCP, FFICM, FERC, Chair;
Ian G. Jacobs†, PhD, BAppSc, DipEd, RN, OSU, FCNA, FANZCP, FERC, FAHA;
Vinay M. Nadkarni, MD, MS; Robert A. Berg, MD;
Farhan Bhanji, MD, MSc (Ed), FRCPC, FAHA; Dominique Biarent, MD;
Leo L. Bossaert, MD, PhD; Stephen J. Brett, MD, FRCA, FFICM;
Douglas Chamberlain, CBE, MD, FRCP, FACC, EFESC, FERC;
Allan R. de Caen, MD, FRCPC; Charles D. Deakin, MA, MD, FRCP, FRCA, FFICM;
Judith C. Finn, PhD, MEdSt, GradDipPH, BSc, DipAppSc, RN, RM, ICCert, FACN, FAHA;
Jan-Thorsten Gräsner, MD; Mary Fran Hazinski, RN, MSN; Taku Iwami, MD, PhD;
Rudolph W. Koster, MD, PhD; Swee Han Lim, MBBS; Matthew Huei-Ming Ma, MD, PhD;
Bryan F. McNally, MD, MPH; Peter T. Morley, MD; Laurie J. Morrison, MD, MSc, FRCPC;
Koenraad G. Monsieurs, MD, PhD; William Montgomery, MD; Graham Nichol, MD, MPH;
Kazuo Okada, MD, PhD; Marcus Eng Hock Ong, MBBS, MPH; Andrew H. Travers, MD, MSc, FRCPC;
Jerry P. Nolan, MB ChB, FRCA, FRCP, FFICM, FCEM (Hon); for the Utstein Collaborators

ILCOR Scientific Statement Cardiac arrest and cardiopulmonary resuscitation outcome reports: 2024 update of the Utstein Out-of-Hospital Cardiac Arrest Registry template: Published 24 July 2024

Circulation

ILCOR SCIENTIFIC STATEMENT

Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports: 2024 Update of the Utstein Out-of-Hospital Cardiac Arrest Registry Template

Janet E. Bray, RN, PhD, Co-Chair¹; Jan-Thorsten Grasner, MD, Co-Chair¹; Jerry P. Nolan, PhD; Taku Iwami, PhD; Marcus E.H. Ong, MBBS, MPH; Judith Finn, RN, PhD; Bryan McNally, MD, MPH; Ziad Nehme, PhD; Comilla Sasson, MD, PhD; Janice Tijssen, MD; Shir Lynn Lim, MBBS, MMed; Ingvald Tjelmeland, RN; Jan Wnent, MD; Bridget Dicker, PhD; Chika Nishiyama, RN, PhD; Zakary Doherty, MD; Michelle Welsford, MD; Gavin D. Perkins, MD; on behalf of the International Liaison Committee on Resuscitation

ABSTRACT: The Utstein Out-of-Hospital Cardiac Arrest Resuscitation Registry Template, introduced in 1991 and updated in 2004 and 2015, standardizes data collection to enable research, evaluation, and comparisons of systems of care. The impetus for the current update stemmed from significant advances in the field and insights from registry development and regional comparisons. This 2024 update involved representatives of the International Liaison Committee on Resuscitation and used a modified Delphi process. Every 2015 Utstein data element was reviewed for relevance, priority (core or supplemental), and improvement. New variables were proposed and refined. All changes were voted on for inclusion. The 2015 domains—system, dispatch, patient, process, and outcomes—were retained. Further clarity is provided for the definitions of out-of-hospital cardiac arrest attended resuscitation and attempted resuscitation. Changes reflect advancements in dispatch, early response systems, and resuscitation care, as well as the importance of prehospital outcomes. Time intervals such as emergency medical service response time now emphasize precise reporting of the times used. New flowcharts aid the reporting of system effectiveness for patients with an attempted resuscitation and system efficacy for the Utstein comparator group. Recognizing the varying capacities of emergency systems globally, the writing group provided a minimal dataset for settings with developing emergency medical systems. Supplementary variables are considered useful for research purposes. These revisions aim to elevate data collection and reporting transparency by registries and researchers and to advance international comparisons and collaborations. The overarching objective remains the improvement of outcomes for patients with out-of-hospital cardiac arrest.

