ARESSardegna
Azienda Regionale Salute

COMMISSIONE ESAMINATRICE
del Pubblico concorso, per titoli ed esami, per la copertura a tempo pieno ed indeterminato di n.10 posti dell' Area Professionisti della Salute e Funzionari – profilo Ostetrica.

VERBALE
in data 16 maggio 2023

Alle ore 08:30 del giorno 16 del mese di maggio dell'anno 2023, presso la sala convegni dell' Hotel Holiday Inn di Cagliari – Viale Umberto Ticca, 23 – Cagliari, si è riunita la Commissione esaminatrice del Concorso Pubblico, per titoli ed esami, per la copertura a tempo pieno e indeterminato di n. 10 posti dell' Area Professionisti della Salute e Funzionari - profilo Ostetrica, indetto con Determina n.3037 del 11/10/2022, parzialmente rettificata con Provvedimento n.3283 del 03/11/2022 per procedere all' effettuazione della prova orale fissata in data odierna.

Detta Commissione esaminatrice, nominata con Determinazione ARES n. 598 del 28/02/2023, risulta composta come segue:

Presidente	Dott. Alessandro Carrus	
Componente	Dott.ssa Graziella Monni	(nomina del Direttore Generale)
Componente	Dott. Roberto Becca	(nomina del Collegio di Direzione)
Segretario	Sig. Pietro Meloni	

LA COMMISSIONE

Riconosciuta la legalità della sua costituzione, la quale è conforme al citato Provvedimento,

RICHIAMATO

Il contenuto dei precedenti verbali

PRENDE ATTO

Che sono ammessi alla prova orale complessivi n. 192 candidati suddivisi in 6 turni:

- **16 maggio 2023 ore 09:30** da ABIS ELISE a CANNAS FRANCESCA
- **16 maggio 2023 ore 15:00** da CAPPEDDU FIORELLA a DESSI' IRENE

- **17 maggio 2023 ore 09:30** da DOTTA ENRICA a MANARA STEFANIA
- **17 maggio 2023 ore 15:00** da MANCA MELISSA a PILIA LARA

- **18 maggio 2023 ore 09:30** da PILO STEFANIA a SERRA ALESSANDRA
- **18 maggio 2023 ore 15:00** da SERRA ANNA MARIA a ZUPI LOREDANA

Che, come disposto dal D.P.R. 220/2001 e dal proprio verbale n.1 del 09/03/2023, nel corso dell'espletamento della prova orale si procederà anche alla verifica della conoscenza di elementi di informatica e della conoscenza, almeno a livello iniziale, della lingua inglese;

Che la prova verterà su argomenti attinenti la posizione da ricoprire e che la stessa verrà valutata tenendo conto di:

a) Grado di conoscenza dell'argomento;
b) Capacità espositiva e di sintesi;
c) Proprietà di linguaggio;
d) Capacità di approfondimento.

Che il superamento della prova orale sarà subordinato al raggiungimento di una valutazione di sufficienza pari ad almeno 14/20;

La Commissione, in considerazione dell'elevato numero dei candidati ammessi alla prova orale (192 suddivisi in 6 turni), formula n. 28 quesiti ripartiti in n.7 buste anonime (denominate rispettivamente "prova orale 1, prova orale 2, prova orale 3, e sino a 7).

Le prove sono stampate su un totale di 7 fogli a4, successivamente siglati dall'intera Commissione e sigillati in altrettante buste anonime, prive di alcun segno;

Ciascuna busta si compone quindi di n.4 domande numerate da 1 a 4.

"Prova orale 1"

1. Classificazione lacerazioni perineali spontanee;
2. Partogramma;
3. ECM;
4. L'allattamento al seno, competenze dell'ostetrica;

"Prova orale 2"

1. Post-partum, definizione e competenze dell'ostetrica;
2. CEDAP;
3. Le manovre di Leopold;
4. Benefici e rischi del contatto pelle a pelle;

"Prova orale 3"

1. La Legge 194/78;
2. Parametri di valutazione CTG;
3. Procedure e protocolli;
4. Episiotomia, indicazione e sutura;

"Prova orale 4"

1. Definire un neonato fisiologico: fattori da valutare;
2. Tipologie di decelerazioni;
3. Il profilo professionale;
4. La placenta previa;

"Prova orale 5"

1. Segni e sintomi della rottura d'utero;
2. Diagnosi di mal posizione;
3. Linee guida;
4. Il puerperio;

"Prova orale 6"

1. MEF: competenze ostetriche;
2. Procedura CTG in travaglio di parto;
3. Consultorio;
4. Diagnosi e gestione primo stadio del travaglio;

"Prova orale 7"

1. I tempi chirurgici del taglio cesareo;
2. Pap-test;
3. Diagnosi e gestione del secondo stadio;
4. Co.Ge.A.P.S;

Per ciascun turno i candidati estrarranno, a sorte, la prova d'esame, che sarà la medesima per l'intero turno. Successivamente la prova estratta verrà archiviata e i successivi turni avranno a disposizione una possibilità di scelta ridotta progressivamente di una unità.

Il numero di prove predisposte consentirà anche ai candidati partecipanti all'ultimo turno del 18 maggio pomeriggio di avere possibilità di estrazione casuale tra n.2 prove rimanenti.

Al momento dell'estrazione della prova contenente i 4 quesiti verranno invitati 3 candidati che alla presenza dei restanti partecipanti presenzieranno all'estrazione della busta oggetto di prova.

Ciascun candidato conoscerà l'elenco estratto soltanto al proprio turno di chiamata.

I candidati sosterranno la propria prova uno alla volta e, pertanto, quelli non ancora esaminati attenderanno il proprio turno in una stanza attigua al locale sede d'esame, senza poter entrare in contatto con coloro che hanno già sostenuto la prova.

Ciascun candidato dovrà procedere all'estrazione di uno dei quattro quesiti presenti nella prova appena estratta utilizzando un sacchettino contenete quattro bussolotti numerati da 1 a 4.

Ai candidati in attesa di sostenere la prova sarà fatto divieto di utilizzo di telefoni cellulari e/o apparecchiature informatiche. Le stesse verranno fatte spegnere e custodite dal personale della vigilanza.

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Essendo l'aula d'esame aperta al pubblico, coloro che avranno già sostenuto la prova potranno assistere a quella dei successivi candidati.

