PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Experiences with neonatal jaundice management in hospitals and the community: Interviews with Australian health professionals.
AUTHORS	Trasancos, Claudia; Horey, Dell

VERSION 1 – REVIEW

REVIEWER	Slusher, Tina University of Minnesota Academic Health Center, Pediatrics
REVIEW RETURNED	18-Jul-2023

GENERAL COMMENTS	Thank you for this survey important in determining the baseline issues in managing neonatal jaundice in order to prevent tragic sequala. My only reservation is length of time between the survey and the publication of the results. I have concerns that the results from 10+ years ago may have changed. Although you do mention as a limitation " extended period of data collection and analysis" as a limitation I am not clear on how you confirmed little change in neonatal jaundice management" without another set of interviews. It would be very helpful to expand and explain this statement.

REVIEWER	Turner, Lesley University of Southampton, School of Health Sciences
REVIEW RETURNED	03-Oct-2023

GENERAL COMMENTS	Thank you for the opportunity to review this manuscript. My view is that the topic would be of interest to readers and adds knowledge in this area. I particularly welcome research looking at multi-professional working to improve patient care. Title : probably don't need to say size of the sample in the title Abstract : Could be improved for clarity e.g. rewording of this sentence 'Gaps in the implementation of evidence-based care to manage neonatal jaundice identified related to issues with professional boundaries,' Methods and Results could be expanded as these sections of the abstract are quite sparse The conclusions could be improved to follow on more seamlessly from the results in abstract How the study affects policy: This sentence could be modified as I am not sure how strengthening surveillance informs guideline development; 'Strengthening surveillance of adverse perinatal outcomes, including severe neonatal jaundice, would inform guideline development, associated resource decisions, and health

	professional training.' Background : The second paragraph talks about clinical guidelines (lines 34-38) although there is no discussion about whether the guidelines themselves are evidence based as many are based on weak evidence, and may not have capacity to bring about meaningful change. At the end of the background section the study aims and objectives could be more clearly laid out as well as well as the rationale for the study and the evidence gap it will be addressing. Methods : A definition of what is meant by evidence based care would be helpful. Please state in more detail how the potential participants were identified and recruited. The data collection tool (semi structured interviews) described in lines 23-30 doesn't seem to ask about the implementation of evidence based care which is the topic of the paper The process of coding and data checking seems thorough and reported clearly The paragraph beneath patient and public involvement does not really talk about this – were parts of this study informed by patients or members of the public? There is a mention of a delay in recruitment but this is not accounted for in the methods It would be helpful to have a supplementary file with the interview schedule in as it was noted to be semi-structured Results : Would be useful to note whether all participants were registered with a professional body or some participants in assistant roles? Were they all clinicians or were some of the participants academic staff? Did the staff work in neonatal units with mainly preterm babies or in postnatal areas or in the community? Figure 1 is helpful as it helps guide the reader to understand how the themes and subthemes fit together Discussion : Good integration of the findings with other studies and context Problems with interprofessional boundaries and communication have also been seen in investigations of patient harm (Ockenden, Kirkup) - could incorporate this evidence to support this argument The discussion talks broadly about implementing evidence based care although this phrase is used quite loosely. It is unclear whether the authors would like to see the guidelines implemented or amended to make them more succinct and easier to translate into practice. My concern is that sometimes the guidelines in themselves are not transferrable to all populations. Evidence based practice uses the best evidence combined with clinical experience and patient preference and this doesn't seem to have been considered in the discussion. Strengths and limitations seem justified Some of the references need updating e.g. ref 18 has been revised in 2016, ref 19 has been revised in 2022, some other references are quite dated e.g. ref 34 published in 1988

	Good luck with your research and I hope these suggestions have been helpful

REVIEWER	Mupanemunda, Richard University Hospitals Birmingham NHS Foundation Trust, Paediatrics
REVIEW RETURNED	15-Oct-2023

