

ECC CS CQ

広義の CS が疑われる患者の診療で、ポイントオブケア超音波（POCUS）は有用か？

Diagnostic Accuracy of Point-of-Care Ultrasound for Patients With Cardiogenic Shock — A Meta-Analysis and Systematic Review —

診断精度

P (Population): Adult patients (≥ 18 years) presenting to emergency departments with undifferentiated shock (including cardiogenic shock, cardiac tamponade, and pulmonary embolism)

I (Index test): POCUS examination

C (Comparator): Final diagnosis established by physicians using comprehensive clinical data (including medical records, imaging studies, and expert consensus review)

O (Outcome): Diagnostic sensitivity and specificity

T (Target condition): Cardiogenic or obstructive shock

Osawa T, Nakayama N, Ishizu T, Kondo T, Nakashima T, Yamamoto T, Hanada H, Hashiba K, Kirigaya J, Hosoya Y, Katasako-Yabumoto A, Okazaki Y, Yamamoto M, Sakamoto K, Arai M, Tanaka A, Matsuo K, Yamaguchi J, Mano T, Kojima S, Noguchi T, Tsujimoto Y, Kikuchi M, Funazaki T, Tahara Y, Nonogi H, Matoba T. Diagnostic Accuracy of Point-of-Care Ultrasound for Patients With Cardiogenic Shock — A Meta-Analysis and Systematic Review —. *Circ Rep.* 2025;7(9):CR-25-0105.

doi:10.1253/circrep.CR-25-0105

Search strategies of literature databases

Search strings

1. PubMed (MEDLINE & PMC)

#1: "Shock"[Title/Abstract] OR "Shock"[MeSH Terms:noexp] OR ("myocardial infarction"[MeSH Terms] AND "Shock"[MeSH Terms:noexp]) OR "shock, cardiogenic"[MeSH Terms] OR "Cardiac Tamponade"[MeSH Terms] OR "Cardiac Tamponade"[Title/Abstract] OR "pericardial Tamponade"[Title/Abstract] OR "hypoperfusion"[Title/Abstract] OR "hypotension"[Title/Abstract] OR "hypotension"[MeSH Terms]

#2: (("point-of-care"[Title/Abstract] OR "focus*"[Title/Abstract] OR "rapid"[Title/Abstract] OR "bedside"[Title/Abstract] OR "goal-directed"[Title/Abstract] OR "Point-of-Care Testing"[MeSH Terms]) AND ("echocardiogra*"[Title/Abstract] OR "ultraso*"[Title/Abstract] OR "Ultrasonography"[MeSH Terms] OR "Echocardiography"[MeSH Terms])) OR "POCUS"[Title/Abstract]

#3: #1 AND #2

2. Web of Science (Science Citation Index Expanded(SCIE))

#1: (TI="shock" OR AB="shock" OR AK="shock" OR KP="shock") OR (TI="Cardiac Tamponade" OR AB="Cardiac Tamponade" OR AK="Cardiac Tamponade" OR KP="Cardiac Tamponade") OR (TI="pericardial Tamponade" OR AB="pericardial Tamponade" OR AK="pericardial Tamponade" OR KP="pericardial Tamponade") OR (TI=hypoperfusion OR AB=hypoperfusion OR AK=hypoperfusion OR KP=hypoperfusion) OR (TI=hypotension OR AB=hypotension OR AK=hypotension OR KP=hypotension)

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本資料の図表および記載内容は、Osawa T, et al. Circ Rep. 2025;7:727-734. より引用。

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3. Cochrane Library (Cochrane Central Register of Controlled Trials(CENTRAL))