<https://www.ahajournals.org/doi/10.1161/CIR.0000000000001243>



ILCOR Scientific Statement

Cardiac arrest and cardiopulmonary resuscitation outcome reports: 2024 update of the Utstein Out-of-Hospital Cardiac Arrest Registry template^{*}

Jan-Thorsten Grasner¹, Janet E. Bray¹, Jerry P. Nolan, Taku Iwami, Marcus E.H. Ong, Judith Finn, Bryan McNally, Ziad Nehme, Comilla Sasson, Janice Tijssen, Shir Lynn Lim, Ingvald Tjelmeland, Jan Wnent, Bridget Dicker, Chika Nishiyama, Zakary Doherty, Michelle Welsford, Gavin D. Perkins, on behalf of the International Liaison Committee on Resuscitation

Abstract

The Utstein Out-of-Hospital Cardiac Arrest Resuscitation Registry Template, introduced in 1991 and updated in 2004 and 2015, standardizes data collection to enable research, evaluation, and comparisons of systems of care. The impetus for the current update stemmed from significant advances in the field and insights from registry development and regional comparisons. This 2024 update involved representatives of the International Liaison Committee on Resuscitation and used a modified Delphi process. Every 2015 Utstein data element was reviewed for relevance, priority (core or supplemental), and improvement. New variables were proposed and refined. All changes were voted on for inclusion. The 2015 domains—system, dispatch, patient, process, and outcomes—were retained. Further clarity is provided for the definitions of out-of-hospital cardiac arrest attended resuscitation and attempted resuscitation. Changes reflect advancements in dispatch, early response systems, and resuscitation care, as well as the importance of prehospital outcomes. Time intervals such as emergency medical service response time now emphasize precise reporting of the times used. New flowcharts aid the reporting of system effectiveness for patients with an attempted resuscitation and system efficacy for the Utstein comparator group. Recognizing the varying capacities of emergency systems globally, the writing group provided a minimal dataset for settings with developing emergency medical systems. Supplementary variables are considered useful for research purposes. These revisions aim to elevate data collection and reporting transparency by registries and researchers and to advance international comparisons and collaborations. The overarching objective remains the improvement of outcomes for patients with out-of-hospital cardiac arrest.

Keywords: AHA Scientific Statements, Cardiopulmonary resuscitation, Heart arrest, Out-of-hospital cardiac arrest, Registries, Resuscitation

<https://doi.org/10.1016/j.resuscitation.2024.110288>

Methods

Writing group

- Membership: Previous authors, new registry leaders and ECRs, diversity, low resource settings
- Consensus pre-defined

Assessment

- Examined use of 2015 Utstein –research and registry reporting
- Surveyed writing group on 2015 items requiring review and identification of new items
- Domains retained –core & supplementary (process intra-arrest and post-arrest)

5 Working groups

- Assessment results used in working groups to examine item needing review, need and definitions for new items and revisions to existing definitions and coding
- All changes presented to writing group for input

Consensus

- 3 rounds of anonymous surveys of the writing group for all changes and additions
- New definitions and coding consensus (85% acceptable)

	SYSTEM	DISPATCH	PATIENT	PROCESS	OUTCOMES
CORE	Population served Cardiac arrests attended* Resuscitation attempted* Resuscitation not attempted System description*	Dispatcher OHCA recognition† Dispatcher CPR instructions†	Age Sex Witnessed arrest Arrest location*‡ Bystander CPR*‡ Bystander AED use* First arresting rhythm Presumed cause*‡	Times*‡ Response time* Time to first defibrillation* Drugs given* Presence of STEMI Coronary angiogram*‡ Reperfusion attempted*‡ Hospital type*	Survived event Any ROSC Transported to hospital Survival to discharge or 30-days Neurological outcome at discharge or 30-days
SUPPLEMENTARY	System description*	Time to dispatcher OHCA recognition† Volunteer community responders alerted† Volunteer community responders accepted alert†	CPR first† Defibrillated first† Prior functioning* Comorbidities* VAD Cardioverter defibrillator	Time to first compression† Prehospital airway* Number of shocks First drug time* Vascular access type* Mechanical CPR Extracorporeal CPR† Hospital volume 12-lead ECG interpretation* Temperature control* Post-arrest pyrexia† Mechanical support* Vasopressors/inotropes* Neuroprognostic tests	Scene outcome† Hospital arrival outcome† Treatment withdrawal Context of death* Date and time of death Organ donation Survival status post-discharge* Health-related quality-of-life*

25 items were redefined or modified

1 core and 13 supplemental items were added

7 items had details added to their definitions

5 items were dropped

4 items were moved to system description

1 item was moved from supplementary to core

[Supplemental Material 1 Table S2](#) details changes against 2015 Utstein.