GENERAL COMMENTS	Perceptions of neonatal jaundice and evidence-based acre: Interviews with 41 Australian health professionals This paper reports on the findings of interviews conducted with 41 healthcare professionals involved in the management of neonatal jaundice. Interview topics included personal preparation and experiences of neonatal jaundice, knowledge of jaundice related neonatal morbidity, associated policies and guidelines; and thoughts on practice adjustments needed for better neonatal jaundice management. The interviews lasting 20-120 minutes were not audio-recorded but detailed notes were taken. Interview scripts were completed soon after each interview to minimise recall bias and returned to the participants for verification. The reason for this was to encourage participation. The disciplines chosen included: Nursing (12) Midwifery (15) Medicine (12) (general practice/obstetrics, paediatrics and neonatology Pathology (2) Clinical education (6) Policy development (8) 7 of whom had clinical roles Two thirds of physicians had 10 or more years of professional experience. Seven participants had works across state boundaries Participants were recruited from private practice centres, maternity hospitals, government departments and universities. The primary objective of the report was to elicit the experiences of perceptions of healthcare professionals on the care of newborns with jaundice in the Australian context. A starting point might include the reasoning for choosing the health professionals included in the research. It is self-evident that the professionals chosen should have a role in caring for jaundiced newborns. While midwives, general practitioners, obstetricians, paediatricians and neonatal staff would be expected to care for newborns as part of their everyday work I am not sure what area of nursing the 12 nurses were recruited from. They could have been general nurses or nurses largely caring for adults or from quite disparate areas such as geriatrics, subspecialty areas of medicine such as oncology or respiratory medicine. The clinical education group is also opaque as it is not obvious what clinical education they were involved in and whether this included care of children. The policy development group is opaque in that we are not informed as to which areas of health policy development they were engaged in. The participants were recruited from private practice centres, maternity hospitals, government departments and universities. There is no mention of recruiting midwives who care for newborns discharged from hospital into the care of midwives who care for the

	mothers and their infants at home overseeing feeding and jaundice surveillance which would provide a useful reference point for a study on this topic. While the themes identified were all very relevant at the time (2011-2013), do they still hold in 2023 and have there not been any significant change in practice such as the development of home phototherapy alongside midwife-led jaundice surveillance at home? The questions relating to education on jaundice management for the professionals who care for newborns are pertinent and the need for country-wide implementation of consensus guidelines are also very relevant and need addressing to improve the care of infants with jaundice and reduce the potentially serious complications from this common condition. I was surprised however by some of the comments regarding teaching on jaundice as this is one of the most covered topics in undergraduate paediatric programmes in the UK which should be very similar to programmes in Australia. Page 8, line 89 "...Trying to get exposure to cover all aspects of neonatal care has been an ongoing issue. Learning about neonatal jaundice is not in any formal way mandated in training of general paediatricians." (Neonatologist_C) Page 10, line 124 - 127 I was confused by the quote below which suggested that (general) medical consultants were also caring for newborn babies with jaundice. "There are conflicting views between the medical consultant and the paediatrician… for example in a baby with high SBR [serum bilirubin] the medical consultant will say put the baby under two lights; the paediatrician will visit later and say, 'no just use one light'." (Midwife_A) Page 10, line 137-140 I was also surprised by the apparent naivety of some of the interviewees regarding the adverse effects of jaundice. Two participants were openly cynical about the possibility of kernicterus diagnoses in Australia, including one paediatrician, who despite reporting experience with many jaundiced infants, had had no direct experience of adverse outcomes, so felt one was unlikely. Similarly, one midwife explicitly questioned whether a kernicterus diagnosis was possible in Australia. A prospective surveillance study utilizing voluntary clinician reporting of cases in collaboration with the Australian Paediatric Surveillance Unit (APSU) from April 1, 2010, to March 31, 2013, reported an incidence of extreme neonatal hyperbilirubinemia (serum bilirubin of >mol/l in infants ofμ450 >34 weeks' gestation) of 9.4/100 000 live births with an incidence of bilirubin encephalopathy (kernicterus) of 0.6/100 000 which is comparable to that of the UK. (McGillvray A et

