NICE HealthTech Guidance (HTG386):

Procalcitonin Testing for Diagnosing and Monitoring Sepsis

Paul Dark

The University of Manchester

Let's Talk Sepsis 2026

What is NICE HTG386?

How does it apply to my current sepsis care?

How might it change as a result of new NIHR health research evidence from the NHS?

Funding disclosure

Professor of Critical Care Medicine
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NIHR Senior Investigator

Antimicrobial stewardship and sepsis

Initiation

Review and refinement

Duration

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Political context in UK

Department of Health & Social Care

Prime Minister's Office 10 Downing Street

Sepsis: NHS Modern Service Framework (NHS 10-Year plan)

Prevention & Early Recognition:

Enhancing infection prevention and control (IPC) and community-level identification

Evidence-Based Care:

Aligning with the latest evidence-based guidance and NICE guidelines

Data & Technology:

Utilizing improved data to monitor sepsis cases, including AI-enabled early warning tools

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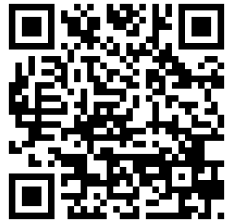
THE UK SEPSIS TRUST

NICE National Institute for Health and Care Excellence

Suspected sepsis in adults: recognition, assessment and early management

Suspected sepsis in children: recognition, diagnosis and early management



Procalcitonin testing for diagnosing and monitoring sepsis

Tests for rapidly identifying bloodstream bacteria and fungi

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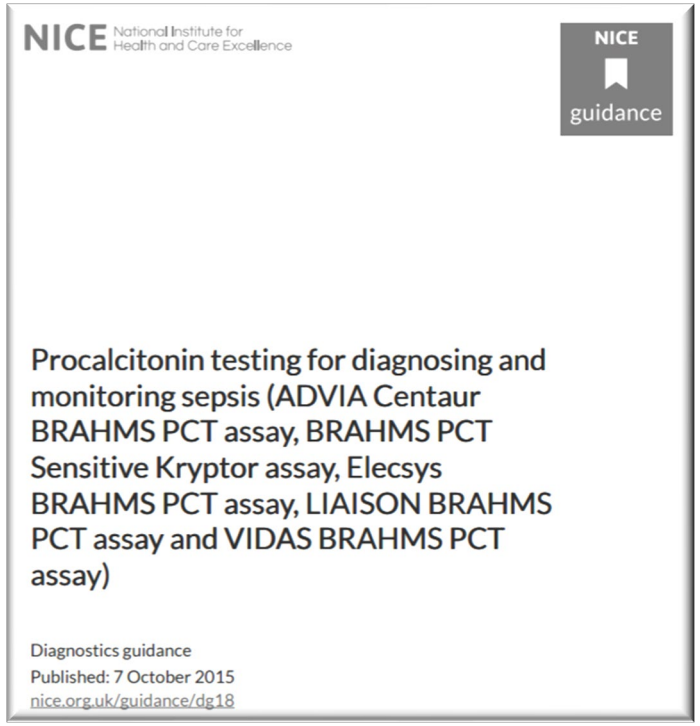
Procalcitonin for diagnosing & monitoring sepsis



PCT-guided treatment duration

- Studies promising internationally, low quality evidence
- Lack of a systematic evidence from the UK
- Uncertainty in current standard NHS clinical practice

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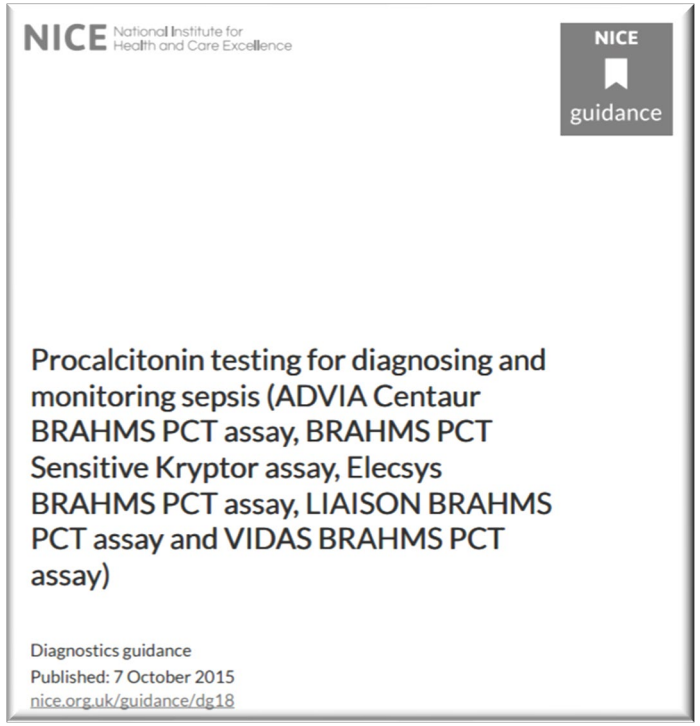
Procalcitonin for diagnosing & monitoring sepsis