Table S3. Minimum data for low-resource settings.

Item	Data options
Data of cardiac arrest	dd/mm/yyyy
Age	Age in years
Sex	male/female/unknown
Location	private residence/public/other medical facility/unknown
Mode of transport to hospital	EMS/private ambulance/private transport
Bystander CPR	bystander CPR/no bystander CPR/unknown
Witnessed status	Witnessed/unwitnessed/EMS witnessed/unknown
First monitored rhythm	shockable/non-shockable/unknown
Presumed etiology	medical/traumatic/other
ROSC on arrival at hospital	yes/no/unknown
Survived [timeframe]	yes/no/unknown

Key definitions

Bystander CPR and AED use



Dispatched responders



Bystanders

Present at scene

Volunteer community responders

Volunteers who are **alerted** to a potential OHCA and are under no obligation to attend (may include off-duty health care professionals but not dispatched responders)

First responders

Dispatched and does **not belong** to an organisation with the ability to transport the patient to hospital

EMS

Dispatched and **belongs** to an organisation with the ability to transport the patient to hospital

Key definitions

Item	2015	2024
OHCA	absence of signs of circulation irrespective of whether the assessment was made by EMS or a bystander	Number of cardiac arrests attended (arrests defined by absence of signs of circulation as assessed or confirmed by EMS , including patients with ROSC following confirmed defibrillation before EMS arrival)
EMS attempted resuscitation	EMS personnel perform chest compressions or attempt defibrillation and other related emergency care	Number of cardiac arrests attended where dispatched responders perform chest compressions, defibrillations, or other related emergency care, or where a confirmed defibrillation occurs before EMS arrival. <i>Where registries include other emergency care among the attempted resuscitation group they should describe how it was defined in system description</i>

Key changes –Dispatch core

Item	2015	2024
Dispatcher OHCA recognition	Yes/no/unknown/not recorded	Yes/no/unknown/not recorded <i>(Supplemental: CPR already underway/ caller not on scene/unable to access or position patient/caller refused/unsafe scene/ caller hung up/ language barriers/ other circumstances)</i>
Dispatcher CPR instructions	Yes/no/unknown/not recorded	Yes/no/unknown/not recorded <i>(Supplemental: OHCA not recognized/CPR already underway/ caller not on scene/ unable to position patient/caller refused/ unsafe scene/caller hung up/language barriers/other circumstances)</i>

Key changes –New Dispatch Supp

2015	2024	Definition	Data options
xx	Time to dispatcher OHCA recognition	<p>Time to dispatcher OHCA recognition is the interval between time point 1 and time point 2.</p> <p><i>Gold standard time points are (recommended)</i></p> <p><u>Time point 1</u>: Estimated time of arrest; Time of call; Call answered by PSAP; Call answered by EMS agency or secondary PSAP (recommended)</p> <p><u>Time point 2</u>: Time dispatcher identifies cardiac arrest (recommended)</p>	mm:ss/unknown/not recorded
xx	Volunteer community responders alerted	<p>Volunteer community responders alerted to attend the OHCA location (eg, via smartphone application).</p> <p><i>Responders may include off-duty health care professionals but not dispatched responders (e.g., fire or police).</i></p> <p><i>Not applicable may apply if the dispatch system does not alert for all OHCA cases</i></p>	Yes/no/unknown/not recorded/not applicable
xx	Volunteer community responders accepted alert	<p>The volunteer community responders accept the alert to attend the OHCA location</p> <p><i>Not applicable may apply if the dispatch system does not alert for all OHCA cases</i></p>	Yes/no/unknown/not recorded/not applicable

Key changes – Patient core

2015	2024	Definition	Data options
Bystander response	Bystander CPR	CPR performed by a person who is on scene or alerted but not dispatched as part of an organized emergency response system. Bystander CPR may be compression only or compression with ventilations. <i>Bystanders include off-duty health care professionals and volunteer community responders. Dispatched responders should not be included as bystanders.</i>	Yes/no/unknown/not recorded Supplemental: compression only/ compressions and ventilation/no bystander CPR/ unknown/not recorded
Bystander response	Bystander AED use	AED applied by a person who is on scene or alerted, but not dispatched as part of an organized emergency response system. <i>Bystanders include off-duty health care professionals if they are not part of the emergency response system and volunteer community responders. Dispatched first responders should not be included as bystanders.</i>	AED used, shock delivered/AED used, no shock delivered/AED used, unknown shock/AED not used/not recorded