	al Journal of Pediatrics 2016; 168: 82-87.e3). Page 12, line 181-185 There is a quote on testing, but it is not clear what this is for as it is not necessary to test every parent of a jaundiced infant and I am unsure as to what investigations would be performed in these tests. Many interviewees commented on the potential cost of testing, which was commonly considered in terms of over-testing and over-treatment. One participant said: "You would need to test every parent and child. Test fathers, test cord blood. Per baby it would be $150 extra assuming 200,000 babies born per year – there would not be much benefit." (Paediatrician_C) Further the annual births in Australia during the period 2011- 2013 were between 301,000 and 312, 000.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1
-Thank you for this feedback. We share your concern about the lag in publication which unfortunately was unavoidable.
The manuscript currently mentions that there has been little change in neonatal jaundice guidelines over the past decade. This has been further clarified by the addition of an explanatory clause in the Background:
"These guidelines in Australia are based on international guidelines(18-20) and, as shown in a recent comparative review(17), have changed little over the past decade." (Lines 31-32) (Clean version: Lines 26-27)

Reviewer 2
-Thank you for this feedback.

-Sample size has been removed and the title revised in line with the preferred format for the journal.

-The introduction in the abstract has been revised as follows:
"Worldwide, neonatal jaundice accounts for considerable morbidity and mortality. Although severe adverse outcomes, such as hyperbilirubinaemia and kernicterus, are uncommon in high-income countries, these outcomes do occur, have enormous lifelong personal, health and social costs, and may be preventable. Evidence-based practice commonly relies on clinical guidelines however their implementation can be difficult. Implementation of neonatal jaundice care has been adversely affected by issues with professional boundaries, competing professional priorities and poor understanding of neonatal jaundice. This paper focuses on the perceptions and experiences of Australian health professionals involved in the management of neonatal jaundice." (p. 1)

-Thank you for this feedback.

We have revised the Methods section in the abstract as follows:
"Using a qualitative descriptive design, semi-structured interviews were undertaken to gain understanding of the experiences of health professionals in Australia across the scope of care for

jaundiced newborns through an interpretivist approach and to identify possible gaps in the delivery of evidence-based care. Health professionals from a range of disciplines and care settings were recruited by purposive maximum variation sampling. Interviews were conducted face-to-face or by telephone. with detailed notes taken and a field journal maintained. Interview scripts were verified by participants and imported into NVivo software. Data were analysed for major themes according to type and contexts of practice."

The Results have been amended as follows:
Forty-one health professionals from six broad discipline areas were interviewed. Two major themes and explanatory sub-themes were found. The first theme, Falling through the gaps, highlighted gaps in evidence-based care, as described by four explanatory sub-themes: professional boundaries; blindness to possibility of adverse outcomes; competing professional development priorities; and unintended consequences.
The second major theme, We know what should happen – but how?, described participant perceptions that it was known what was required to improve care but how to achieve such changes was unclear. The two sub-themes are: improvements in education and training; and standardised policies and protocols." (pp.1-2)

-Thank you for this feedback. We have revised the start of the Conclusion in both the abstract and main paper as follows:
"Multiple barriers to the provision of evidence-based care related to neonatal jaundice management are experienced by health care professionals in Australia. Clinical guidelines are not sufficient to support health professionals deliver evidence-based care in the complex contexts in which they work." (p.2)

-This section has now been deleted as requested by editor as it relates to 'What is already known/What this study adds/How this study might affect practice and policy. (p.3)

-We agree than the evidence for many guidelines is weak, but such guidelines are still referred to as "evidence-based" as they rely on the best evidence available, and the use of the term at such times is consistent in the literature.