PCT-guided treatment monitoring

- Studies promising internationally, low quality evidence
- Lack of a systematic evidence from the UK
- Uncertainty in current standard NHS clinical practice

Recommendations

- Definitive UK research
- Centres running PCT are encouraged to take part in RCTs
- Is there a role for CRP monitoring?
- Children and adults

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Applied health research responding to NICE identified evidence gaps

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Department of Health & Social Care

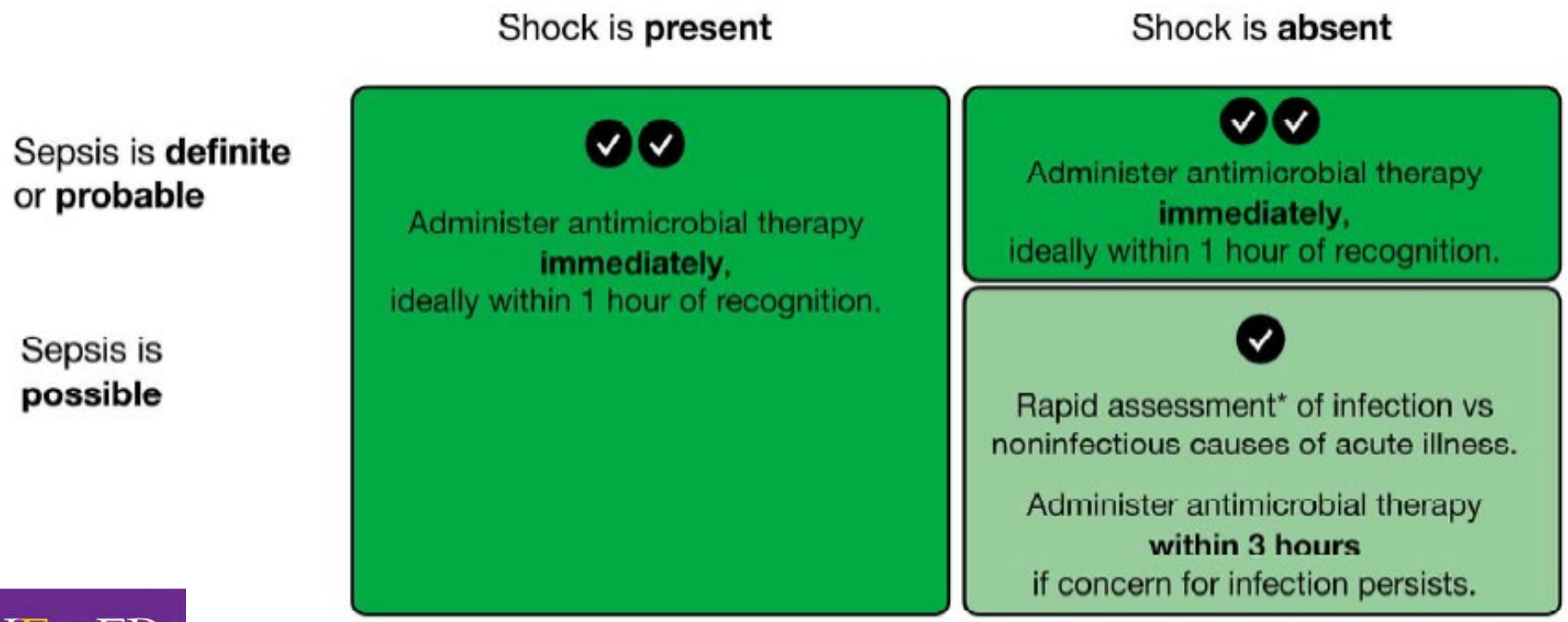
GUIDELINES

Surviving sepsis campaign: international guidelines for management of sepsis and septic shock