Per quanto concerne la prova finalizzata all'accertamento della conoscenza di elementi di informatica la Commissione stabilisce di disporre che la prova consisterà nell'esecuzione di una delle applicazioni pratiche di seguito indicate:

Traccia 1

1. *Utilizzando le funzionalità messe a disposizione dal Sistema Operativo:*
   a. Crei una nuova Cartella sul Desktop nominandola col proprio Nome e Cognome
   b. Copi il file "Prova.xlsx" presente sul Desktop all'interno della Cartella creata

2. *All'interno del file "Prova.xlsx" si proceda ad inserire le formule necessarie per inserire la somma automatica delle righe/colonne in corrispondenza di "Totale x Prodotto" e "Totale x Mese":*

	Gen	Feb	Mar	Apr	Mag	Giu	Totale x Prodotto
Patate	1.000,00 €	950,00 €	1.500,00 €	750,00 €	600,00 €	1.000,00 €	
Carote	896,00 €	635,00 €	456,00 €	789,00 €	1.500,00 €	2.545,00 €	
Fagiolini	884,00 €	4.563,00 €	1.236,00 €	111,00 €	1.598,00 €	1.236,00 €	
Totale x Mese							

3. *Si proceda all'eliminazione dell'ambiente di svolgimento della prova:*
   a. Elimini la Cartella creata
   b. Svuoti il Cestino

Traccia 2

1. *Utilizzando le funzionalità messe a disposizione dal Sistema Operativo:*
   a. Crei una copia del file "Prova.xlsx" presente sul Desktop
   b. Lo rinomini col suo Nome e Cognome

2. *Apra il file e inserisca le formule necessarie per ottenere la somma automatica delle colonne in corrispondenza della riga "Totale":*

	Gen	Feb	Mar
Patate	100	110	50
Carote	200	220	66
Fagiolini	150	330	33
Totale			

3. *Sposti il file nella cartella "Prove Eseguite"*

A tal fine viene predisposta un'apposita postazione contente l'occorrente necessario (PC, tastiera e video).

Relativamente invece alla prova volta all'accertamento della conoscenza della lingua inglese la Commissione stabilisce di disporre che la prova consisterà nella lettura e traduzione dell' abstract allegato al presente verbale.

L'esame, in adempimento a quanto disposto dall' art. 7 comma 5 del D.P.R. 220/2001, si svolgerà in seduta pubblica.

All'esterno dell'aula d'esame è stato affisso un cartello identificante lo svolgimento della prova.

Ai candidati sarà inoltre vietata la consultazione di libri, manoscritti e appunti inerenti le materie oggetto d'esame. Eventuale materiale verrà preso in custodia dal Comitato di vigilanza e restituito al candidato solo dopo aver sostenuto la prova.

Stabilite le prove d'esame si dà corso alle operazioni di preparazione del materiale relativo alla prova orale.

La Commissione per i compiti di riconoscimento e di vigilanza si avvarrà della collaborazione dei funzionari Dott.ssa Martina Carboni, del Dott. Matteo Firinu e del Dott. Adriano Vitiello, in servizio presso la S.C. Ricerca e Selezione del Personale per le Aziende del SSR.

Alle ore 09:25 il Segretario della Commissione da inizio all'accesso dei candidati all' area concorsuale.

Successivamente alla regolare verifica di cui sopra i candidati vengono invitati ad accomodarsi in modo ordinato all'interno di una stanza attigua al locale sede d'esame.

Le operazioni sopra descritte terminano alle ore 09:40.

Una volta che tutti i candidati hanno preso posizione la Commissione procede a fare un controllo incrociato tra il numero dei presenti in aula e il numero delle firme registrate in fase di accettazione.

Al termine di detta operazione viene confermata la presenza di n. 32 candidati su n. 32 convocati al primo turno.

Tutto ciò premesso prende la parola il Segretario della Commissione il quale comunica ai candidati tutte le modalità di svolgimento della prova.

Il Segretario domanda ai candidati se qualcuno ha necessità legate ad eventuali voli di rientro o a particolari situazioni, e se pertanto intende sostenere per primo la prova.

Chiede di poter anticipare l'inizio della prova la candidata Branca Teresa.

La Commissione riscontra l'assenso di tutti i candidati presenti affinché la candidata in parola possa anticipare la prova.

Il Segretario comunica altresì che da questo istante i candidati non potranno lasciare la sala d'attesa sino al proprio turno di prova.

Sarà consentito l'accesso ai bagni pubblici previo accompagnamento da parte del personale della vigilanza che verificherà che i candidati non prendano contatto, in alcun modo, con l'esterno.

Ora i candidati vengono invitati a designare tre rappresentanti che procederanno all'estrazione materiale di una delle 7 buste anonime contenenti le prove d'esame.

Si presentano per il sorteggio le candidate Camarra Viviana, Arca Maria Giovanna e Bachis Chiara.

La Commissione riscontra l'assenso di tutti i presenti affinché i tre volontari siano i prescelti per l'estrazione della prova d'esame. La candidata Camarra Viviana viene identificata tra i candidati presentatisi che materialmente effettuerà l'estrazione della prova.

Senza che nessuno dei candidati sollevi eccezioni la Dott.ssa Camarra sceglie una delle 7 buste, su cui viene apportata la dicitura "16/05/2023 - PROVA ORALE - MATTINO - PROVA ESTRATTA".

A questo punto si procede all'apertura della busta prescelta e, avendo cura di non farne leggere in anticipo il contenuto, la Dott.ssa Camarra firma la busta appena estratta che risulta essere la "Prova orale n°5".

Le buste non estratte (6), prese in custodia dal Segretario, verranno utilizzate per le successive prove.

Alle ore 10:05 la Commissione si trasferisce nella sala d'esame e da inizio ai colloqui.

Sostiene per prima il colloquio la Dott.ssa Branca Teresa e a seguire le chiamate riprendono secondo l'ordine di convocazione.

Prima di sostenere l'esame, ad ogni candidato viene data comunicazione del punteggio relativo ai titoli dichiarati nella propria domanda di partecipazione al concorso e attribuiti con verbale del 20/03/2023.

A seguire il candidato provvede, mediante l'utilizzo dei bussolotti numerati da 1 a 4, all'estrazione di uno dei 4 quesiti presenti nell'elenco appena estratto.

Il candidato terminato il relativo colloquio sostiene, successivamente, le prove di lingua straniera e di informatica.

Durante tutte le prove la porta dell'aula d'esame rimane aperta al pubblico.

Le operazioni di valutazione, sopra descritte, vengono ripetute per tutti i candidati e terminano alle ore 12:50.