To make the point about the limitations of evidence used in guidelines clearer to readers, we have added to the following sentence:
"Modern health care, built on evidence-based practice, commonly relies on clinical guidelines, that are developed from the best available evidence, even when such evidence is weak." (Lines 14-16)

To make the study aims clearer we have revised the end of the background section as follows:
"The focus of this paper is the management of neonatal jaundice, which relies on the use of clinical guidelines, and where rare, severe, adverse outcomes do occur. This study aims to explore health professionals' experiences and perspectives of neonatal jaundice management in Australia to identify possible gaps in the delivery of evidence-based care. This study is part of a mixed methods study that includes assessment of neonatal jaundice guidelines used across Australia(17). These guidelines in Australia are based on international guidelines(18-20) and, as shown in a recent comparative review(17), have changed little over the past decade." (Lines 21-32) (Clean version: Lines 21-27)

-We have made the following amendments to the Methods section to more clearly express the study aims and to include the seminal definition of evidence-based practice, which was used:
"Using a qualitative descriptive design (21, 22), semi-structured interviews were undertaken to gain understanding of the experiences of health professionals in Australia across the scope of care for jaundiced newborns through an interpretivist approach (23) and to identify possible gaps in the delivery of evidence-based care. We considered evidence-based care to comprise the three elements

nominated by Sackett (1996)(24): use of the best available research evidence; application of clinical expertise; and consideration of patient “predicaments, rights and preferences” (24)” (Lines 34-39) (Clean version: Lines 29-34).

The added reference (24) is:
Sackett D, Rosenberg W, Gray J, Haynes RB, Richardson W. Evidence Based Medicine: What It Is And What It Isn't: It's About Integrating Individual Clinical Expertise And The Best External Evidence. British Medical Journal 1996; 312:71-2

-Additional information about the recruitment process, including an additional reference, has been added to the Methods section as follows:
“Potential participants were approached in writing either directly, for those in private practice, or indirectly via institutional leaders for those working in maternity hospitals, universities, and government departments. These leaders identified potential participants associated with neonatal jaundice care and forwarded information about the study, including consent forms to complete to them. Potential participants approached directly, including general practitioners, obstetricians, paediatricians, midwives in private practice and maternal and child health nurses, were also sent this information. It was anticipated that approximately 40 participants would be needed based on five participants from each State and Territory and the number of disciplines approached. Recruitment progressed to ensure the desired mix of disciplines, geographical areas and settings and continued until data saturation was achieved and no new themes emerged (26).” (Lines 40-50) (Clean version: Lines 39-45)

The added reference (26) is: Guest, G., Bunce, A., and Johnson, L. How Many Interviews Are Enough? Field Methods 2006; 18.1: 59-82.

-The topic of the paper is the experience and perspectives of health professionals in regard to the management of neonatal jaundice, which necessarily involves the implementation of evidence-based guidelines. While study participants were not specifically asked about the implementation of evidence-based care, and so avoided different interpretations of this term, they were asked about their health professional practice and their use of, and experience with, neonatal jaundice policies and guidelines.

-Thank you for your feedback.

-The sub-heading of 'patient and public involvement' now includes: "There was no patient involvement in the study. The approach taken for this research was to focus on practice aspects of evidence-based care rather than look at the impact of current practice on infants and families. Study participants were all health professionals who provided written informed consent. Line 98-101; Clean version: 75-79)

-We believe that delay in recruitment has been adequately addressed by the following in the methods section:
“Recruitment progressed to ensure the desired mix of disciplines, geographical areas and settings and continued until data saturation was achieved and no new themes emerged (24). Data were collected over two years, between August 2011 and December 2013.”
(Lines 48-51; Clean version: lines 43-46)

-A Supplementary File Interview Discussion Guide has been included. See citation on page 5: (see Supplementary material) (Line 51; Clean version: line 46)

-All participants were registered with a professional body. This has been clarified with the following amendment describing the study participants:

“Forty-one registered health professionals” (Line 105) (Clean version: Line 83)

-All participants were clinicians – some were both clinicians and academic staff/public servant for a government department. This is implied by the inclusion of their registered status in the description of the study participants, as above.

-Regarding staff - We hope that this is clarified by the inclusion of the following in the description of participants:
Forty-one registered health professionals working with jaundiced newborns in some way, were interviewed. Participants came from six broad discipline areas (nursing [3], midwifery [15], medicine [12], pathology [4], clinical education [6], and policy development [8]) and worked in a range of settings.”(Lines 105-108) (Clean version: Lines 83-86)

Please note: The number of pathology health professionals who took part has been corrected from 2 to 4. This was an error. (Line 107; clean version Line 85)

-Thank you for this feedback.