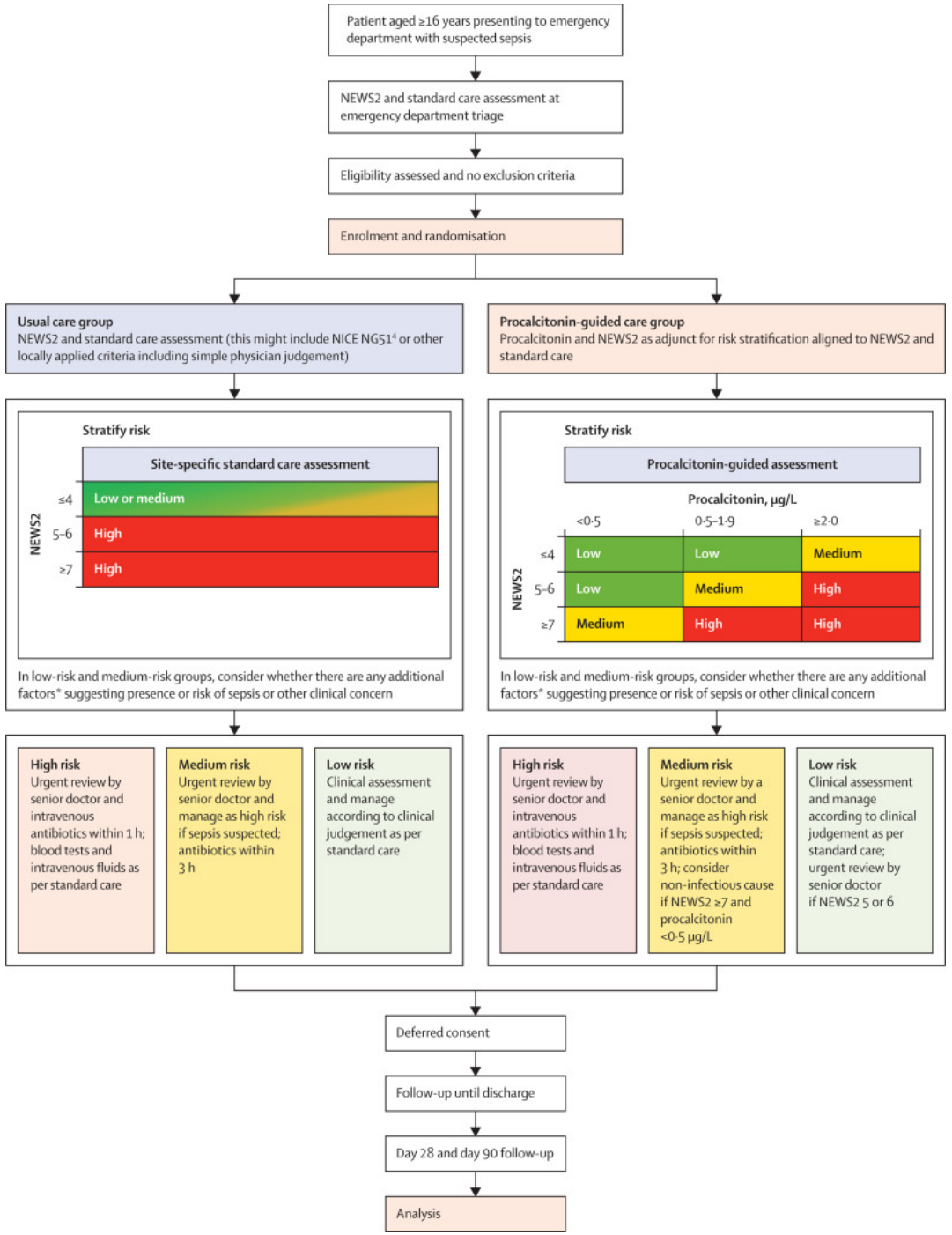
When to start antibiotics

GUIDELINES

Surviving sepsis campaign: international guidelines for management of sepsis and septic shock



When to start antibiotics
(biomarker decision support)



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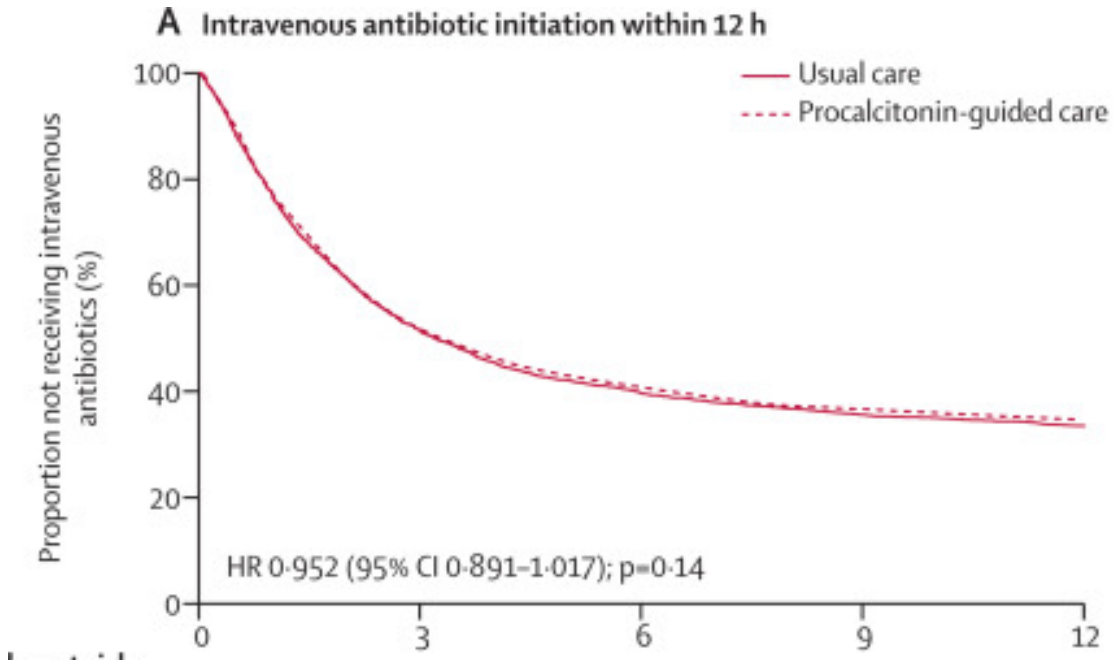
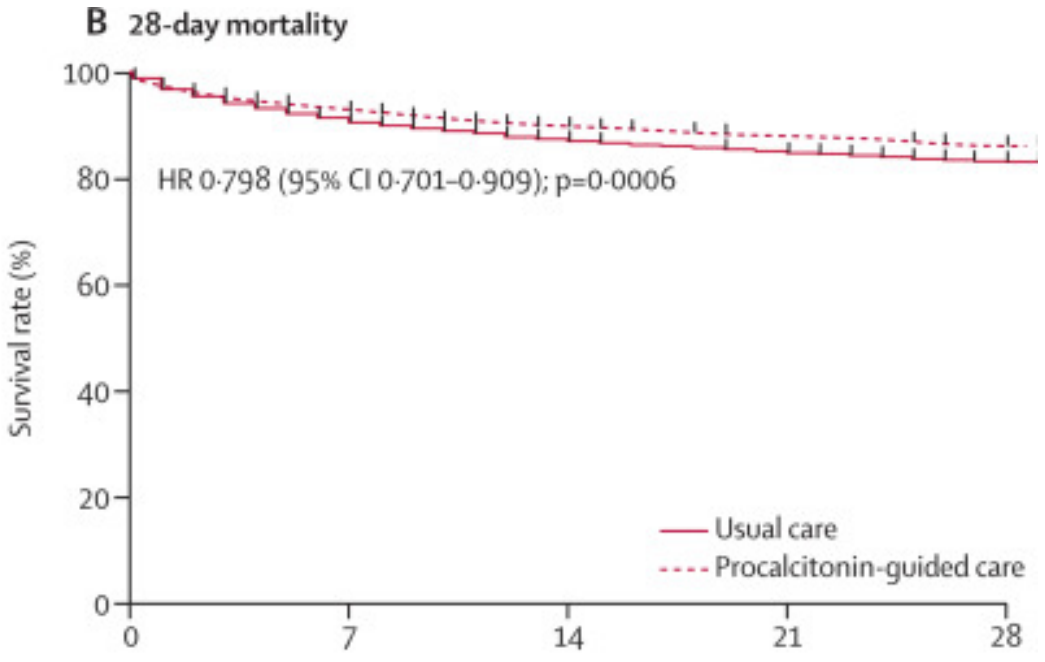
When to start antibiotics (biomarker decision support)