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#3: #1 AND #2

PRISMA Flow Chart

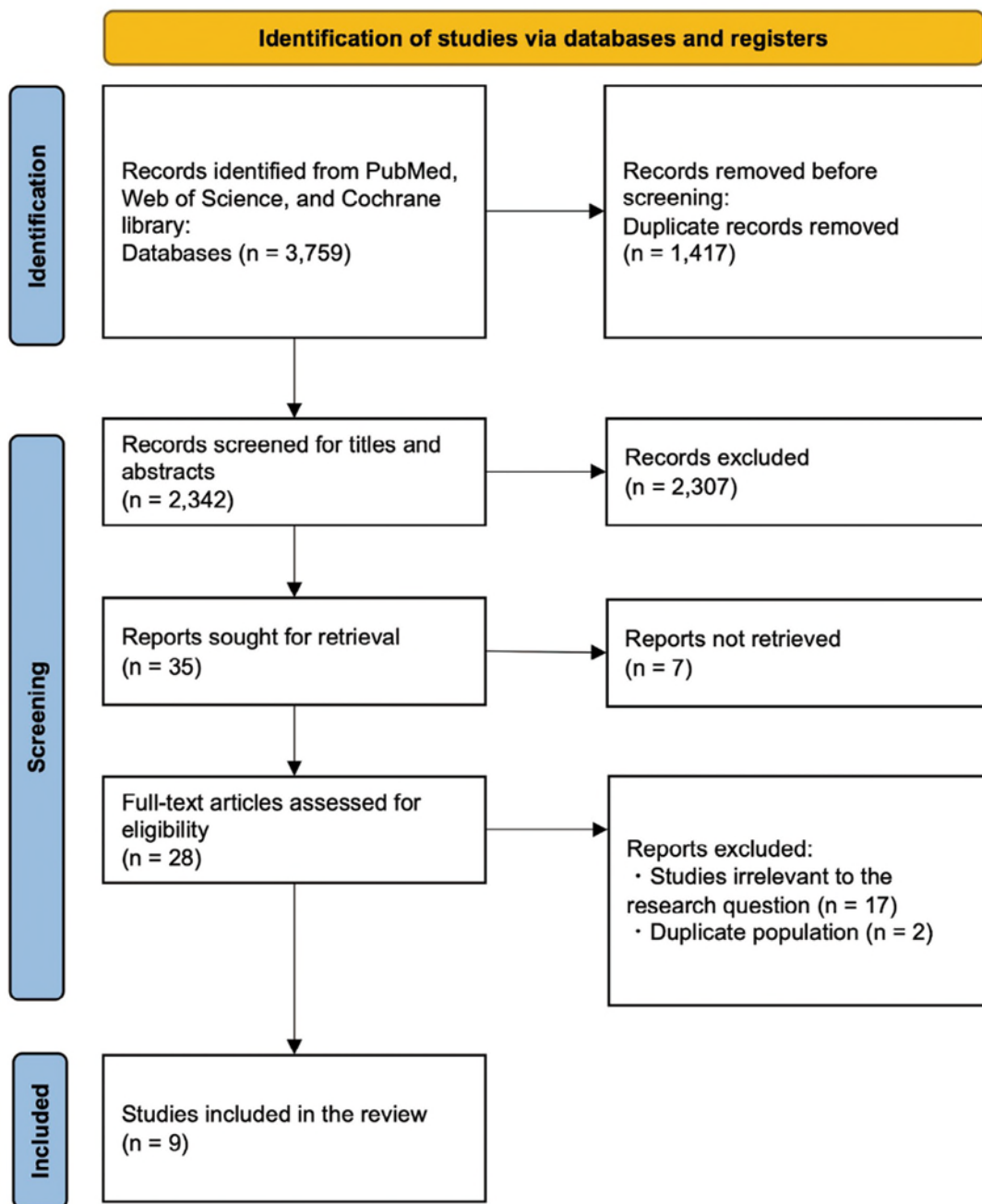


図. PRISMA フローチャート

心原性ショック診断

統合感度 86.1%(95%CI 71.5, 93.9%) 統合特異度 95.8%(95%CI 94.0, 97.2%)				
アウトカム	検査した患者 1,000 あたりの効果			Test accuracy CoE
	事前確率 30%	事前確率 15%	事前確率 10%	
真陽性	260 (216 to 282)	130 (108 to 141)	87 (72 to 94)	⊕⊕○○ 低い
偽陰性	40 (18 to 84)	20 (9 to 42)	13 (6 to 28)	
真陰性	659 (615 to 681)	801 (747 to 827)	848 (791 to 876)	⊕⊕⊕○ 中等度
偽陽性	41 (19 to 85)	49 (23 to 103)	52 (24 to 109)	