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In relazione all'esito delle prove, valutato il grado di conoscenza dell'argomento, la capacità espositiva e di sintesi, la proprietà di linguaggio e la capacità di approfondimento, la Commissione collegialmente e con voto palese, ha espresso per ciascun candidato il seguente punteggio:

N.	CANDIDATO/A	DOMANDA ESTRATTA	PUNTEGGIO PROVA ORALE (in ventesimi)	ESITO
1	ABIS ELISE (29/10/1998)	4	17	Superata
2	ADDARIS CARLA (29/05/1994)	2	18	Superata
3	AGRESTA MICHELA (17/09/1992)	1	15	Superata
4	ALBA ELISA (02/07/1998)	4	16	Superata
5	AMADEI ANNA ROSA (13/08/1999)	2	14	Superata
6	AMBU SANDRA (17/03/1978)	2	15	Superata
7	ANGIUS BARBARA (31/03/1996)	3	14	Superata
8	ARBA SILVIA (05/11/1993)	4	18	Superata
9	ARCA MARIA GIOVANNA (18/08/1987)	1	19	Superata
10	ARGIOLAS SARA SANTINA (17/11/1995)	1	18	Superata
11	ARRU ELENA (04/01/1992)	4	18	Superata
12	ARRU LAURA (04/01/1992)	3	18	Superata
13	ATZENI SARA (02/12/1996)	4	17	Superata
14	ATZENI VALENTINA MARGHERITA (03/02/1987)	1	16	Superata
15	AUZZAS SARA (20/04/1989)	3	20	Superata
16	BACHIS CHIARA (08/08/2000)	3	15	Superata
17	BARCA ROSSELLA (14/10/1994)	3	18	Superata
18	BENONI CLELIA (11/12/1989)	1	18	Superata
19	BOGNOLO ALICE (30/10/1995)	4	20	Superata
20	BOI MARTINA (05/05/1996)	2	15	Superata
21	BRANCA BENEDETTA (12/11/1995)	1	17	Superata
22	BRANCIFORTE MARTINA (16/05/1997)	4	20	Superata
23	BRIANDA MICHELA (25/07/1993)	4	20	Superata
24	BUTTAU MARTINA (03/10/1999)	2	20	Superata
25	CABIZZOSU SERENA (08/03/1983)	3	16	Superata
26	CABRAS GIORGIA (08/10/1991)	4	17	Superata
27	CABRAS MARTA (14/08/1996)	4	20	Superata
28	CAMARRA VIVIANA (03/12/1994)	4	17	Superata
29	CAMEDDA SARA (08/01/1996)	3	18	Superata
30	CANCEDDA ERICA (29/04/1996)	3	16	Superata
31	CANNAS ALESSIA (26/07/1997)	2	16	Superata
32	CANNAS FRANCESCA (24/05/1997)	2	18	Superata

Tutti i candidati sopra indicati hanno conseguito l'idoneità nelle prove di informatica e inglese.

La Commissione chiude i lavori del primo turno alle ore 13:15 circa e gli esiti di cui sopra vengono pubblicati sul sito internet dell' ARES Sardegna www.aressardegna.it nella sezione " Concorsi e Selezione ", all'interno dell'avviso relativo al concorso in oggetto.

La Commissione alle ore 14:50 dichiara nuovamente aperta la seduta.

La Commissione per i compiti di riconoscimento e di vigilanza si avvarrà della collaborazione dei funzionari Dott.ssa Martina Carboni, del Dott. Matteo Firinu e del Dott. Adriano Vitiello, in servizio presso la S.C. Ricerca e Selezione del Personale per le Aziende del SSR.

Alle ore 15:00 il Segretario della Commissione da inizio all'accesso dei candidati all' area concorsuale.

Successivamente alla regolare verifica di cui sopra i candidati vengono invitati ad accomodarsi in modo ordinato all'interno di una stanza attigua al locale sede d'esame.

Le operazioni sopra descritte terminano alle ore 15:10.

Una volta che tutti i candidati hanno preso posizione la Commissione procede a fare un controllo incrociato tra il numero dei presenti in aula e il numero delle firme registrate in fase di accettazione.

Al termine di detta operazione viene confermata la presenza di n. 32 candidati su n. 32 convocati al secondo turno.

Tutto ciò premesso prende la parola il Segretario della Commissione il quale comunica ai candidati tutte le modalità di svolgimento della prova.

Il Segretario domanda ai candidati se qualcuno ha necessità legate ad eventuali voli di rientro o a particolari situazioni, e se pertanto intende sostenere per primo la prova.
Chiede di poter anticipare l'inizio della prova la candidata Deiana Maria Chiara.
La Commissione riscontra l'assenso di tutti i candidati presenti affinché la candidata in parola possa anticipare la prova.
La prova orale, così come previsto dal D.P.R. 220/2001 si svolge in aula aperta al pubblico.

Ora i candidati vengono invitati a designare tre rappresentanti che procederanno all'estrazione materiale di una delle 6 buste anonime contenenti le prove d'esame.

Si presentano per il sorteggio le candidate Cappeddu Fiorella, Cidda Sara e Carrus Debora.
La Commissione riscontra l'assenso di tutti i presenti affinché i tre volontari siano i prescelti per l'estrazione della prova d'esame. La Dott.ssa Cappeddu Fiorella viene identificata tra i candidati presentatisi che materialmente effettuerà l'estrazione della prova.
Senza che nessuno dei candidati sollevi eccezioni la Dott.ssa Cappeddu Fiorella sceglie una delle 6 buste, su cui viene apportata la dicitura "16/05/2023 - PROVA ORALE - POMERIGGIO - PROVA ESTRATTA".

A questo punto si procede all'apertura della busta prescelta e, avendo cura di non farne leggere in anticipo il contenuto, la Dott.ssa Cappeddu firma la busta appena estratta che risulta essere la "Prova orale n°3".

Le buste non estratte (5), prese in custodia dal Segretario, verranno utilizzate per le successive prove.

Alle ore 15:23 la Commissione si trasferisce nella sala d'esame e da inizio ai colloqui.

Sostiene per prima il colloquio la Dott.ssa Deiana Maria Chiara e a seguire le chiamate riprendono secondo l'ordine di convocazione.

Prima di sostenere l'esame, ad ogni candidato viene data comunicazione del punteggio relativo ai titoli dichiarati nella propria domanda di partecipazione al concorso e attribuiti con verbale del 20/03/2023.

A seguire il candidato provvede, mediante l'utilizzo dei bussolotti numerati da 1 a 4, all'estrazione di uno dei 4 quesiti presenti nell'elenco appena estratto.

Il candidato terminato il relativo colloquio sostiene, successivamente, le prove di lingua straniera e di informatica.

Durante tutte le prove la porta dell'aula d'esame rimane aperta al pubblico.

Le operazioni di valutazione, sopra descritte, vengono ripetute per tutti i candidati e terminano alle ore 18:40.