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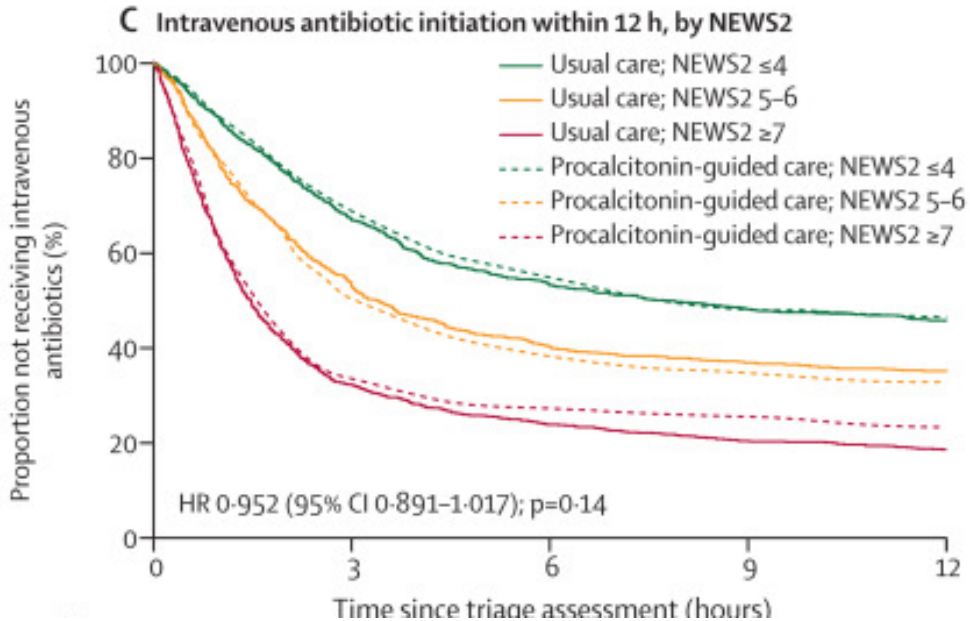
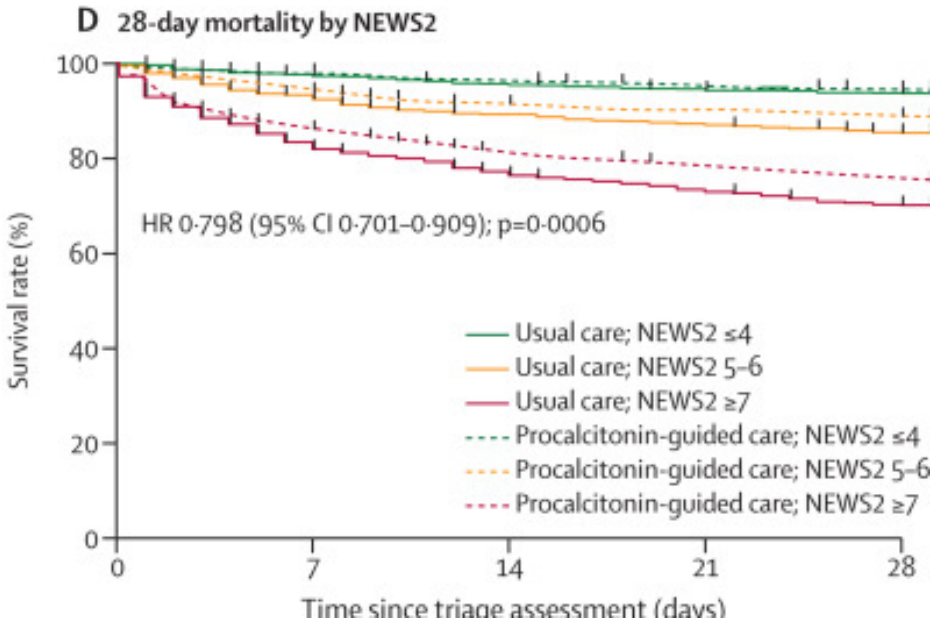
Respiratory Medicine

