Recommended point-of-care tests in out-of-hours primary care: a modified Delphi study

Leon Redek, Rachel Brettell, Rebecca Payne, Linda Huibers and Vesna Homar

Abstract

Background

Point-of-care tests (POCTs) are increasingly used to enhance diagnostic accuracy and facilitate rapid clinical decision making in settings with limited laboratory access. However, there is currently no consensus on which POCTs should be routinely available in out-of-hours (OOH) primary care services.

Aim

To establish expert consensus on which POCTs should be considered essential or optional in European OOH primary care services.

Design and setting

A modified Delphi consensus study involving an international panel of experts from 20 European countries, representing diverse clinical and academic backgrounds in OOH primary care.

Method

A three-round Delphi process was conducted. Round one assessed current POCT availability via questionnaire. In round two, panellists rated 28 POCTs as essential, optional, or unnecessary. In round three, results were discussed in a structured in-person workshop, followed by anonymous re-voting. Consensus was predefined as ≥66.6% agreement.

Results

Six POCTs achieved consensus as essential: blood glucose, urine dipstick, C-reactive protein, pregnancy testing, electrocardiography, and haemoglobin measurement. Twelve tests were classified as optional, and 10 were deemed unnecessary. Key concerns included inappropriate use, variability in clinician confidence, and patient-driven demand.

Conclusion

This study provides, to the authors' knowledge, the first European consensus on POCT prioritisation in OOH primary care. Implementation of essential POCTs, supported by training and governance, may improve diagnostic efficiency, while optional tests should be tailored to local service needs.

Keywords

after-hours care; consensus; Delphi technique; diagnostic testing; point-of-care testing; primary health care.

Introduction

Point-of-care tests (POCTs) involve performing diagnostic tests at or near the location where patient care is provided, rather than sending samples to a distant laboratory.[1] POCTs can support care delivery at out-of-hours (OOH) primary care by enabling timely and accurate diagnosis of acute and potentially serious conditions. Such time-critical conditions are more likely to present in OOH than in routine day care.[2]

However, many currently available POCTs still show lower accuracy and reliability than conventional laboratory assays, partly because of operator dependence, quality-control constraints, and additional pre-analytical error sources when using whole blood.[3] These constraints do not negate the potential value of POCTs in emergency and acute care; rather, they highlight the need to recognise the trade-offs between rapid turnaround, accessibility, and analytical performance when justifying their use and formulating recommendations.

When implemented effectively, POCTs can streamline OOH primary care delivery, especially when access to diagnostic tools and laboratory resources is limited.[4] In parallel with the uptake of POCTs, the provision of OOH care in many European countries has transitioned from GPs delivering overnight and weekend care through small-scale rotation groups to large-scale centralised OOH GP organisations seeing unfamiliar patients.[5,6]

GPs have previously identified urinary tract infections, diabetes, acute cardiac disease, anaemia, heart failure, and venous thromboembolism as conditions in which POCTs may be particularly helpful for supporting diagnostic decisions in routine general practice.[7] Previous research suggests that the most commonly used POCTs in daytime general practice and OOH care are blood glucose, urine pregnancy tests, and urine leucocytes or nitrites.[7,8] Usage of other tests, such as C-reactive protein (CRP), glycated haemoglobin (HbA1c),

How this fits in

No formal guidance existed on which point-of-care tests (POCTs) should be available in out-of-hours (OOH) primary care services across Europe. Research has mainly focused on individual tests or national practices, resulting in considerable variation in POCT availability and use. This study provides the first, to the authors' knowledge, international expert consensus on essential and optional POCTs for OOH primary care. The findings could support clinicians and service planners in achieving more consistent, effective, and resource-conscious use of POCTs in OOH primary care.

haemoglobin, international normalised ratio of blood coagulation (INR), platelet count, and throat swab for influenza/A streptococci, varies across countries.[7] Nevertheless, considerable support exists for making CRP tests more widely available as a POCT.[8] CRP POCTs may help identify patients likely to benefit from antibiotic treatment, reducing diagnostic uncertainty and supporting responsible antibiotic prescribing.[9–13] The growing support for POCTs, such as CRP, highlights the importance of making such tools more accessible in OOH primary care services, where rapid, accurate diagnostics are crucial.