In relazione all'esito delle prove, valutato il grado di conoscenza dell'argomento, la capacità espositiva e di sintesi, la proprietà di linguaggio e la capacità di approfondimento, la Commissione collegialmente e con voto palese, ha espresso per ciascun candidato il seguente punteggio:

N.	CANDIDATO/A	DOMANDA ESTRATTA	PUNTEGGIO PROVA ORALE (in ventesimi)	ESITO
1	CAPPEDDU FIORELLA (24/06/1988)	1	18	Superata
2	CARBONE MARIANTONIETTA (09/02/1993)	3	14	Superata
3	CARRUS DEBORA (09/07/1989)	3	17	Superata
4	CASADEI FRANCESCA (29/07/1998)	4	14	Superata
5	CASULA ROSSELLA MARIA (14/06/1995)	2	20	Superata
6	CAU NOEMI (14/12/1996)	3	16	Superata
7	CHIGHINE GIADA (19/12/1991)	1	20	Superata
8	CIDDA SARA (13/06/1997)	4	20	Superata
9	CIREDDU SILVIA RITA (07/11/1995)	3	18	Superata
10	COCCO MARTA (24/08/1994)	4	17	Superata
11	CONCU FEDERICA (23/01/1991)	2	19	Superata
12	CONGIU MARTA (15/02/1999)	4	16	Superata
13	CORRIAS LUCIANA (24/10/1983)	4	19	Superata

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14	CORSO GAIA (05/06/2000)	4	19	Superata
15	COSSEDDU GIANPIERA (21/08/1988)	4	18	Superata
16	COSSU ALESSANDRA (18/04/1996)	4	17	Superata
17	CRABA LAURA (20/08/1991)	4	17	Superata
18	CUCCA MICHELA (21/03/1997)	3	18	Superata
19	CUCCU LAURA (14/12/1989)	3	14	Superata
20	DACHENA ELISA (26/09/1996)	1	19	Superata
21	DAGA CHIARA (03/04/1999)	3	18	Superata
22	DAGA MARTA (03/04/1999)	3	19	Superata
23	DEIANA ANNA CHIARA (20/06/1996)	4	18	Superata
24	DEIANA CLAUDIO (12/10/1993)	1	15	Superata
25	DEIANA DONATELLA (05/01/1990)	2	20	Superata
26	DEIANA MARIA CHIARA (21/04/1995)	2	18	Superata
27	DEIDDA NOEMI (16/02/1995)	4	17	Superata
28	DEMURTAS BIANCA (12/08/1996)	2	18	Superata
29	DERIU CHIARA MARIA (28/05/1994)	1	20	Superata
30	DEROSAS GIORGIA (29/08/1997)	4	20	Superata
31	DERUDAS CATERINA (24/09/1997)	4	20	Superata
32	DESSI' IRENE (26/09/1992)	1	17	Superata

Tutti i candidati sopra indicati hanno conseguito l'idoneità nelle prove di informatica e inglese.

Durante tutte le prove la porta dell'aula d'esame è rimastra sempre aperta al pubblico. A tutti i colloqui presenziano diversi candidati del primo e secondo turno.

Le prove si sono svolte regolarmente, con l'osservanza di quanto previsto dalla normativa concorsuale ed alla presenza dell'interna Commissione e del Segretario e si sono concluse entro il termine stabilito. Durante tutti colloqui nessuno dei candidati ha avanzato osservazioni.

Tutti i lavori terminano alle ore 19:30 e gli esiti di cui sopra vengono pubblicati sul sito internet dell' ARES Sardegna www.aressardegna.it nella sezione " Concorsi e Selezione ", all'interno dell'avviso relativo al concorso in oggetto.

Letto, approvato e sottoscritto.

Presidente	Dott. Alessandro Carrus
Componente	Dott.ssa Graziella Monni
Componente	Dott. Roberto Becca
Segretario	Sig. Pietro Meloni

JAMA Network Open

ALLEGATO AL VERBALE DEL 16.05.2023

Original Investigation | Obstetrics and Gynecology

Comparison of Maternal Labor-Related Complications and Neonatal Outcomes Following Elective Induction of Labor at 39 Weeks of Gestation vs Expectant Management

A Systematic Review and Meta-analysis

James Hong, MBBS; Jessica Atkinson, BBiomedSc; Alexandra Roddy Mitchell, MPH; Stephen Tong, PhD; Susan P. Walker, MD; Anna Middleton, MPH; Anthea Lindquist, DPhil; Roxanne Hastie, PhD

Abstract

IMPORTANCE Elective induction of labor at 39 weeks of gestation is common. Thus, there is a need to assess maternal labor-related complications and neonatal outcomes associated with elective induction of labor.

OBJECTIVE To examine maternal labor-related complications and neonatal outcomes following elective induction of labor at 39 weeks compared with expectant management.

DATA SOURCES A systematic review of the literature was conducted using the MEDLINE (Ovid), Embase (Ovid), Cochrane Central Library, World Health Organization, and ClinicalTrials.gov databases and registries to search for articles published between database inception and December 8, 2022.

STUDY SELECTION This systematic review and meta-analysis included randomized clinical trials, cohort studies, and cross-sectional studies reporting perinatal outcomes following induction of labor at 39 weeks vs expectant management.

DATA EXTRACTION AND SYNTHESIS Two reviewers independently assessed study eligibility, extracted data, and assessed studies for bias. Pooled odds ratios (ORs) and 95% CIs were calculated using a random-effects model. This study is reported per the Preferred Reporting Items for Systematic Reviews and Meta-analyses 2020 guideline, and the protocol was prospectively registered with PROSPERO.

MAIN OUTCOMES AND MEASURES Maternal outcomes of interest included emergency cesarean section, perineal injury, postpartum hemorrhage, and operative vaginal birth. Neonatal outcomes of interest included admission to the neonatal intensive care unit, low 5-minute Apgar score (<7) after birth, macrosomia, and shoulder dystocia.

RESULTS Of the 5827 records identified in the search, 14 studies were eligible for inclusion in this review. These studies reported outcomes for 1 625 899 women birthing a singleton pregnancy. Induction of labor at 39 weeks of gestation was associated with a 37% reduced likelihood of third- or fourth-degree perineal injury (OR, 0.63 [95% CI, 0.49-0.81]), in addition to reductions in operative vaginal birth (OR, 0.87 [95% CI, 0.79-0.97]), macrosomia (OR, 0.66 [95% CI, 0.48-0.91]), and low 5-minute Apgar score (OR, 0.62 [95% CI, 0.40-0.96]). Results were similar when confined to multiparous women only, with the addition of a substantial reduction in the likelihood of emergency cesarean section (OR, 0.61 [95% CI, 0.38-0.98]) and no difference in operative vaginal birth (OR, 1.01 [95% CI, 0.84-1.21]). However, among nulliparous women only, induction of labor was associated

(continued)

Key Points

Question What maternal labor-related and neonatal outcomes are experienced following elective induction of labor at 39 weeks of gestation compared with expectant management?

Findings In this systematic review and meta-analysis of 14 studies with more than 1.6 million participants, induction of labor at 39 weeks of gestation was associated with improved maternal labor-related and neonatal complications, including a reduced likelihood of perineal injury, macrosomia, and low 5-minute Apgar score after birth. However, among nulliparous women only, induction of labor was associated with an increased likelihood of shoulder dystocia compared with expectant management.