When to start antibiotics (biomarker decision support)





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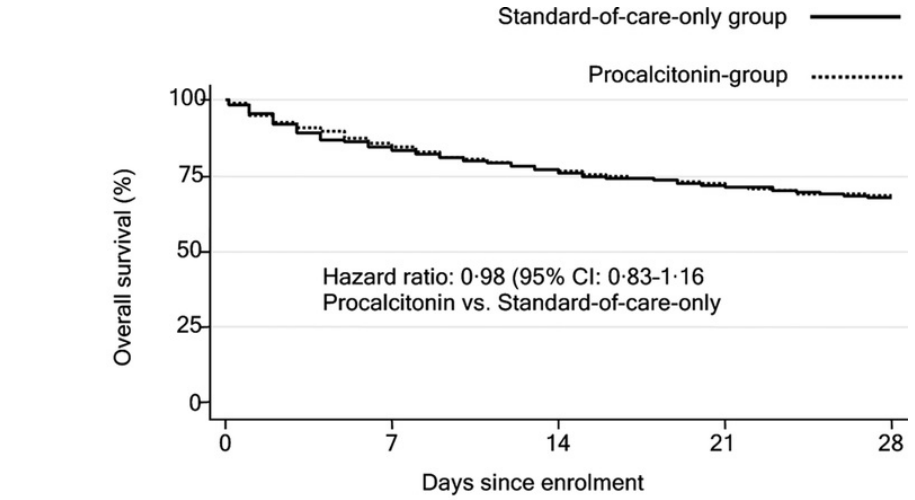
Respiratory Medicine

Daily review and refinement – a warning

Procalcitonin-guided interventions against infections to increase early appropriate antibiotics and improve survival in the intensive care unit: A randomized trial

Jens-Ulrich Jensen and colleagues

"Procalcitonin-guided antimicrobial escalation in the intensive care unit did not improve survival but did lead to organ-related harm and prolonged admission to the intensive care unit."



Number at risk:

Procalcitonin	604	518	466	436	414
Standard-of-care	596	505	458	429	405

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Critical Care Medicine
SCCM JOURNALS

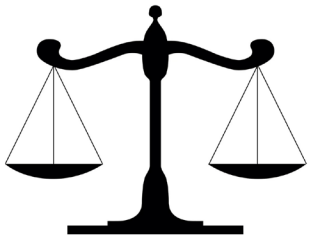
When to stop antibiotics

Daily clinical assessment

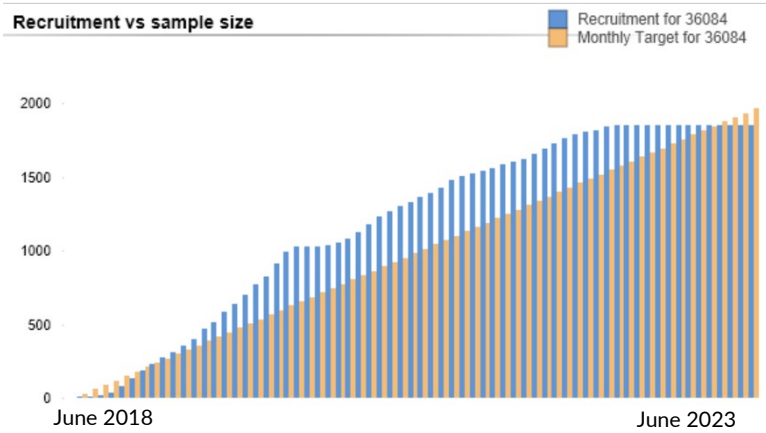
Adequate source control/line removal

Aim for shorter antimicrobial treatment duration

Ideally personalised



When to stop antibiotics (biomarker decision support)



BATCH

Biomarker-guided duration of Antibiotic Treatment in Children Hospitalised with confirmed or suspected bacterial infection