-Thank you for this feedback. These references have been added as follows:
“Problems with interprofessional boundaries and communication have consistently been highlighted in investigations into patient harm in maternity and neonatal services in England. (35-38)”
(References 35-38 = Kirkup, 2015; Kirkup, 2022; Ockenden, 2020; Ockenden, 2022. (Lines 343-344) (Lines 344-345; Clean version: Lines 305-306)

-We believe that we have used the term evidence-based care in ways that are similar to how it is used in practice and in the interviews. The focus of the paper is the experience and perspectives of health professionals to identify possible gaps in the delivery of what these practitioners saw as evidence-based practice. We believe that the study already identifies several ways in which such practice can be improved.

-Thank you for this feedback.

-References have been updated where suggested.
Abbott (1988) and Sackett (1996), although old, are both still relevant and are frequently cited.
Additional references (41-42) have also been added: Schot et al, 2020 ans MacNaughton et al 2013 (Line 368) (Line 370; Clean version: Line 321)

-Thank you!

Reviewer 3
-To clarify the reasoning behind the choice of a range of health professionals included in this study, we have amended the description of the Methods as follows:
“Using a qualitative descriptive design (21, 22), semi-structured interviews were undertaken to gain understanding of the experiences of health professionals in Australia across the scope of care for jaundiced newborns through an interpretivist approach (23) and to identify possible gaps in the delivery of evidence-based care. ” (Lines 34-37) (Clean version: Lines 29-32)

-We hope that this has now been clarified by the following amendments to the Methods section as follows:
“to gain understanding of the experiences of health professionals in Australia across the scope of care of jaundiced newborns”.
(p.1 and lines 34-36) (Clean version: Lines 29-31)

“These leaders identified potential participants associated with neonatal jaundice care and forwarded information to them about the study,” (Lines 42-44) (Clean version: 37-39)
And the inclusion of the following information in the description of study participants:
Forty-one registered health professionals working with jaundiced newborns in some way, were interviewed. Participants came from six broad discipline areas (nursing [3], midwifery [15], medicine [12], pathology [4], clinical education [6], and policy development [8]) and worked in a range of settings.”(Lines 105-108) (Clean version: Lines 83-86)

The following detail has been added:
“The nurses were involved in neonatal care within the hospital and/or in the community. The midwives worked in hospital and/or private practice, involving homebirth and/or postnatal care. The clinical education group included maternal and child health, neonatal care, and midwifery care. The majority of participants (66%) had 10 or more years professional experience. Five participants worked across state boundaries (12%). Seven of the eight participants working in policy development also had clinical roles. All eight participants in this group were employed by health organisations and were engaged specifically in the development of neonatal jaundice policy.” (Lines 110-116) (Clean version: Lines 88-94)

-Please see detail added about midwives as noted above.

-As mentioned in the background, there has been little change in practice in neonatal jaundice care over the past decade. This is possibly because the issue has not been explored in this way so that problems were masked by other factors. We believe that the themes identified in this study are still relevant today as there has been no significant practice or systemic change.

-No particular change requested.

-We agree that the comments regarding teaching were surprising, which is why we feel that they are worthy of reporting.

We did not have room in this paper to report on a sub-study in the thesis (Trasancos, 2022) which examined curricula relating to neonatal jaundice that found:
• Evidence of lack of prominence placed on primary prevention of severe jaundice, recognition and early management of neonatal jaundice.
• Limited longitudinal integrated experiences for learning.
• Reliance on individual educators to review neonatal jaundice content rather than a systematic overview.

The relative rarity of serious adverse outcomes appears to be a major factor in a belief that more attention on this topic is not warranted. We have attempted to convey this within the confines of the study findings that are presented.

-In some settings, such as in rural areas, access to particular specialist doctors may be limited. However, in this quote the conflict referred to was between a neonatologist and a paediatrician.