表. POCUS による心原性ショックの診断精度. 患者 1,000 人あたりの効果.

表の説明：R にて、1 件のランダム化比較試験、7 件の観察研究の統合感度、統合特異度を算出し、Grade Pro にて有病率を 10%、15%、30%と仮定した際の 1,000 人あたりの真陽性、偽陰性、真陰性、偽陽性の発生数を算出した。

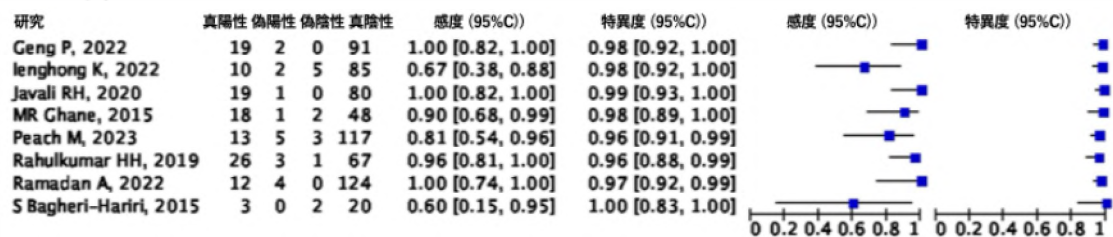
閉塞性ショック診断

統合感度 77.5%(95%CI 62.5, 87.6%) 統合特異度 97.6%(95%CI 93.9, 99.1%)				
アウトカム	検査した患者 1,000 あたりの効果			Test accuracy CoE
	事前確率 40%	事前確率 20%	事前確率 5%	
真陽性	329 (259 to 369)	165 (129 to 184)	41 (32 to 46)	⊕⊕○○ 低い
偽陰性	71 (31 to 141)	35 (16 to 71)	9 (4 to 18)	
真陰性	580 (542 to 593)	774 (722 to 791)	919 (858 to 940)	⊕⊕⊕○ 中等度
偽陽性	20 (7 to 58)	26 (9 to 78)	31 (10 to 92)	

表. POCUS による閉塞性ショックの診断精度. 患者 1,000 人あたりの効果.

表の説明：R にて、1 件のランダム化比較試験、7 件の観察研究の統合感度、統合特異度を算出し、Grade Pro にて有病率を 5%、20%、40%と仮定した際の 1,000 人あたりの真陽性、偽陰性、真陰性、偽陽性の発生数を算出した。

A. 心原性ショック



B. 閉塞性ショック

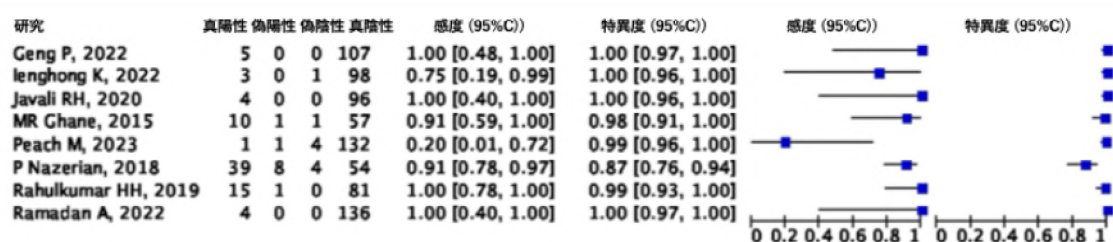


図. POCUSによるショックの診断精度

図の説明：Review Managerにより作図

ECC CS CQ

広義のCSが疑われる患者の診療で、ポイントオブケア超音波(POCUS)は有用か？

Prognostic Impact of Point-of-Care Ultrasound in Patients With Suspected Cardiogenic Shock — A Systematic Review —

転帰

P (patients): Adults (aged ≥ 18 years) admitted to the emergency department with suspected cardiogenic shock, including cardiac tamponade and pulmonary embolism.