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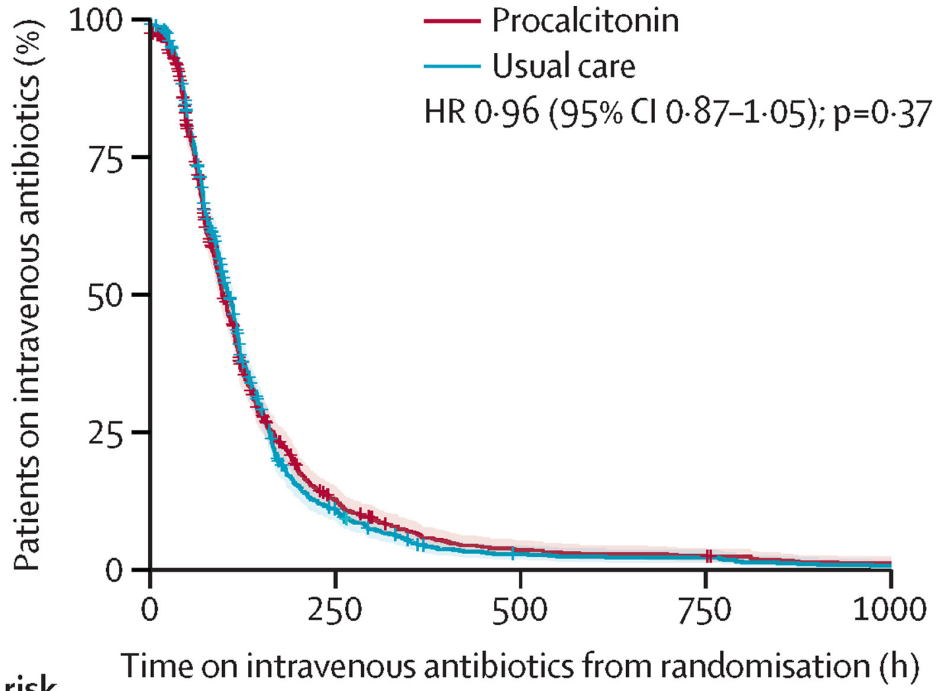
Child & Adolescent Health

When to stop antibiotics (biomarker decision support)

BATCH

Biomarker-guided duration of Antibiotic Treatment in Children Hospitalised with confirmed or suspected bacterial infection



Number at risk (number censored)					
Procalcitonin	951 (0)	103 (71)	27 (77)	19 (77)	8 (79)
Usual care	960 (0)	91 (62)	19 (71)	15 (71)	5 (71)

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Child & Adolescent Health

When to stop antibiotics (biomarker decision support)

"In a wide range of critically ill hospitalised medical and surgical adult NHS patients with sepsis, there is a significant safe reduction of, on average, ***10%*** *in the total antibiotic days when a* ***daily PCT*** *protocol is administered compared with standard care. A* ***daily CRP*** *protocol does not reduce the total duration of antibiotics."*

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JAMA

Dark P, Hossain A, McAuley DF, et al; for the ADAPT-Sepsis Collaborators

Biomarker-Guided Antibiotic Duration for Hospitalized Patients With Suspected Sepsis

The ADAPT-Sepsis Randomized Clinical Trial

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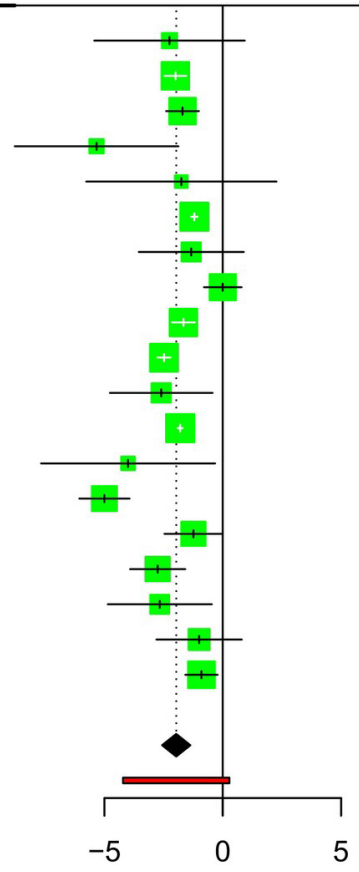
sepsis adapt
Biomarker-guided antibiotic duration for sepsis

When to stop antibiotics (biomarker decision support)