By understanding which POCTs clinicians believe add most value it may be possible to better align available tests with the specific needs of OOH primary care, enhancing the ability to diagnose acute conditions quickly and effectively. Identifying the most useful POCTs in OOH primary care is essential for improving diagnostic accuracy, patient safety, and management of patients within the community. This approach will help optimise the use of POCTs and guide the development of new technologies that improve patient care in these time-sensitive settings. Thus, a modified Delphi study was conducted with the aim of reaching expert consensus on which POCTs should be considered essential or optional in European OOH primary care services.

Method

Design

A modified Delphi consensus study was conducted. The first round consisted of a questionnaire containing pre-selected statements based on a literature review and expert opinion.[7] This was followed by two additional modified Delphi rounds: a second electronic questionnaire and a final in-person round at the European Research Network for OOH Primary Health Care (EurOOHnet) conference in May 2025. All rounds are detailed below.

Participants

The Delphi panellists were recruited from EurOOHnet, thereby constituting an international expert panel of researchers in OOH primary care, many of whom also worked clinically in OOH services. Countries with >1 EurOOHnet member selected a single representative to participate in the first and second Delphi rounds. In cases of substantial regional variation in OOH care organisation within a country, one panellist provided information for each relevant region. Panellists were encouraged to consult national clinicians and policymakers when completing rounds one and two, particularly if they had limited clinical experience. All delegates attending the EurOOHnet conference in May 2025 were invited to participate in round three of the Delphi process.

Round one: initial questionnaire

Round one was administered as part of a wider European questionnaire study on OOH organisation, the findings of which have been published elsewhere.[14] Questions on POCT use were adapted from a list of POCTs developed through a literature review and expert opinion, with additional open-ended questions included to capture contextual information. The list was reviewed by three medically qualified researchers (the third author, fourth author, and the senior author) and piloted in three countries. Although electrocardiography (ECG) is not conventionally defined as a POCT, it was included because it can be performed at the bedside with immediate availability of results. Its inclusion allowed assessment of whether it should be routinely available in the OOH setting alongside other POCTs under consideration. The final list of POCTs is described in Supplementary Box S1. The questionnaire was reviewed for content validity by five members of the EurOOHnet research team (the third author, fourth author, and the senior author of this article, and two other EurOOHnet research team members [see Acknowledgements for details]).

Panel members were presented with the final list of POCTs and asked to indicate which tests were available in their OOH primary care services. Each POCT could be reported as 'always available', 'sometimes available', or 'never available'. Participants were also invited to add any additional POCTs used in their OOH services that were not included in the list.

In addition to POCT availability, round one included several contextual questions about the organisation of OOH primary care services (see Supplementary Box S1). These captured:

- authorised staff to use POCTs;
- existing local guidelines for POCT use;
- funding of POCTs;
- optional access to X-ray imaging; and
- optional use of ultrasound (both point-of-care and standard).

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This contextual information was collected to understand variation in service structures across countries and to support the interpretation of POCT availability.

The survey was administered via LimeSurvey, and panel members received a personalised email link. Round one data collection took place between February and October 2024.

Round two: online Delphi round

All original participants were invited to the subsequent round. They received a follow-up email presenting the results from round one, together with a link to a Google Form. They were asked to classify each POCT as 'essential', 'optional', or 'unnecessary'. Results were collated and used to generate a draft list of essential and optional POCTs. Round two data collection took place between April and May 2025.

To check for potential attrition bias between round one and two, key characteristics (for example, role and experience) of participants who continued versus those who dropped out were compared and no significant differences were found.

Round three: interacting group process

A final round was held in person at the EurOOHnet conference in May 2025. The Delphi interacting group process was followed, allowing experts from multiple participating countries to collectively review round two results, reconcile differing views, and refine the classification of POCTs before the final consensus vote.[15] All conference participants (researchers, clinicians, and policymakers) were invited to contribute as panellists in a workshop.

During the workshop each POCT was briefly introduced, with clarification that these were near-patient tests performed outside the laboratory and provide results within minutes. Each POCT was presented together with its round two results and discussed by the panellists in relation to its clinical relevance and context. Panellists then voted individually and anonymously in real time using Google Forms before proceeding to the next POCT. Participants could not see how others voted; only their own response remained visible until voting closed. Each test was categorised as 'essential', 'optional', or 'unnecessary'. Participants were informed that 'essential' referred to POCTs that should be available in all European OOH primary care services; 'optional' referred to POCTs that may be appropriate depending on local need or service configuration; and 'unnecessary' referred to POCTs not required in acute unscheduled primary care services. The discussion was facilitated by a neutral facilitator (the second author), who had not participated in previous rounds to minimise bias, and dissenting views were recorded.