-We agree.

- No response required.

-Thank you for your comment.
The quote relates to ABO incompatibility.The line preceding the quote has been amended as follows:
One participant considered the prevention of severe neonatal jaundice attributed to ABO

incompatibility, and said:
“You would need to test every parent and child. Test fathers, test cord blood. Per baby it would be $150 extra assuming 200,000 babies born per year – there would not be much benefit.” (Paediatrician_C)
(Lines 231-235) (Clean version Lines 199-203)

References added:
Guest, G., Bunce, A., and Johnson, L. How Many Interviews Are Enough? Field Methods 2006; 18.1: 59-82.
Kirkup, B. Reading the signals, Maternity and neonatal services in East Kent – Report of the Independent Investigation. 2022. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1111992/reading-the-signals-maternity-and-neonatal-services-in-east-kent_the-report-of-the-independent-investigation_print-ready.pdf
Kirkup, B. The Report of the Morecambe Bay Investigation. UK government. 2015. https://assets.publishing.service.gov.uk/media/5a7f3d7240f0b62305b85efb/47487_MBI_Accessible_v0.1.pdf
MacNaughton, K., Chreim, S. & Bourgeault, I.L. Role construction and boundaries in interprofessional primary health care teams: a qualitative study. BMC Health Serv Res 2013; 13, 486. https://doi.org/10.1186/1472-6963-13-486
Ockenden, D. Findings, conclusions, and essential actions from the independent review of maternity services at the Shrewsbury and Telford Hospital NHS Trust (Ockenden report – final). 2022. https://assets.publishing.service.gov.uk/media/624332fe8fa8f527744f0615/Final-Ockenden-Report-web-accessible.pdf
Ockenden, D. Emerging findings and recommendations from the independent review of maternity services at the Shrewsbury and Telford Hospital NHS Trust. 2020. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943011/Independent_review_of_maternity_services_at_Shrewsbury_and_Telford_Hospital_NHS_Trust.pdf
Sackett D, Rosenberg W, Gray J, Haynes RB, Richardson W. Evidence Based Medicine: What It Is And What It Isn't: It's About Integrating Individual Clinical Expertise And The Best External Evidence. British Medical Journal 1996; 312:71-2.
Schot, E., Tummers, L., & Noordegraaf, M.Working on working together. A systematic review on how healthcare professionals contribute to interprofessional collaboration, Journal of Interprofessional Care, 2020; 34:3, 332-342, DOI: 10.1080/13561820.2019.1636007

VERSION 2 – REVIEW

REVIEWER	Slusher, Tina University of Minnesota Academic Health Center, Pediatrics
REVIEW RETURNED	22-Dec-2023

GENERAL COMMENTS	I think the revisions to this manuscript have significantly improved the manuscript. This manuscript points out key factors that lead to missed cases of ABE/kernicterus and is an important addition to the literature

REVIEWER	Turner, Lesley University of Southampton, School of Health Sciences
REVIEW RETURNED	29-Dec-2023

GENERAL COMMENTS	Thank you for returning this amended paper for review. I can see that the authors have addressed all of the reviewer comments in full and believe the paper has improved as a result. I recommend that the paper is accepted for publication in its revised form. Kind regards.

REVIEWER	Mupanemunda, Richard University Hospitals Birmingham NHS Foundation Trust, Paediatrics
REVIEW RETURNED	07-Jan-2024

GENERAL COMMENTS	Experiences with neonatal jaundice management in hospitals and the community: Interviews with Australian health professionals The paper has been revised with some updated references. The substance of the paper consists of the views of Australian health professionals on the management of neonatal jaundice during the period 2011-2013 which is now some 13 years ago. Although the views voiced by the professionals may be unassailable, it is difficult to contend that these perceptions have remained unchanged for over a decade and so the record is more historical and may need additional enquiry to ascertain whether these observations still hold. This remains the main limitation of the paper. The revision has however improved the paper given the preceding caveat. A small point to mention is that there are two references numbered as 24; the second reference 24 should be numbered 25.