19 eligible randomised PCT clinical trials in last 10 years, n=6382 patients

Study	Experimental Mean	Experimental SD	Experimental Total	Control Mean	Control SD	Control Total	Weight	Mean Difference IV, Random, 95% CI
Nobre et al. [43]*	11.75	7.222	39	14.00	7.188	40	2.3%	-2.25 (-5.43 to 0.93)
Hochreiter et al. [45]	5.90	1.700	57	7.90	0.500	53	7.5%	-2.00 (-2.46 to -1.54)
Schroeder et al. [44]	6.60	1.100	14	8.30	0.700	13	7.0%	-1.70 (-2.39 to -1.01)
Stolz et al. [46]*	10.67	7.630	51	16.00	9.920	50	2.0%	-5.33 (-8.79 to -1.87)
Deliberato et al. [47]*	15.50	8.274	42	17.25	10.017	39	1.6%	-1.75 (-5.77 to 2.27)
Liu et al. [48]	8.10	0.300	42	9.30	0.300	40	7.8%	-1.20 (-1.33 to -1.07)
Shehabi et al. [49]*	11.67	10.460	196	13.00	11.950	198	3.6%	-1.33 (-3.55 to 0.89)
Bloos et al. [50]*	7.33	6.690	552	7.33	6.690	537	6.8%	0.00 (-0.79 to 0.79)
de Jong et al. [51]*	5.67	4.460	761	7.33	5.200	785	7.5%	-1.66 (-2.14 to -1.18)
Liu et al. [59]	7.74	0.610	49	10.22	0.780	49	7.7%	-2.48 (-2.76 to -2.20)
Mahmutaj et al. [52]	10.60	6.600	50	13.20	4.200	50	3.7%	-2.60 (-4.77 to -0.43)
Xu et al. [53]	8.30	0.300	79	10.10	0.400	77	7.9%	-1.80 (-1.91 to -1.69)
Jeon et al. [54]*	10.67	4.740	23	14.67	8.580	29	1.8%	-4.00 (-7.67 to -0.33)
Kyriazopoulou et al. [57]*	5.67	1.500	125	10.67	6.000	131	6.2%	-5.00 (-6.06 to -3.94)
Mazlan et al. [55]	10.28	2.680	43	11.52	3.060	42	5.8%	-1.24 (-2.46 to -0.02)
Vishalashi et al. [56]	4.98	2.560	45	7.73	3.060	45	5.9%	-2.75 (-3.92 to -1.58)
Shukeri et al. [15]*	6.17	1.540	40	8.83	6.920	40	3.6%	-2.66 (-4.86 to -0.46)
Nazer et al. [58]*	7.67	5.290	77	8.67	6.050	76	4.4%	-1.00 (-2.80 to 0.80)
Dark et al. [14]	9.80	7.200	898	10.70	7.600	905	7.1%	-0.90 (-1.58 to -0.22)
Total (95% CI)			**3183**			**3199**	**100.0%**	**-2.0 (-2.6 to -1.4)**
Prediction interval								**(-4.2 to 0.3)**

Heterogeneity: $Tau^2 = 1.0591$; $Chi^2 = 161.22$, df = 18 ($P < 0.0001$); $I^2 = 88.8\%$



Days Abx saving

Anaesthesia
Peri-operative medicine, critical care and pain
Association of Anaesthetists Great Britain & Ireland

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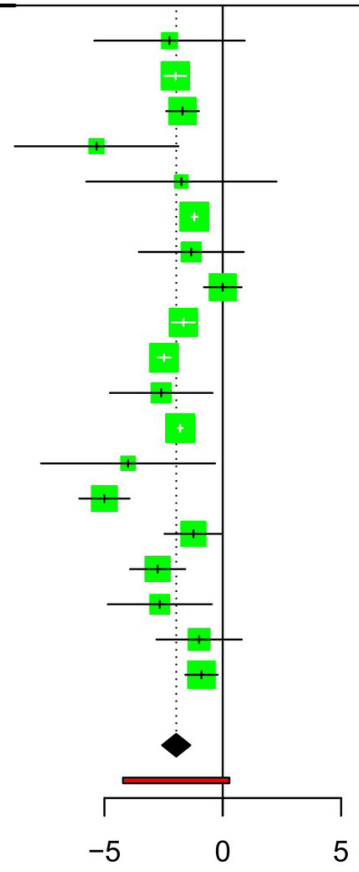

Days Abx saving

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When to stop antibiotics (biomarker decision support)