Consensus was defined a priori as ≥66.6% (two-thirds) agreement with a statement, representing a commonly used 'supermajority' criterion in Delphi-based consensus work.[16] No universally accepted cut-off for defining consensus in Delphi studies exists, but pre-specifying a percentage threshold is consistent with methodological guidance.[17] A POCT was classified 'essential' in case of ≥66.6% agreement, whereas ≥66.6% agreement on a POCT being 'unnecessary' resulted in its exclusion. All other POCTs were categorised as 'optional'.

The round three discussion and results were reviewed and summarised by all authors immediately after the workshop to identify key elements explaining the final voting outcomes and consensus.

Data handling and analysis

Participant data were captured as both categorical and continuous variables and summarised through descriptive statistical methods. In round one, availability ratings for each POCT were analysed by combining the categories 'always' and 'sometimes' to determine whether a POCT was used at all. If so, the test was included in rounds two and three. For rounds two and three, individual item responses were analysed by calculating their frequency distributions, including percentages and cumulative percentages. A consensus criterion was established at 66.6%.

The discussion from the final Delphi round was reviewed and synthesised by all authors to ensure accuracy and fidelity of the consensus interpretation. The round one questionnaire was administered using LimeSurvey, while subsequent rounds utilised Google Forms. Microsoft Excel was used to perform the statistical analysis.

Results

Round one

Characteristics of panellists, background, and context information. Panellists from 15 countries completed round one; the full list of participating countries and panellist characteristics is provided in Supplementary Table S1. Most informants were GPs and researchers (n = 14), and one was a nurse and researcher. Informants had a median of 18.6 years (standard deviation [SD] 8.9) of experience as healthcare professionals and 13.2 years (SD 7.4) as researchers. Most provided information at the national level, although informants from Germany, Slovenia, Switzerland, and Wales described two different OOH settings within their country.

Availability of POCTs. Panellists provided information about the availability of the 27 suggested POCTs (Figure 1 and Table 1). They did not suggest any additional POCT, but based on answers to the contextual questions, X-ray was added to the list of POCTs at this stage. A full summary of responses to contextual questions is presented in Supplementary Box S2.

Round two

Panellists. In round two, 12 panellists from 12 different European countries or regions responded (Belgium, Croatia, Denmark, Germany, Norway, Northern Ireland, Greece, Scotland, Serbia, Slovenia, Sweden, and Switzerland). All participants confirmed that they had seen the round one results and ranked each POCT as either 'essential', 'optional', 'unnecessary', or 'don't know'.

Importance of individual POCTs. Blood glucose, ECG, and CRP were ranked as essential POCT by >90% of panellists (Figure 2). At this stage, eight of the 28 POCTs met the 66.6% threshold to be included in the draft list of essential POCTs whereas no POCTs met the 66.6% threshold to be excluded.