Meaning These findings suggest that elective induction of labor at 39 weeks may be safe and beneficial for some women; however, potential risks should be discussed with nulliparous women.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Abstract (continued)

with an increased likelihood of shoulder dystocia (OR, 1.22 [95% CI, 1.02-1.46]) compared with expectant management.

CONCLUSIONS AND RELEVANCE In this study, induction of labor at 39 weeks was associated with improved maternal labor-related and neonatal outcomes. However, among nulliparous women, induction of labor was associated with shoulder dystocia. These results suggest that elective induction of labor at 39 weeks may be safe and beneficial for some women; however, potential risks should be discussed with nulliparous women.

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Introduction

Induction of labor is recommended when the maternal and perinatal risks of continuing pregnancy outweigh those associated with expedited birth. Induction of labor may be indicated for postterm pregnancies beyond 41 weeks, in suspected cases of poor fetal growth, or for medical reasons such as prelabor rupture of membranes or hypertension.[1,2] The benefits of indicated induction of labor have been well characterized.[3-6]

Elective induction of labor is defined as induction in the absence of any medical indication.[7] Historically, elective induction has been discouraged due to the associated increased risk of cesarean birth and adverse birth outcomes compared with spontaneous labor.[8,9] However, this is not an appropriate comparator, given that forgoing elective induction will not always result in spontaneous labor. A more clinically relevant comparator is expectant management, defined as a "watch-and-wait" approach, allowing the pregnancy to continue until labor begins spontaneously or there is a reason to induce later.[1]

Elective induction at term is increasing globally and is likely attributable to the findings of the landmark ARRIVE trial (A Randomized Trial of Induction Versus Expectant Management).[10] The ARRIVE trial demonstrated that elective induction at 39 weeks of gestation among low-risk nulliparous women is associated with a reduced incidence of cesarean birth, without an increase in adverse perinatal outcomes compared with expectant management.[10] These findings have been supported by subsequent studies, some even suggesting a clear reduction in perinatal mortality.[11,12] These studies have led to greater confidence among clinicians about the safety of elective induction at term.[13] Additionally, our team has identified that developmental outcomes for children born after induction of labor at 39 weeks of gestation do not differ from those of their expectantly managed peers.[14]

While these findings are encouraging, most studies have focused on perinatal outcomes (except for rates of cesarean section and operative birth). There have been very few studies on the impact of induction at 39 weeks on maternal labor-related complications, such as perineal injury and postpartum hemorrhage.[15-17] Additionally, many previous studies have excluded women with a high body mass index (BMI [calculated as weight in kilograms divided by height in meters squared]) or those undergoing a trial of labor after cesarean section. This study aimed to investigate maternal labor-related complications following elective induction at 39 weeks of gestation compared with expectant management and included nulliparous and multiparous women as well as those with a high BMI or those undergoing a trial of labor after cesarean section.

Methods

Eligibility, Information Sources, and Search Strategy

We performed a systematic review and meta-analysis to investigate maternal labor-related complications following induction of labor at 39 weeks of gestation compared with expectant

management. The primary search terms related to labor, induction of labor, and perinatal outcomes and are provided in eTable 1 in Supplement 1. We searched the MEDLINE (Ovid), Embase (Ovid), Cochrane Central Library, World Health Organization, and ClinicalTrials.gov databases and registries for articles published between database inception and December 8, 2022. Randomized clinical trials, cohort studies, and cross-sectional studies investigating the association between elective induction at 39 weeks and perinatal outcomes were included. The included studies compared individuals with an elective induction of labor at 39 weeks of gestation with those who received expectant management thereafter. Studies were excluded if the induction group included individuals with medical indications for induction, if only multiple pregnancies were assessed, or if gestational age parameters were unclear.

This study was registered with PROSPERO (CRD42020204732) and reported according to Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guideline.[18] This study was exempt from institutional review board approval by the Mercy Health Human Research Ethics Committee and informed patient consent requirements were waived because this was a secondary use of deidentified data sets.

Study Selection and Data Extraction

Covidence[19] systematic review software was used for study screening and data extraction. After duplicate studies were removed, 2 reviewers (any 2 of J.H., J.A., A.R.M., or A.M.) independently screened titles, reviewed full texts, and extracted data from eligible studies. Discrepancies were resolved by a third reviewer (R.H.). Where articles reported results from the same study population, results from the larger study were included.[20,21] The following data were extracted: author, year of publication, country of study, study design, study population, parity, maternal outcomes (emergency cesarean section, obstetric anal sphincter injury, postpartum hemorrhage, and operative vaginal delivery), and neonatal outcomes (admission to the neonatal intensive care unit [NICU], low 5-minute Apgar score [<7] after delivery, macrosomia, and shoulder dystocia).

Risk-of-Bias Assessment

Risk of bias was assessed by 2 independent reviewers (J.H. and A.R.M.) using the Newcastle-Ottawa Scale (NOS) for nonrandomized studies and the Cochrane Risk of Bias 2 (RoB 2) tool for randomized studies.[22,23] The NOS examines the quality of nonrandomized studies across 3 domains: study group selection, comparability between the groups, and ascertainment of relevant outcomes (cohort studies) or exposures (case-control studies). The Cochrane RoB 2 tool examines bias across 5 domains: risk of bias arising from randomization, risk of bias due to deviation from intended interventions, missing outcome data, risk of bias in outcome measurement, and risk of bias in reporting results. Conflicts were resolved via reviewer discussion and consultation with an independent third reviewer (R.H.).

Statistical Analysis

For studies reporting the same outcomes, outcome data were pooled using a random-effects model. Results are presented as odds ratios (ORs) with corresponding 95% CIs. For pooled estimates, the I^2 statistic was used to quantify heterogeneity. Subgroup analyses by parity (nulliparity and multiparity) were performed. Statistical analysis was performed using StataMP, version 17 (StataCorp LLC).

Results

Study Selection

Our search identified 5827 articles. After title and abstract screening, 254 full-text articles were screened; of these, 14 studies[10,20,21,24-34] were included (**Figure 1**). These studies reported outcomes of women with a singleton pregnancy, including 86 555 women who were induced at 39 weeks of

gestation. There were 12 retrospective cohort studies,[20,21,24-26,28-34] 1 cross-sectional study,[27] and 1 randomized clinical trial[10] (**Table 1**).

Synthesis of Results

Across the studies, 8 outcomes were commonly reported. These included the maternal outcomes of third- or fourth-degree perineal injury, operative vaginal birth, postpartum hemorrhage, and emergency cesarean section (**Figures 2** and **3** and **Table 2**). Neonatal outcomes commonly reported were macrosomia, shoulder dystocia, NICU admission, and low 5-minute Apgar score (Table 2).