19 eligible randomised PCT clinical trials in last 10 years, n=6382 patients

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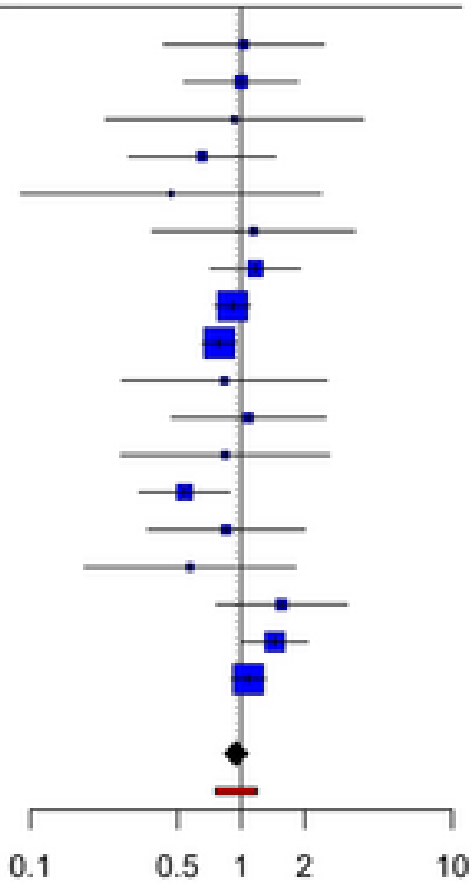
Hochreiter et al. [45]	15	57	14	53	3.3%	1.00 (0.53–1.86)
Schroeder et al. [44]	3	14	3	13	0.7%	0.93 (0.23–3.81)
Stolz et al. [46]	8	51	12	50	2.0%	0.65 (0.29–1.46)
Deliberato et al. [47]	2	42	4	39	0.5%	0.46 (0.09–2.39)
Liu et al. [48]	6	42	5	40	1.1%	1.14 (0.38–3.45)
Shehabi et al. [49]	30	196	26	198	5.2%	1.17 (0.72–1.90)
Bloos et al. [50]	140	547	149	529	20.1%	0.91 (0.75–1.11)
de Jong et al. [51]	149	761	196	785	21.2%	0.78 (0.65–0.95)
Liu et al. [59]	5	49	6	49	1.1%	0.83 (0.27–2.55)
Xu et al. [53]	10	79	9	77	1.9%	1.08 (0.47–2.52)
Jeon et al. [54]	4	23	6	29	1.0%	0.84 (0.27–2.63)
Kyriazopoulou et al. [57]	19	125	37	131	5.0%	0.54 (0.33–0.88)
Mazlan et al. [55]	8	46	9	44	1.8%	0.85 (0.36–2.01)
Vishalashi et al. [56]	4	45	7	45	1.0%	0.57 (0.18–1.82)
Shukeri et al. [15]	14	40	9	40	2.5%	1.56 (0.76–3.18)
Nazer et al. [58]	41	77	28	76	8.6%	1.45 (1.01–2.07)
Dark et al. [14]	184	879	170	878	21.4%	1.08 (0.90–1.30)
Total (95% CI)		**3112**		**3116**	**100.0%**	**0.95 (0.83–1.07)**
Prediction interval						**(0.76–1.18)**

Heterogeneity: $Tau^2 = 0.0077$; $Chi^2 = 21.45$, df = 17 (P = 0.2069); $I^2 = 20.7\%$



Safety: risk of death

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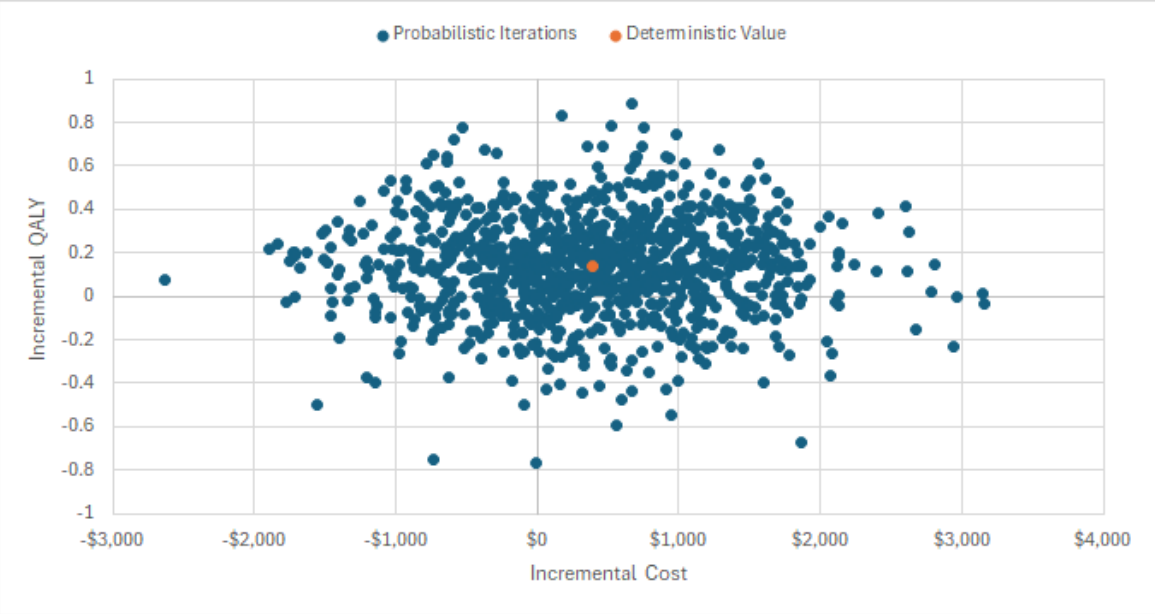
When to stop antibiotics (biomarker decision support)



Introducing NHS PCT-protocol

Cost per QALY = £2053

Probability of being cost effective = 0.73

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SPRINGER NATURE

NICE guidance for biomarkers in sepsis: a 2026 update

Procalcitonin for diagnosing and monitoring sepsis

New evidence has become available that could have a material effect on the recommendations.

*In **March 2026**, the NICE Prioritisation Board agreed that updated guidance on the use of procalcitonin tests in sepsis would be valuable.*

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NICE National Institute for Health and Care Excellence