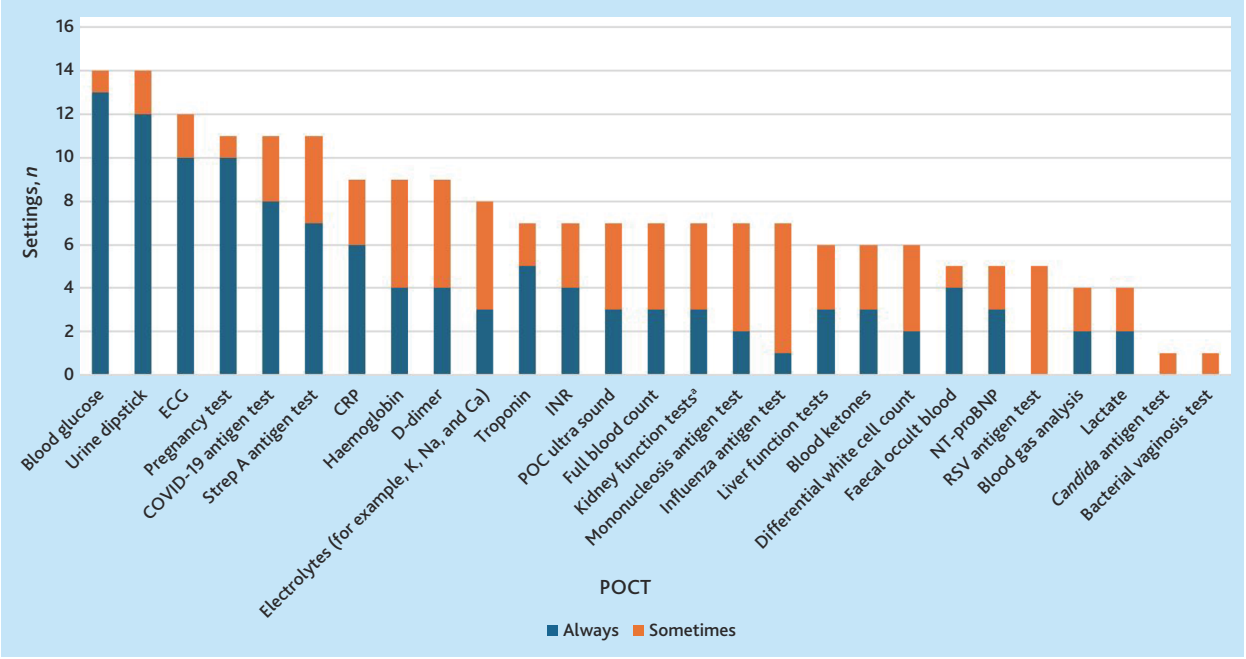

Figure 1. Availability of point-of-care tests (POCTs) in 16 out-of-hours settings, from most often to least often available. [a]For example, creatinine and urea. CRP = C-reactive protein. ECG = electrocardiography. INR = international normalised ratio of blood coagulation. NT-proBNP = N-terminal pro-B-type natriuretic peptide. POC = point of care. RSV = respiratory syncytial virus. Strep A = group A *Streptococcus*.

Therefore, 20 tests were classified as optional POCT.

Round three

Panellists. A total of 16 panellists participated in round three, representing 10 different European countries (Belgium, Croatia, Denmark, England, Germany, Norway, Slovenia, Sweden, Switzerland, and Wales). The average age of participants was 47 (SD 9.8) years, and 31% (*n* = 5) were female. Most were healthcare professionals: 56% (*n* = 9) GPs, 25% (*n* = 4) other physicians, and 13% (*n* = 2) other healthcare professionals. The majority (75%, *n* = 12) had worked clinically in an OOH primary care setting, and 94% (*n* = 15) worked in an academic capacity. As such, most individuals had multiple positions. The mean years of employment for panellists was 18.9 (SD 8.9) years, with a mean of 12.9 (SD 8.4) years of experience in OOH care. No panel member reported any conflicts of interest, including financial, institutional, intellectual, or POCT-related funding (data not shown).

Final list of essential and optional POCTs. After the discussion and anonymous voting in the final round, and based on the consensus threshold of 66.6%, six tests were deemed essential for European OOH primary care services: blood glucose, urine dipstick, CRP, pregnancy tests, ECG, and haemoglobin (Table 1 and Figure 3). Ten tests (INR, full blood count, blood ketones, liver function tests, respiratory syncytial virus [RSV] antigen test, *Candida* antigen test, lactate, faecal occult blood, bacterial vaginosis test, and blood gas analysis) were deemed unnecessary. The remaining 12 tests — kidney function tests, troponin, *Streptococcus* A antigen test, D-dimer, point-of-care ultrasound, differential white cell count, COVID-19 antigen test, X-ray, electrolytes, N-terminal pro-B-type natriuretic peptide, mononucleosis antigen test, and influenza antigen test — were classified as optional. Panellists noted that the use of these optional POCTs may be appropriate in specific contexts, such as geographically remote locations or services with particular clinical needs.

Summary of facilitated group discussion. The facilitated discussion highlighted several contextual considerations and implementation challenges influencing POCT use in OOH care, summarised in Box 1. Concerns centred on potential overuse, variable test accuracy, and limited evidence on clinical effectiveness in primary care. Panellists also noted that safe implementation depends on clinician competence, confidence, and familiarity with specific tests. In addition, panellists emphasised that organisational factors, including fee-for-service incentives, patient demand, and the interface with in-hours care, may encourage inappropriate use and increase system-level workload and costs.