Compared with expectant management, elective induction of labor at 39 weeks of gestation was associated with a 37% reduced likelihood of third- or fourth-degree perineal injury (7

Figure 1. Study Flow Diagram

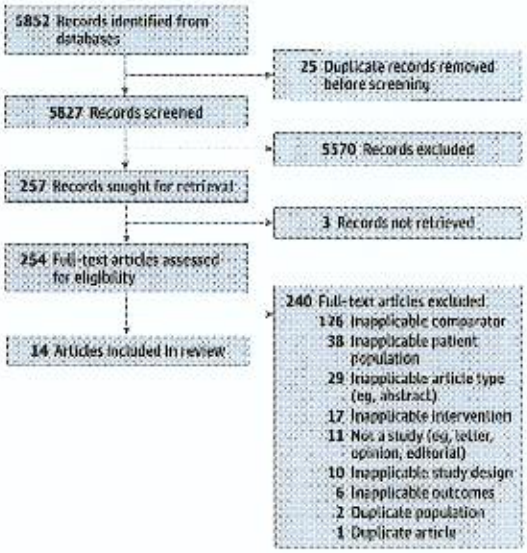


Table 1. Characteristics of Included Studies

Source	Study design	No. of participants	Population
Bailit et al,[28] 2015	Retrospective cohort	24 027	Nulliparous women with a singleton vertex nonanomalous pregnancy
Cheng et al,[25] 2012	Retrospective cohort	61 712	Nulliparous women delivering between 39 and 42 weeks of gestation
Darney et al,[26] 2013	Retrospective cohort	151 707	Women with a singleton pregnancy
Gibbs Pickens et al,[20] 2018	Retrospective cohort	108 662	Women with a BMI >30 and a singleton pregnancy in cephalic presentation
Gibson et al,[27] 2014	Cross-sectional	51 600	Women with a singleton pregnancy in vertex presentation
Grobman et al,[10] 2018	Randomized clinical trial	6096	Low-risk nulliparous women with a nonanomalous singleton pregnancy in vertex presentation
Lappen et al,[24] 2015	Retrospective cohort	3968	Women with a singleton pregnancy undergoing a trial of labor after a previous cesarean section
Lee et al,[21] 2016	Retrospective cohort	37 723	Women with a BMI >30 with a singleton pregnancy and no preexisting comorbidities
Palatnik and Kominiarek,[29] 2020	Retrospective cohort	9375	Women recruited to the consortium safe labor database with a BMI >30 and a singleton pregnancy in cephalic presentation
Park et al,[30] 2022	Retrospective cohort	50 229	Women with a singleton pregnancy and one prior cesarean section birth
Sinkey et al,[31] 2019	Retrospective cohort	2626	Low-risk nulliparous women with a nonanomalous singleton pregnancy in vertex presentation
Souter et al,[32] 2019	Retrospective cohort	27 751	Women with a singleton pregnancy in cephalic presentation without gestational diabetes or preexisting diabetes or hypertension
Stock et al,[33] 2012	Retrospective cohort	827 404	Women with a singleton pregnancy without preexisting disease or a previous adverse pregnancy outcome
Zenzmaier et al,[34] 2021	Retrospective cohort	235 076	Women with a singleton pregnancy without indications for medical induction of labor

Abbreviation: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared).

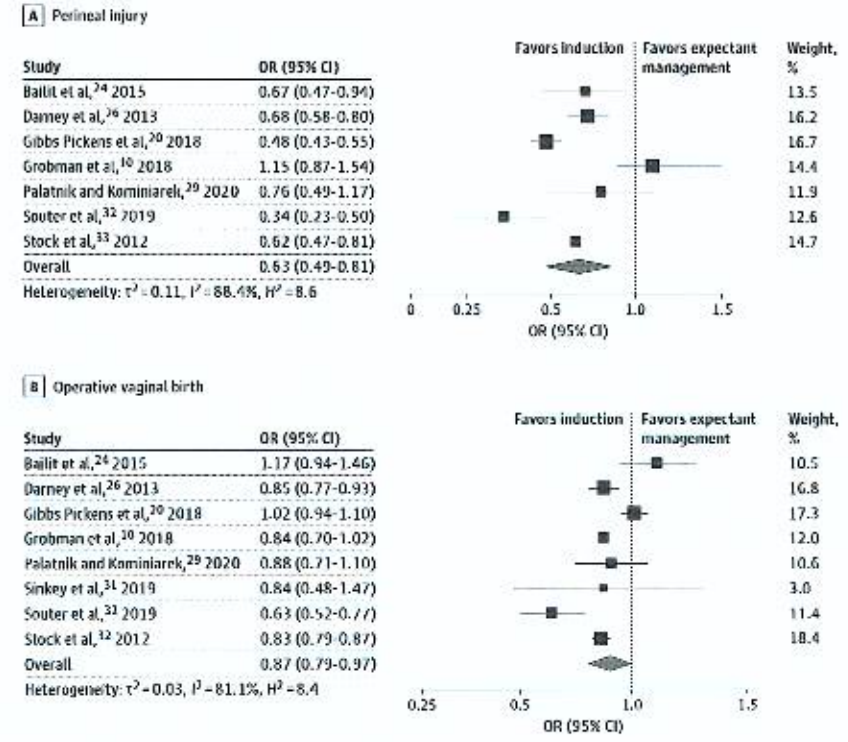
studies[10,20,24,26,29,32,33]; OR, 0.63 [95% CI, 0.49-0.81]) (Figure 2). Induction of labor was also associated with a reduced likelihood of operative vaginal birth (8 studies[10,20,24,26,29,31-33]; OR, 0.87 [95% CI, 0.79-0.97]) (Figure 2). Nonsignificant reductions in postpartum hemorrhage (6 studies[10,21,24,29,32,33]; OR, 0.89 [95% CI, 0.77-1.02]) and emergency cesarean section (14 studies[10,20,21,24-34]; OR, 0.75 [95% CI, 0.53-1.07]) were also observed (Figure 3 and Table 2).

For neonatal outcomes, elective induction was associated with a 34% reduced likelihood of macrosomia (4 studies[20,26,31,32]; OR, 0.66 [95% CI, 0.48-0.91]) and a 38% reduced likelihood of low 5-minute Apgar score (4 studies[10,25,29,32]; OR, 0.62 [95% CI, 0.40-0.96]). There was no difference between groups in the likelihood of shoulder dystocia (5 studies[20,26,27,31,32]; OR, 1.00 [95% CI, 0.91-1.08]) or NICU admission (9 studies[10,20,24,28-33]; OR, 0.84 [95% CI, 0.66-1.08] (Table 2).