Age, Sex, Witnessed, Rhythm largely unchanged

Key changes – Patient core

2015	2024	Definition	Data options
Pathogenesis	Presumed cause	<p>The most likely primary cause of the cardiac arrest. Medical; Traumatic; Drug overdose; Drowning; Asphyxia; electrocution; unknown</p> <p>This information should be collected from the same source for all cases and documented in reporting. <i>Subgroupings may be used when an obvious cause is known. Other subgroupings (eg, mechanism of trauma) may be appropriate to local regions.</i></p>	<p>Medical (<i>subgroups: presumed cardiac /unknown; respiratory; terminal illness; anaphylaxis; SUID; other medical</i>)/</p> <p>Trauma (<i>subgroups: penetrating; blunt; burn injury</i>)/ Drug overdose/ Drowning/ Electrocution/ Asphyxial (<i>subgroups: hanging; foreign body; suffocation or strangulation</i>)/</p> <p>Not recorded</p>

Key changes – Patient core

2015	2024	Definition	Data options
xx	CPR first	The person who provided CPR first <i>A bystander is someone on scene</i>	Bystander/volunteer community responder/ dispatched first responder/EMS/other/unknown/not recorded
xx	Defibrillated first	The person who provided the first defibrillation	Bystander/volunteer community responder/ dispatched first responder/EMS/other/unknown/not recorded

Key changes – Patient Core/Supp

2015	2024	Definition
Response time	Response time	<p>The interval between time point 1 and time point 2. <i>Gold standard time (recommended)</i> <u>Time point 1</u>: Estimated time of arrest; Time of call; Time call connects to primary PSAP (recommended); Time call answered by EMS agency or secondary PSAP <u>Time point 2</u>: Time dispatched first responders or EMS arrived at scene (wheels stop turning) (recommended); Time dispatched first responders or EMS arrived at patient's side</p>
Defibrillation time	Time to first defibrillation	<p>The interval between time point 1 and time point 2. <i>Gold standard time (recommended)</i> <u>Time point 1</u>: Estimated time of arrest; Time of call; Time call connects to primary PSAP (recommended); Time call answered by EMS agency or secondary PSAP <u>Time point 2</u>: Time of first defibrillation (recommended)</p>

Key changes – Intra-arrest Supp

2015	2024	Definition
xx	Time to first compression	<p>The interval between time point 1 and time point 2. <i>Gold standard time (recommended)</i></p> <p><u>Time point 1</u>: Estimated time of arrest; Time of call; Call answered by PSAP (recommended); Call answered by EMS agency or secondary PSAP</p> <p><u>Time point 2</u>: Time of first compression (recommended)</p>

Key changes – Post-resus care core

2024	Definition	Data options
Presence of STEMI	At the time of the first 12-lead ECG performed after ROSC, the presence of STEMI is observed.	Yes/no/unknown/not recorded
Coronary angiogram	Coronary reperfusion performed. <i>Urgent coronary angiography defined as within 6h of cardiac arrest; delayed coronary angiography defined as undertaken during the same hospital admission</i> <i>Supplemental: date and time</i>	Intra-arrest/urgent/delayed/no angiography/unknown/not recorded <i>(Supplemental: date and time)</i>
Reperfusion attempted	Coronary reperfusion attempted (eg, PCI, thrombolysis, or CAGS). <i>Supplemental: date and time</i>	PCI/thrombolysis/CAGS/no reperfusion/ unknown/not recorded <i>(Supplemental: date and time)</i>
Hospital type	Transport (primary or secondary transfer) to a hospital capable of PCI (adults) or with a PICU (pediatrics)	Yes, primary hospital/yes, secondary hospital/no/unknown/not recorded

Other changes made to align with IHCA Utstein and recent ILCOR Treatment recommendations

Single measurements (Ph, Lactate etc) dropped as limited value in single measure

Outcomes



Core Outcome Set for Cardiac Arrest Clinical trials

Survival

Neurological function

Health related QoL

Key changes –Outcome core

Utstein 2015	Utstein 2024
Survived event	Survived event
Any ROSC	Any ROSC
xx	Transport to hospital
30d / discharge survival	30d / discharge survival
30d / discharge neurological outcomes	30d / discharge neurological outcomes