Discussion

Summary

This three-phase modified Delphi consensus study brought together academic primary care experts from across Europe to identify essential POCTs for use in acute unscheduled primary care. Consensus was ultimately reached on six POCTs considered essential for OOH services: blood glucose, urine dipstick, CRP, pregnancy tests, ECG, and haemoglobin. A further group of 12 POCTs was categorised as optional, recommended for consideration depending on the local context. This reflects that their usefulness for OOH primary care services may vary according to organisational factors, local clinical needs, and available resources. The results of this study may serve as a

Table 1. Summary of results from modified Delphi process and final classification of POCTs, categorised by level of relevance and rating

POCT	Round one, availability of test, *n*			Round two, rating, *n*				Round three, rating, *n*			Final classification
	Sometimes	Always	Sometimes or always	Essential	Optional	Unnecessary	Don't know	Essential	Optional	Unnecessary	
Blood glucose	1	13	14	12	0	0	0	16	0	0	Essential
Urine dipstick	2	12	14	10	2	0	0	16	0	0	Essential
CRP	3	6	9	11	1	0	0	14	2	0	Essential
Pregnancy test	1	10	11	9	3	0	0	14	2	0	Essential
ECG	2	10	12	11	1	0	0	13	3	0	Essential
Haemoglobin	5	4	9	9	3	0	0	11	3	2	Essential
Kidney function tests (for example, creatinine and urea)	4	3	7	6	5	1	0	6	8	2	Optional
Troponin	2	5	7	7	3	1	1	5	3	8	Optional
Streptococcus A antigen test	4	7	11	8	3	1	0	4	11	1	Optional
D-dimer	5	4	9	8	3	1	0	4	9	3	Optional
POC ultrasound	4	3	7	3	6	3	0	3	10	3	Optional
Differential white cell count	4	2	6	3	8	1	0	3	8	5	Optional
COVID-19 antigen test	3	8	11	6	4	2	0	3	4	9	Optional
X-ray	NA	NA	NA	6	6	0	0	2	10	4	Optional
Electrolytes (for example, K, Na, and Ca)	5	3	8	5	5	2	0	2	5	9	Optional
NT-proBNP	2	3	5	2	6	4	0	2	5	9	Optional
Mononucleosis antigen test	5	2	7	1	9	2	0	1	8	7	Optional
Influenza antigen test	6	1	7	4	6	2	0	1	6	9	Optional
INR	3	4	7	5	6	1	0	2	3	11	Unnecessary
Blood ketones	3	3	6	2	4	6	0	1	4	11	Unnecessary
Full blood count	4	3	7	4	6	2	0	1	4	11	Unnecessary
Liver function tests	3	3	6	3	4	5	0	1	2	13	Unnecessary
Candida antigen test	1	0	1	0	5	6	1	1	1	14	Unnecessary
RSV antigen test	5	0	5	1	7	4	0	1	1	14	Unnecessary
Lactate	2	2	4	1	4	7	0	1	0	15	Unnecessary
Faecal occult blood	1	4	5	2	4	5	1	0	5	11	Unnecessary
Bacterial vaginosis test	1	0	1	0	5	6	1	0	2	14	Unnecessary
Blood gas analysis	2	2	4	0	5	7	0	0	1	15	Unnecessary

For round one, data do not sum as some participants did not use some tests. CRP = C-reactive protein. ECG = electrocardiography. INR = international normalised ratio of blood coagulation. NA = not applicable. NT-proBP = N-terminal pro-B-type natriuretic peptide. POC = point of care. POCT = point-of-care test. RSV = respiratory syncytial virus.