Among multiparous women only (n = 336 303), induction of labor at 39 weeks of gestation (n = 27 670) was associated with a reduced likelihood of third- or fourth-degree perineal injury (OR, 0.73 [95% CI, 0.58-0.93]), emergency cesarean section (OR, 0.61 [95% CI, 0.38-0.98]), and macrosomia (OR, 0.69 [95% CI, 0.52-0.92]). Nonsignificant reductions in shoulder dystocia (OR, 0.86 [95% CI, 0.71-1.04]) and NICU admission (OR, 0.78 [95% CI, 0.60-1.02]) were also observed. There were no differences between groups in the likelihood of operative vaginal birth (OR, 1.01 [95% CI, 0.84-1.21]), postpartum hemorrhage (OR, 0.93 [95% CI, 0.66-1.32]), or low 5-minute Apgar score (OR, 0.86 [95% CI, 0.53-1.38]) (**Table 3**).

Among nulliparous women only (n = 407 302), induction at 39 weeks of gestation (n = 31 947) was associated with a decreased likelihood of emergency cesarean section (9 studies[10,20,24-27,29,32,34]; OR, 0.80 [95% CI, 0.70-0.91]) and NICU admission (5 studies[10,20,24,29,32]; OR, 0.75 [95% CI, 0.63-0.89]). There was no difference between groups in terms of third- or fourth-degree perineal injury (OR, 0.97 [95% CI, 0.85-1.10]), operative vaginal birth (OR, 1.11 [95% CI,

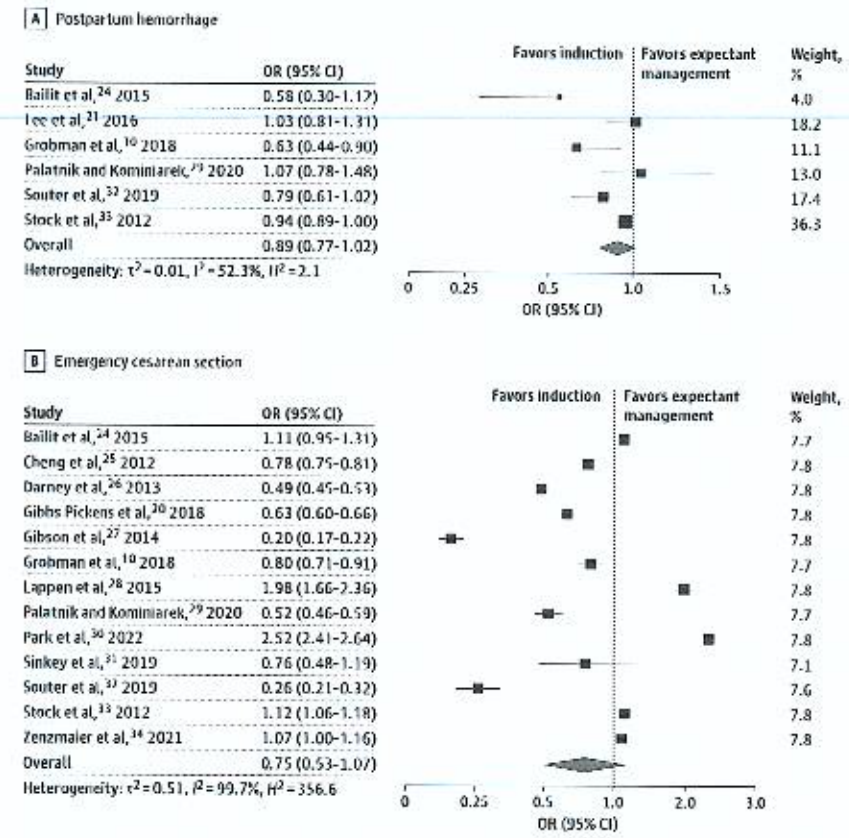
Figure 2. Perineal Injury and Operative Vaginal Birth Among Women Undergoing Elective Induction of Labor at 39 Weeks of Gestation Compared With Expectant Management



Square size denotes weighting. The diamond represents the overall effect size. OR indicates odds ratio.

0.93-1.33]), postpartum hemorrhage (OR, 0.93 [95% CI, 0.77-1.12]), or low 5-minute Apgar score (OR, 0.65 [95% CI, 0.34-1.16]). However, among this group, elective induction at 39 weeks of gestation was associated with an increased likelihood of shoulder dystocia (OR, 1.22 [95% CI, 1.02-1.46]) (Table 3).

Figure 3. Postpartum Hemorrhage and Emergency Cesarean Section Among Women Undergoing Elective Induction of Labor at 39 Weeks of Gestation Compared With Expectant Management



Square size denotes weighting. The diamond represents the overall effect size. OR indicates odds ratio.

Table 2. Induction of Labor at 39 Weeks of Gestation vs Expectant Management

Outcome	No. of studies	Induction of labor, No./total No.	Expectant management, No./total No.	I^2 (%)	Odds ratio (95% CI)[a]
Maternal					
Third- or fourth-degree perinatal injury	7	679/37 575	15 835/1 021 288	88.4	0.63 (0.49-0.81)
Operative vaginal birth	8	3598/45 209	130 357/1 146 394	88.1	0.87 (0.79-0.97)
Postpartum hemorrhage	6	1442/25 563	63 762/932 757	52.3	0.89 (0.77-1.02)
Emergency cesarean section	14	17 876/84 771	206 989/1 501 693	99.7	0.75 (0.53-1.07)
Neonatal					
Macrosomia	4	1081/23 146	24 196/295 524	93.4	0.66 (0.48-0.91)
Shoulder dystocia	5	633/30 078	6725/314 511	78.7	1.00 (0.91-1.08)
NICU admission	9	3392/48 773	74 534/1 039 309	96.8	0.84 (0.66-1.08)
Low Apgar score (<7 at 5 min after delivery)	4	117/21 828	931/97 989	63.5	0.67 (0.40-0.96)

Abbreviation: NICU, neonatal intensive care unit.

[a] Calculated using a random-effects model and including all studies.

Risk of Bias

All observational studies[20,21,24-34] assessed using the NOS were judged to be of good quality (scoring >3 stars in the selection domain, >3 stars in the comparability domain, and >2 stars in the outcome/exposure domain) (eTable 2 in Supplement 1). The single randomized trial[10] included in our review was assessed as low risk of bias across all 5 domains of the Cochrane RoB 2 assessment.