I (intervention): Performing POCUS by emergency physicians.

C (comparison): Not performing POCUS by emergency physicians.

O (outcomes): All-cause mortality.

S (study design): All human studies, including randomized controlled trials (RCTs) and non-randomized controlled studies, which evaluated clinical outcomes of POCUS in patients with suspected cardiogenic shock.

T (time frame): All published research until December 31, 2023.

Osawa T, Nakayama N, Ishizu T, Kondo T, Nakashima T, Yamamoto T, Hanada H, Hashiba K, Kirigaya J, Hosoya Y, Katasako-Yabumoto A, Okazaki Y, Yamamoto M, Sakamoto K, Arai M, Tanaka A, Matsuo K, Yamaguchi J, Mano T, Kojima S, Noguchi T, Tsujimoto Y, Kikuchi M, Funazaki T, Tahara Y, Nonogi H, Matoba T. Prognostic Impact of Point-of-Care Ultrasound in Patients With Suspected Cardiogenic Shock — A Systematic Review —. *Circ Rep.* 2025;7(9):CR-25-0108.

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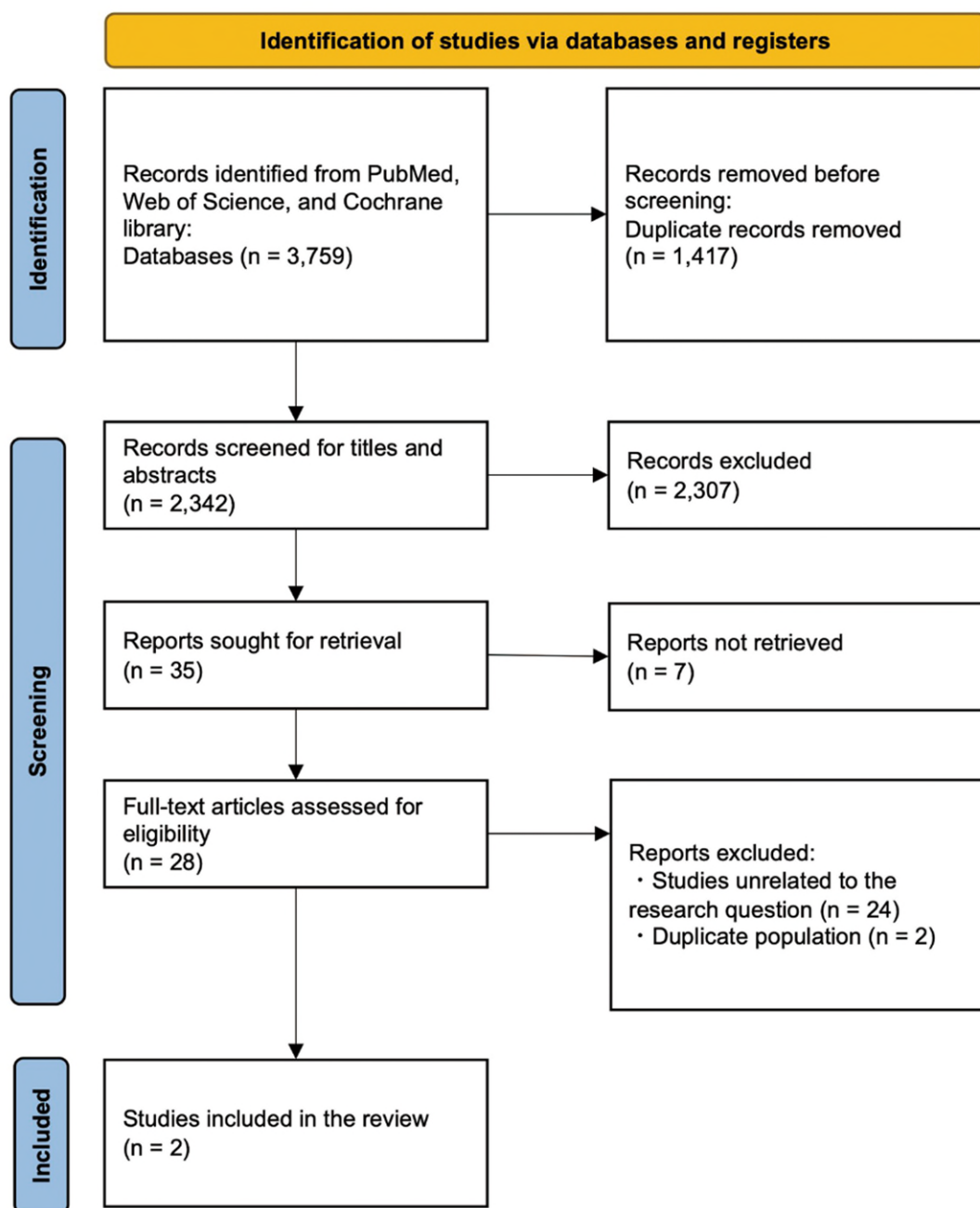
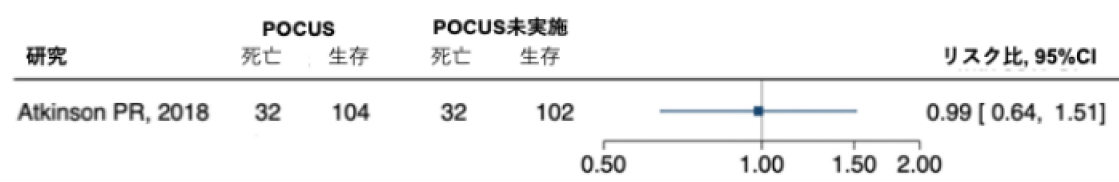