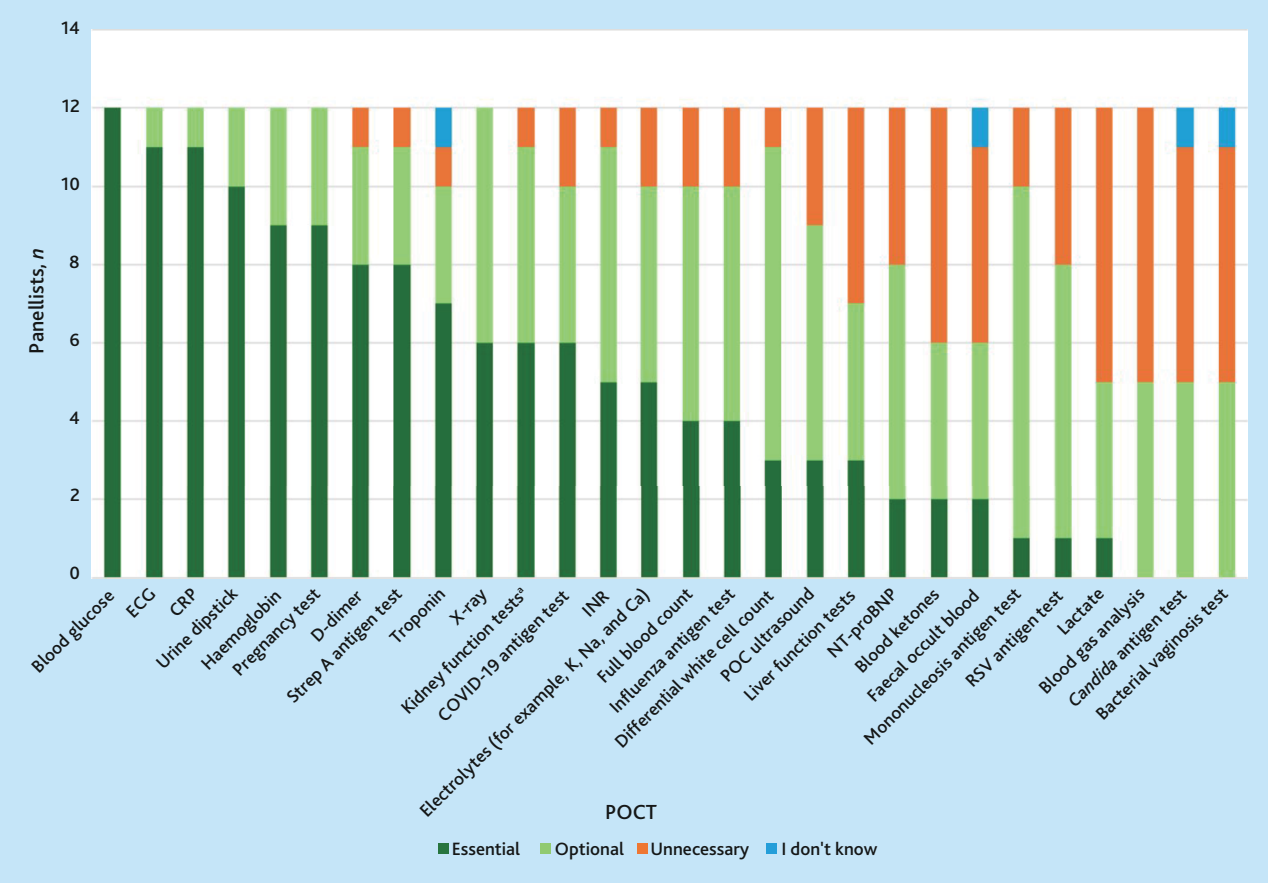

Figure 2. Importance of the availability of point-of-care test (POCT) in out-of-hours primary care as perceived by panellists in round two. [a]For example, creatinine and urea. CRP = C-reactive protein. ECG = electrocardiography. INR = international normalised ratio of blood coagulation. NT-proBNP = N-terminal pro-B-type natriuretic peptide. POC = point of care. RSV = respiratory syncytial virus. Strep A = group A *Streptococcus*.