Discussion

The findings of this systematic review and meta-analysis suggest that compared with expectant management, elective induction of labor at 39 weeks of gestation was associated with a decreased likelihood of labor-related complications, including a 37% reduced likelihood of third- or fourth-degree perineal injury. Overall, induction of labor was also associated with a reduced likelihood of operative vaginal birth, macrosomia, and low 5-minute Apgar score. Results were similar when stratified by parity; however, both multiparous and nulliparous women had a reduced likelihood of emergency cesarean section. Among nulliparous women only, elective induction at 39 weeks was associated with an increased likelihood of shoulder dystocia. These findings suggest that compared with expectant management, elective induction of labor at 39 weeks of gestation is associated with lower rates of emergency cesarean section and of other labor-related and neonatal complications.

The practice shift toward elective induction at 39 weeks of gestation has been largely driven by the ARRIVE trial, which demonstrated a decreased risk of emergency cesarean birth with induction compared with expectant management.[10] While subsequent meta-analyses have supported these findings,[11,35,36] others have shown no association between induction of labor and cesarean section rates.[37-40] Our findings are consistent with those of the ARRIVE trial, which demonstrated an 18% reduced likelihood of emergency cesarean section.

Previous meta-analyses examining outcomes following induction of labor at 39 weeks have largely focused on the primary outcome of emergency cesarean section, with limited investigation of other labor-related outcomes. In keeping with our study, a 2020 meta-analysis by Middleton et al[12] found that compared with expectant management, induction of labor was associated with a reduced risk of cesarean section and low 5-minute Apgar score. However, in contrast with our findings, Middleton et al[12] reported no difference in other birthing outcomes including perineal injury, operative vaginal birth, and postpartum hemorrhage. A critical difference between the meta-analysis

Table 3. Adverse Outcomes Stratified by Parity

	Nulliparity (n = 407 302)					Multiparity (n = 336 303)				
Outcome	No. of studies	Induction of labor, No./total No.	Expectant management, No./total No.	I^2	Odds ratio (95% CI)	No. of studies	Induction of labor, No./total No.	Expectant management, No./total No.	I^2	Odds ratio (95% CI)
Maternal										
Third- or fourth-degree perineal injury	6	453/8423	9943/157 637	19.9	0.97 (0.85-1.10)	4	173/14 334	1507/120 423	35.7	0.73 (0.58-0.93)
Operative vaginal birth	6	1063/10 569	18 775/170 734	80.2	1.11 (0.93-1.33)	4	743/17 885	7001/154 691	79.3	1.01 (0.84-1.21)
Postpartum hemorrhage	5	189/4986	2462/72 160	0	0.93 (0.77-1.12)	3	107/4226	1302/49 036	59.4	0.93 (0.66-1.32)
Emergency cesarean section	10	10 209/31 444	108 570/358 554	95.4	0.80 (0.70-0.91)	6	1066/21 760	13 336/214 374	97.5	0.61 (0.38-0.98)
Neonatal										
Macrosomia	3	221/6345	10 346/142 314	93.1	0.65 (0.32-1.36)	3	837/16 358	13 610/151 053	90.9	0.69 (0.52-0.92)
Shoulder dystocia	4	127/7422	2308/147 185	0	1.22 (1.02-1.46)	4	485/22 206	4326/165 087	72.9	0.86 (0.71-1.04)
NICU admission	5	755/8605	8166/97 586	58.4	0.75 (0.63-0.89)	3	638/13 341	4965/84 318	77.1	0.78 (0.60-1.02)
Low Apgar score (<7 at 5 min after delivery)	4	97/18 112	747/68 096	45.6	0.65 (0.34-1.16)	2	20/3715	183/29 891	0	0.66 (0.53-1.38)

Abbreviation: NICU, neonatal intensive care unit.

by Middleton et al[12] and ours is that the former study only included randomized clinical trials and examined outcomes following induction of labor from 37 weeks of gestation rather than induction at 39 weeks only. We chose 39 weeks of gestation because we consider it more clinically relevant: induction of labor without medical indication at 37 weeks of gestation should be discouraged.[41]

To investigate the impact of induction of labor at 39 weeks outside of a randomized trial setting, Grobman and Caughey[11] performed a meta-analysis including only cohort studies. The primary outcome was cesarean section, which they found was reduced with induction of labor compared with expectant management. They also reported a significant reduction in the risk of peripartum infection and a potential trend toward reduced third- and fourth-degree perineal injury (risk ratio, 0.91 [95% CI, 0.78-1.07]) and postpartum hemorrhage (risk ratio, 0.87 [95% CI, 0.54-1.41]).[11] Although nonsignificant, these trends support our findings of a reduced likelihood of perineal injury and a potential reduction in postpartum hemorrhage.

Stratifying our analysis by parity, the results for multiparous women were comparable with those for the total population. However, induction of labor was also associated with a reduced likelihood of emergency cesarean section and macrosomia. Interestingly, nulliparous women were more likely to have a birth complicated by shoulder dystocia following induction of labor. To date, this finding has not been reported in previous meta-analyses and an explanation for it is not immediately clear.

To our knowledge, this is the largest systematic review and meta-analysis to examine maternal and neonatal complications following elective induction of labor at 39 weeks of gestation compared with expectant management. Our findings are largely reassuring. Among the 1 625 899 women included in the 14 studies reviewed, induction of labor at 39 weeks was associated with reduced maternal and neonatal complications. This provides further evidence that suggests the safety of induction of labor at 39 weeks. Importantly, these results may be applicable to a broader obstetric population, given the inclusion of both nulliparous and multiparous women, individuals with a BMI greater than 30, and women undergoing a trial of labor after a previous cesarean section. We examined differences between induction of labor and expectant management more holistically, investigating important maternal and neonatal outcomes that may contribute to shared decision making between clinicians and patients. We also demonstrated an important difference between nulliparous and multiparous women, and these results should be used to provide more personalized evidence to women considering induction of labor.

Limitations

This systematic review and meta-analysis was limited by the small number of observational studies and relevant randomized trials. Given that the majority of included studies were observational, our results may have been affected by classification biases, specifically misclassification of the outcomes and potentially underreporting. Moreover, these observational studies may also have been affected by uncontrolled or unmeasured confounding factors. Thus, further randomized clinical trials are needed to strengthen the existing evidence base in this setting.

Conclusions

This review of 1 625 899 women from 14 studies found that elective induction of labor at 39 weeks of gestation compared with expectant management was associated with improved labor-related outcomes, including a 37% reduction in perineal injury risk. Our findings suggest that elective induction of labor at 39 weeks of gestation is likely to be safe and beneficial for some women, but the benefits must be weighed against the potential increased risks of shoulder dystocia among nulliparous individuals.

ARTICLE INFORMATION

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Drafting of the manuscript: Hong, Atkinson, Tong, Lindquist, Hastie.

Critical revision of the manuscript for important intellectual content: All authors.

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SUPPLEMENT 1.
eTable 1. Included Search Terms
eTable 2. Newcastle-Ottawa Quality Assessment Scale for Nonrandomized Studies

SUPPLEMENT 2.
Data Sharing Statement