Upgraded from supplemental

Transported to a hospital for treatment

Key changes

2015	2024	Definition	Data options
Survived event	Survived event	ROSC sustained until arrival at the emergency department and transfer of care to medical staff at the receiving hospital If there is ROC supported by prehospital extracorporeal CPR, this should be reported separately (yes ROSC/yes ROC /no/unknown/not Recorded)	Yes/no/unknown/not recorded (Yes-ROSC/Yes-ROC /no/unknown/not recorded)

Key changes –Outcomes core

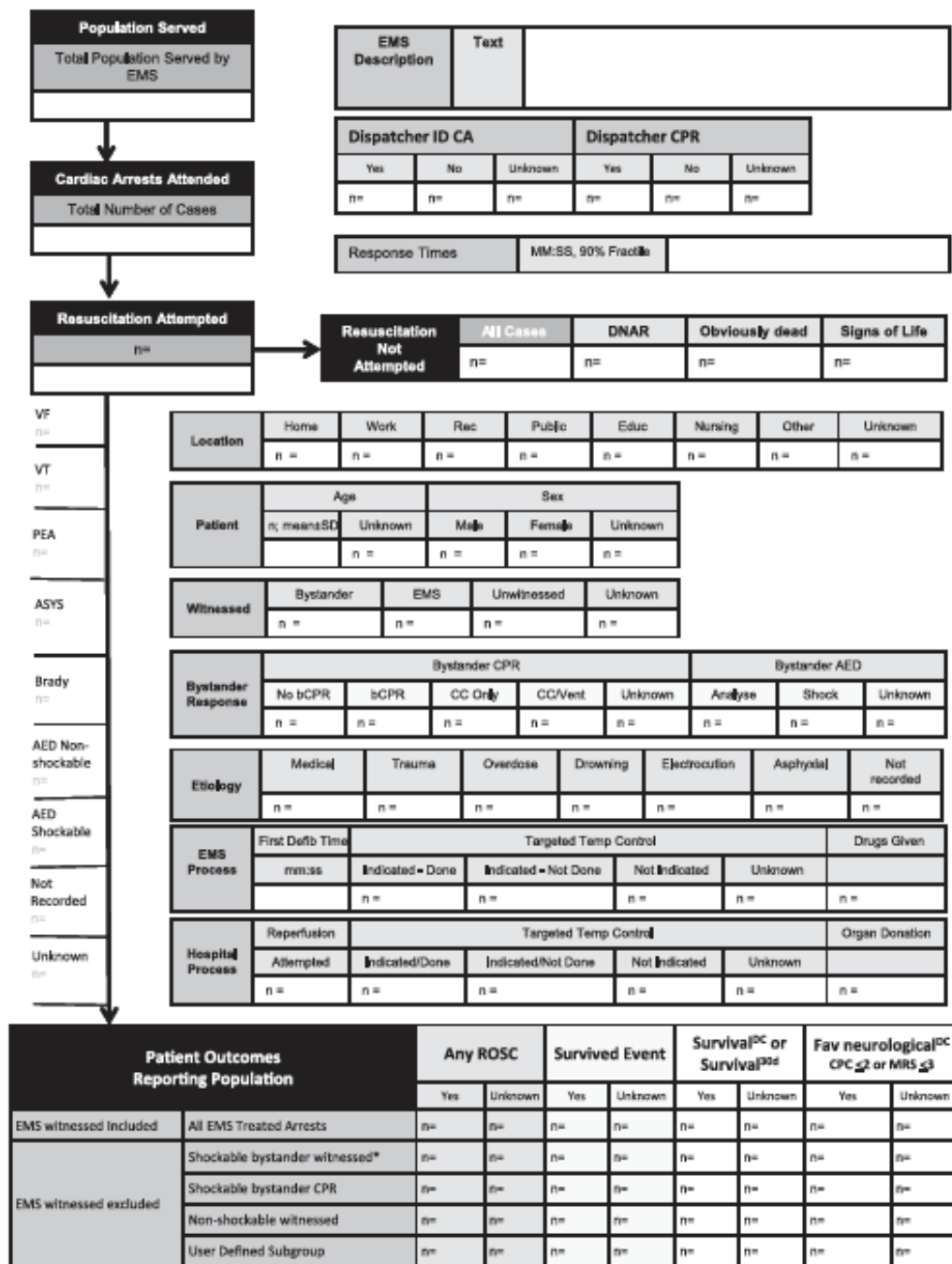
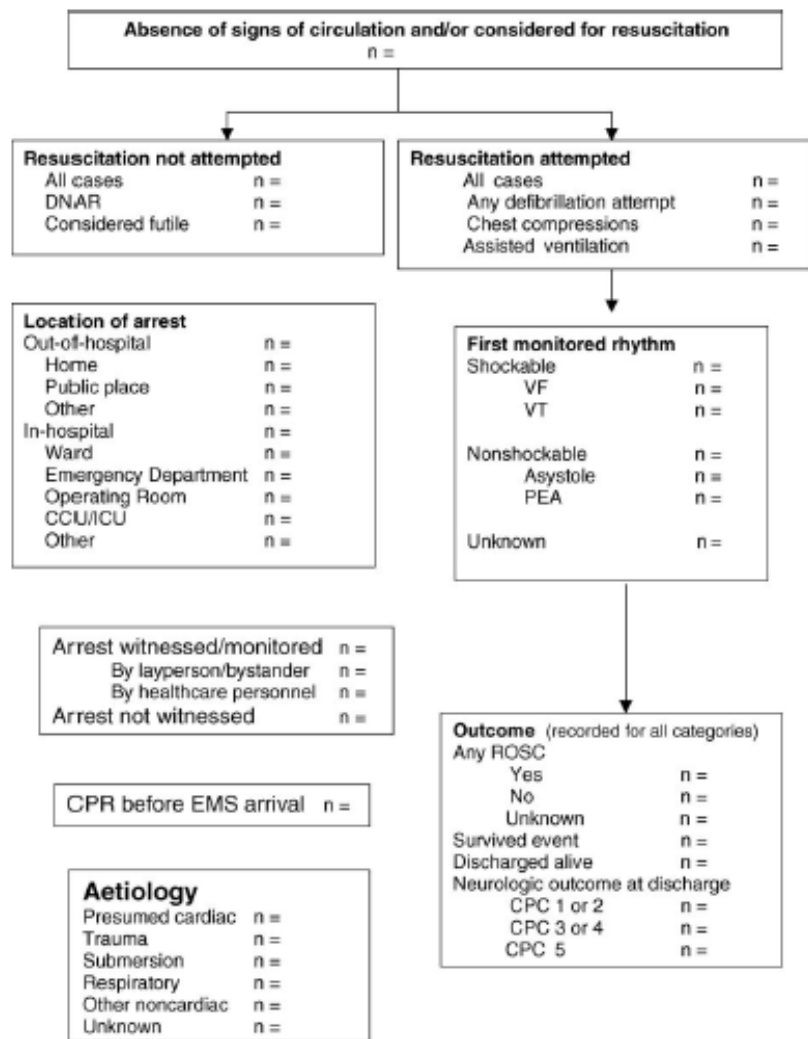
2024	Definition	Data options
Survival to discharge or 30 days	Alive at the point of hospital discharge/30 days If transported to another hospital for treatment and outcome is unknown, survival should be recorded as unknown.	Yes/no/unknown/not recorded
Neurological outcome at discharge or 30 days	Record CPC and/or mRS score in adults and PedsQL scales in pediatrics at hospital discharge or 30 d Include a definition of how it was measured (e.g. face to face, extracted from notes, combination)	<u>Adults</u> : CPC score (1–5)/unknown/not recorded or mRS score (0–6)/unknown/not recorded <u>Pediatrics</u> : PedsQL score/unknown/not recorded