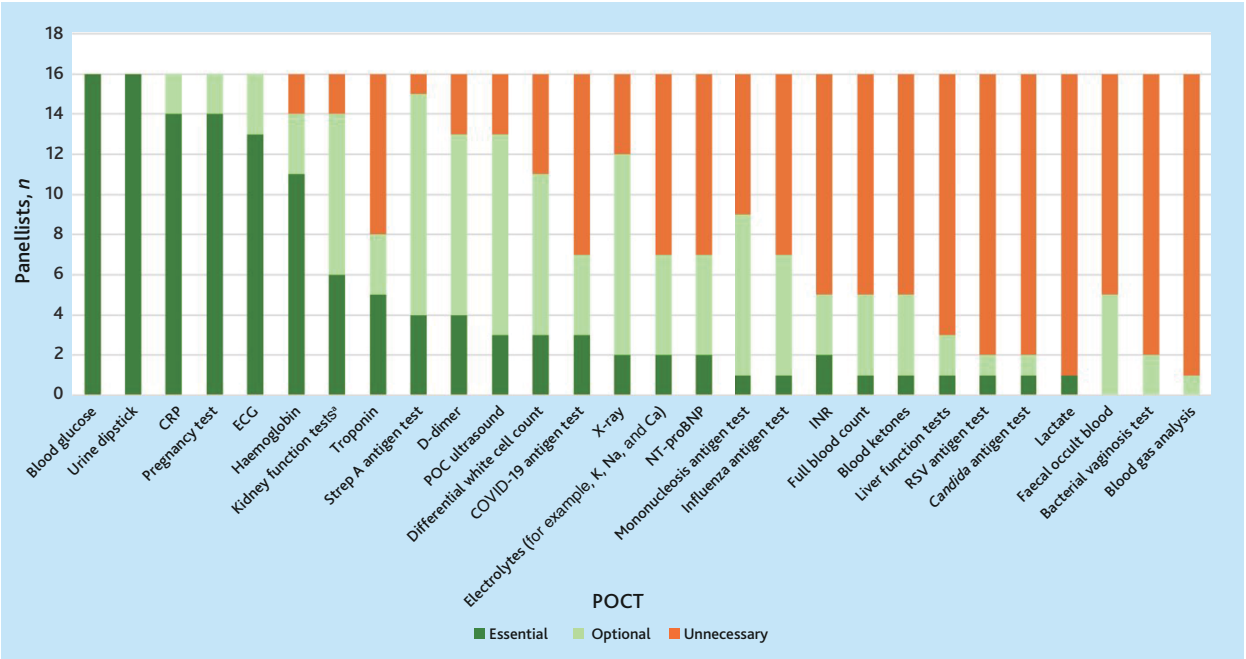

Figure 3. Importance of the availability of point-of-care tests (POCTs) in out-of-hours (OOH) primary care assessed by panellists after facilitated group discussion. [a]For example, creatinine and urea. CRP = C-reactive protein. ECG = electrocardiography. INR = international normalised ratio of blood coagulation. NT-proBNP = N-terminal pro-B-type natriuretic peptide. POC = point of care. RSV = respiratory syncytial virus. Strep A = group A *Streptococcus*.

Box 1. Summary of facilitated group discussion (round three)

Theme	Key points raised by panellists
Inappropriate use of POCTs	• Availability does not ensure appropriate use • Overreliance on POCTs and testing without indication was a concern (for example, urine dipsticks in older adults, CRP, and Strep A tests) • POCTs should be guided by evidence-based protocols; inappropriate use alone was not grounds for excluding a test
Test accuracy	• Concerns about insufficient sensitivity and safety of certain tests (for example, standard troponin and mononucleosis antibody POCT) • Limited evidence on analytic accuracy and clinical effectiveness in primary care limits informed decision making and guideline development
Clinician skills and confidence	• Lack of confidence or training in some POCTs, especially ECG interpretation and point-of-care ultrasound • Use should not exceed a clinician's competence to avoid patient safety risks
Familiarity with specific POCTs	• Some tests (for example, blood ketones and blood lactate) were less familiar to clinicians in certain countries, potentially affecting perceived usefulness
Fee-for-service arrangements	• Payment models could drive inappropriate POCT use if reimbursements incentivise testing outside clinical guidance
POCT availability driving demand	• In some regions, patients seeking CRP or antigen tests unavailable in-hours specifically increased OOH demand • D-dimer tests sometimes used for reassurance outside guidelines, risking unnecessary further investigation
Interface with in-hours care	• Expanded POCT availability OOH may shift work from in-hours services and increase system-level costs • Tests like faecal occult blood and liver function tests were excluded partly for this reason

CRP = C-reactive protein. ECG = electrocardiography. INR = international normalised ratio of blood coagulation. OOH = out of hours. POCT = point-of-care test. Strep A = group A Streptococcus.

basis for national or regional decision makers and stakeholders to review the availability of POCTs in OOH primary care services.

Strengths and limitations

This is the first study, to the authors' knowledge, to reach a consensus-based list of essential and optional POCTs for use in European OOH primary care services. Strengths include the breadth of clinical and academic expertise among panellists, many of whom hold dual roles as practising clinicians and OOH primary care researchers, and who represented a diverse range of European healthcare systems.

However, the study has several limitations. Although responders in round one had the option to add additional tests, starting with a prespecified list may have anchored the recommendations in existing practice, potentially missing clinically important tests not currently in use. The study also did not include an economic analysis of the different POCTs. This, in addition to the limited evidence base for POCT use in OOH primary care and substantial variation in access to POCTs across services, may have influenced the consensus reached. Finally, the organisation of OOH primary care services differs widely both within and between European countries, with variation in rurality, service accessibility, payment mechanisms, and models of care. These differences may limit the generalisability of the findings, and decisions about POCT availability will still need to be adapted to the context of individual services.