表. Evidence Profile

No. studies	Study design	Certainty assessment					No. patients		Effect		Certainty
		Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	POCUS	Non-POCUS	Relative (95% CI)	Absolute (95% CI)	
All-cause mortality 1	Randomized controlled trial	Not serious	Not serious	Serious	Serious	None	32/136 (23.5%)	32/134 (23.9%)	RR 0.99 (0.64 to 1.51)	4 fewer per 1,000 (from 105 fewer to 98 more)	⊕⊕ ○○ Low
All-cause mortality 1	Observational study	Very serious	Not serious	Very serious	Not Serious	None	350/1,276 (27.4%)	917/4,165 (22.0%)	RR 1.25 (1.12 to 1.39)	54 more per 1,000 (from 27 more to 82 more)	⊕○○ ○ Very low

ランダム化比較試験



観察研究

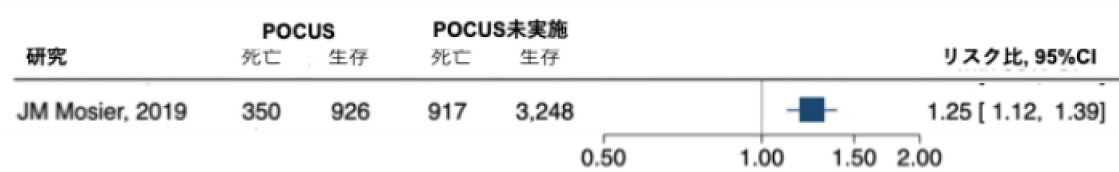


図. POCUSによる予後への影響

図の説明：STATAにより作図 CI: 信頼区間, RR: リスク比