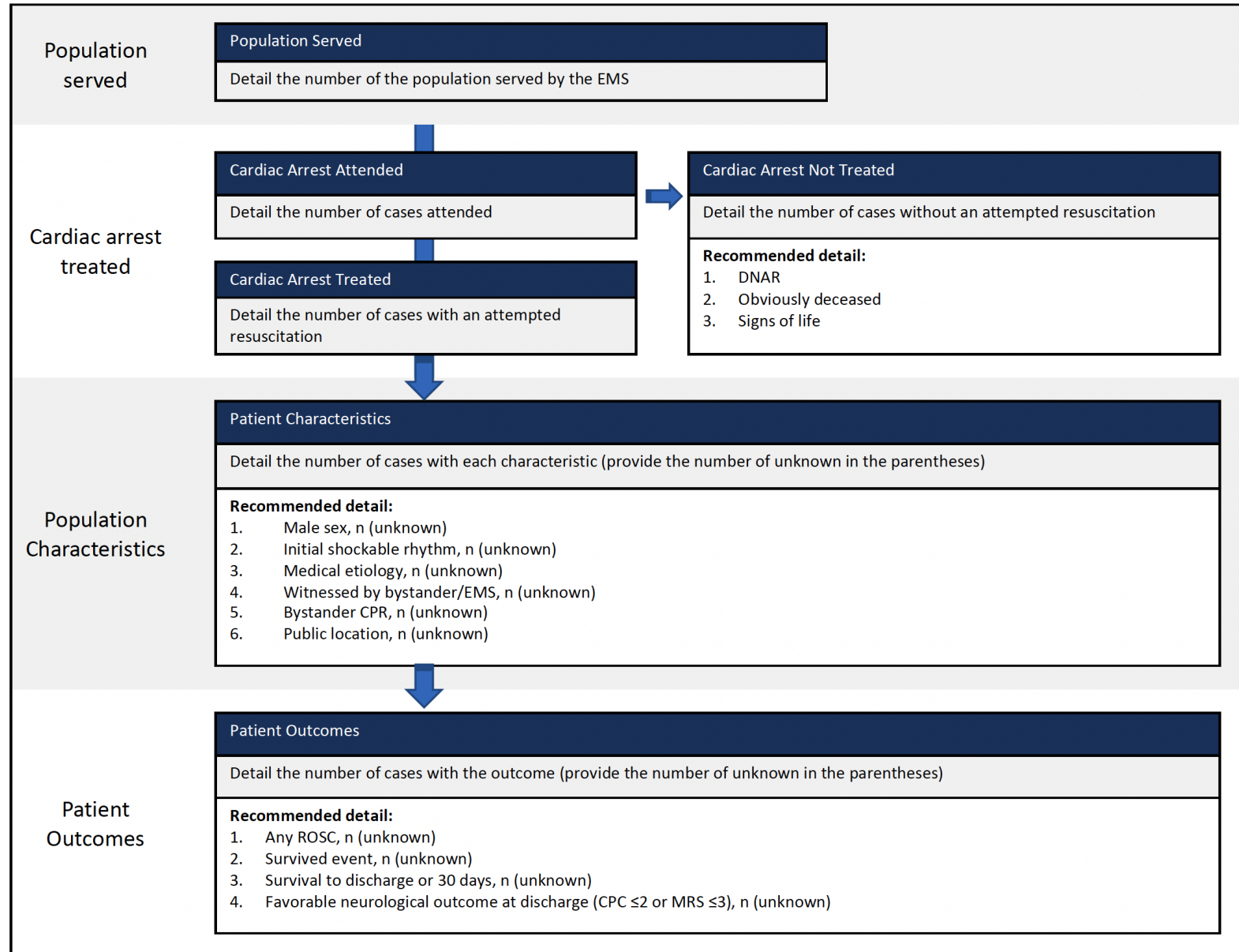
Key changes –outcome supp

Utstein 2015	Utstein 2024	Definition	Data options
xx	Scene outcome	Patient's condition at the time of EMS leaving the scene	ROSC/CPR in progress /deceased/unknown/NR
xx	Hospital arrival outcome	Patient's condition at the time of arrival at first hospital	ROSC/CPR in progress/ deceased/not transported /unknown/NR
Treatment withdrawal	Treatment withdrawal	Timing from ROSC to decision to withdraw treatment	Hours/no WLST/unknown/NR
Cause of death	Context of death	Context of patient's death as per medical records	Termination of resuscitation /rearrest with DNR/ neurological WLST/non-neurological WLST/other/ unknown/NR

Key changes – Outcome Supp

Utstein 2015	Utstein 2024	Definition	Data options
xx	Date and time of death	If the patient dies, date and time of death	Yes/no unknown/NR
Quality of life	Quality of life	HUI-3, SF-36, EQ-5D-5L. PedsQL Scales	