Comparison with existing literature

Substantial evidence exists on POCT use in emergency departments, whereas evidence from OOH primary care services remains limited.[18–20] Although national guidelines exist in some countries, such as NHS England's recommendations for urgent care,[21] this study, to the authors' knowledge, provides the first European expert consensus on POCTs in acute unscheduled primary care.

Previous literature often advocated for broader access to POCTs, particularly considering specific healthcare challenges, such as antibiotic overuse.[22] In the current study, the panellists emphasised that POCT value depends on context, clinician expertise, and appropriate guideline integration, consistent with concerns that broader POCT availability does not necessarily improve care.[23,24] A recent Cochrane review on biomarkers for acute respiratory infections summarised that CRP testing may reduce antibiotic prescribing for acute respiratory infections in primary care; however, the certainty of evidence was mostly low or moderate, effects varied, and implementation required careful consideration of clinical context, safety, and sustainability.[25] This supports an evidence-informed and sustainable approach to POCT implementation, based on high-quality evidence, clear clinical benefit, and avoidance of unnecessary testing. Current guidelines similarly favour selective rather than routine POCT use. The guideline from the National Institute for Health and Care Excellence highlights that CRP POCTs should be used to support decision making in consultations for respiratory tract infections only when uncertainty remains after a clinical assessment.[26] English guidelines on urinary tract infections highlight the need for a targeted approach to dipstick testing, cautioning against indiscriminate use in populations such

as older adults or those with urinary catheters.[27]

Although X-ray is not conventionally classified as a POCT it was included because panellists consistently identified immediate imaging access as clinically relevant in OOH decision making. The absence of on-site imaging often necessitates referral to a hospital for a definitive diagnosis. A Dutch observational study showed that OOH services with direct access to radiology had lower emergency department referrals and shorter patient length of stay compared with OOH services lacking such access.[28] This is in line with the current study's finding that X-ray was identified as an optional diagnostic modality, reflecting its value in specific OOH contexts while acknowledging that its feasibility depends on local infrastructure and workflow.

Implications for research and practice

Expert consensus of some POCTs as unnecessary for OOH primary care does not question their clinical value, but reflects that their results are unlikely to influence immediate clinical decision making in this setting. In many cases, testing can safely be deferred to in-hours services (for example, *Candida* antigen test, bacterial vaginosis test, and liver function tests), while other tests have limited impact on clinical management in the OOH setting, as treatment decisions are largely based on clinical assessment (for example, RSV antigen test), or require further interpretation within hospital or laboratory settings (for example, blood gas analysis).

European OOH primary care services should strive to ensure the availability of essential POCTs, whereas optional tests should be considered based on local service context, and the use of unnecessary tests should be reconsidered. The uptake of essential and optional POCTs may be limited by gaps in implementation evidence and cost-effectiveness data. Adoption decisions are multifactorial and should consider not only the clinical rationale, but also organisational and system-level factors such as accessibility of tests, procurement and maintenance, quality assurance procedures, and integration into existing clinical workflows.

Economic evaluation and local context (for example, rural versus urban settings and access to laboratory services) are therefore important when determining which POCTs to implement. To avoid potential misuse, availability should not drive indiscriminate use of POCTs; testing should always be guided by clinical need and pre-test probability, supported by clear governance structures, appropriate training, and clinical decision-support tools.

Future research should clarify which contextual factors, such as service organisation, clinician behaviour, and patient help-seeking patterns, influence appropriate use of POCTs in OOH primary care. As this study was based on expert consensus, implementation studies and more robust evaluations, including randomised or comparative designs, are needed to determine the clinical effectiveness and real-world impact of these POCTs across different OOH services.

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Ethical approval

The project follows the prevailing general ethical principles of good clinical research practice drawn up by the World Medical Association in the Helsinki Declaration and the principles of professional responsibility by the American Anthropological Association. The study was listed in the record of processing activities at the Research Unit for General Practice in Aarhus in accordance with the provisions of the General Data Protection Regulation.

Data

The datasets generated and/or analysed during the study are available from the corresponding author on reasonable request.

Provenance

Freely submitted; externally peer reviewed.

Competing interests

The authors have declared no competing interests.

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