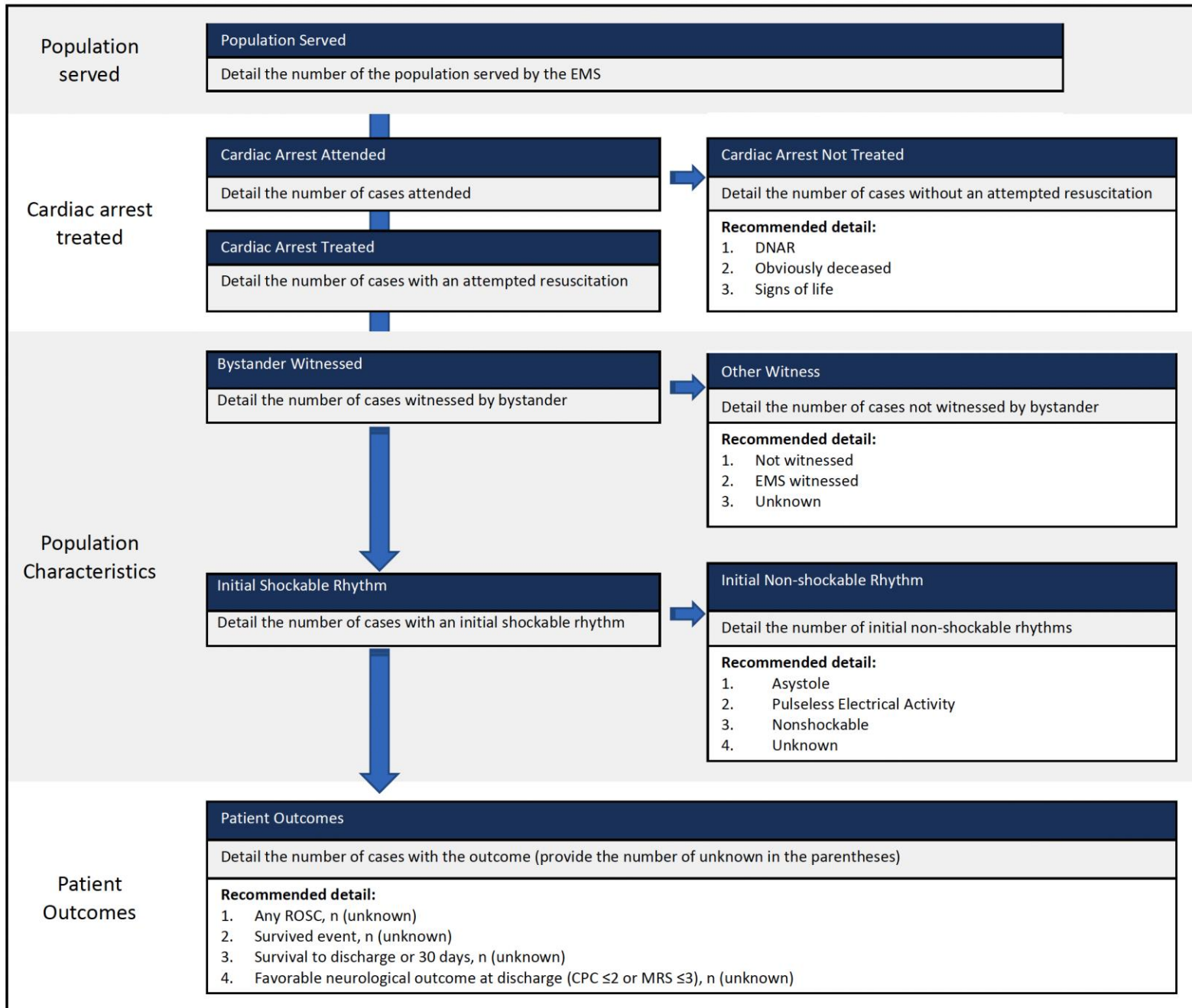


Table S4, A checklist for publishing OHCA Utstein-based data

This checklist is specific to reporting OHCA data and should be used in addition to a study reporting checklists (e.g. STROBE).

Section and topic	Checklist item	Page #
Title	Identify the study design Identify the study as a registry study (if appropriate)	
Abstract	Identify the registry or data source Include the term “Utstein”	
Methods		
<i>Study design</i>	Identify the registry and data sources Time period of study Cite the appropriate EQUATOR tool used in reporting data (e.g. STROBE or CONSORT)	
<i>Setting</i>	Describe the setting and location Provide a detailed system description	
<i>Data source</i>	Describe the data source If using registry data, briefly describe or provide a reference to the registry’s methods of case ascertainment and quality control	
<i>Case inclusion</i>	Report all inclusion and exclusion criteria	
<i>Variables</i>	Cite the relevant Utstein publication(s) Describe all variations on the Utstein OHCA definitions	
<i>Missing data</i>	Handling of missing data in analysis (e.g. complete case analysis or imputation)	
Results	Provide a flowchart of the study cohort Details of missing data (e.g. table in supplement)	
Discussion	Limitations, addressing potential sources of bias and imprecision Describe the generalizability of the results	

