

A Digital Approach to Caesarean Section Audit - Robson Caesarean Calc© Application

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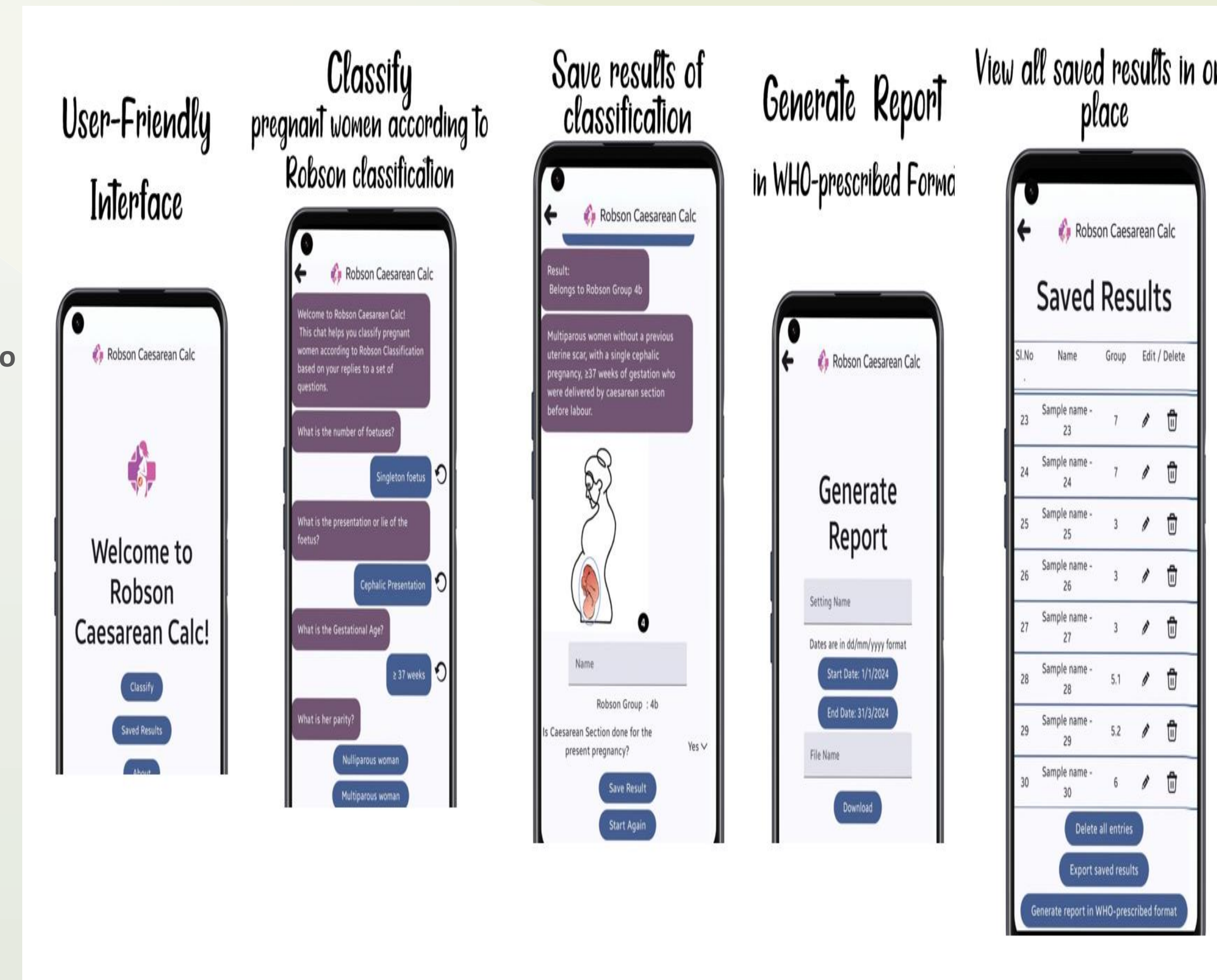
Problem Statement / Digital Challenge

Key Operational / Clinical Challenge

- Caesarean section rates are rising globally and in India, especially in tertiary care setting
- Although the WHO recommends the Robson TGCS classification for audit, its implementation is often inconsistent in real time.
- Manual CS audit processes are time-consuming, inconsistent, prone to errors and often result in incomplete data
- This makes it difficult to identify which patient groups are contributing most to the CS rate and where we can intervene effectively.

Stakeholders Affected

- Clinicians / Obstetricians: Difficulty in identifying trends and planning interventions
- Residents & Nursing Staff: Errors and inconsistency in manual classification
- Hospital Administration: Increased audit workload Patients: Indirect impact due to potentially avoidable caesarean sections



Digital Implementation Highlight

Time Taken for Rollout

- Rapid implementation within a short time frame (few days to weeks)
- No complex infrastructure or software setup required
- Pilot initiated in labour room followed by full-scale integration into routine workflow in obstetrics unit

Staff Trained / Departments Covered

- Residents, interns, nursing staff, and consultants trained with Minimal effort due to its simplicity - intuitive, user-friendly interface
- Easily adoptable even by first-time users of Robson TGCS
- Initiative Led by Department of Obstetrics & Gynaecology, AIIMS Mangalagiri
- Residents acted as key drivers for implementation and data entry

Key Enablers

- User-friendly design → enabled quick adoption
- Offline functionality → ensures usability in low-resource and high-volume settings
- Minimal training requirement → rapid onboarding of interns, residents and nursing staff
- Faculty leadership & institutional support → drove implementation
- WHO-aligned standardized system (Robson TGCS) → ensured acceptance and credibility
- Real-time data capture → improved completeness and reliability of audit data
- Free of cost, easily downloadable

Challenges

- Requires access to smartphone/computer
- Dependence on accurate data entry → requires attention and accountability at point-of-care
- Limited language interface (English only) → may affect wider adoption in some settings(current limitation)

Strengths of the App

- The biggest strength of our app is that it enables accurate classification by all healthcare workers—including junior doctors and nurses.
- It simplifies audits, improves workflow, and ultimately contributes to better healthcare delivery.
- It is easy to use, freely available, easily downloada

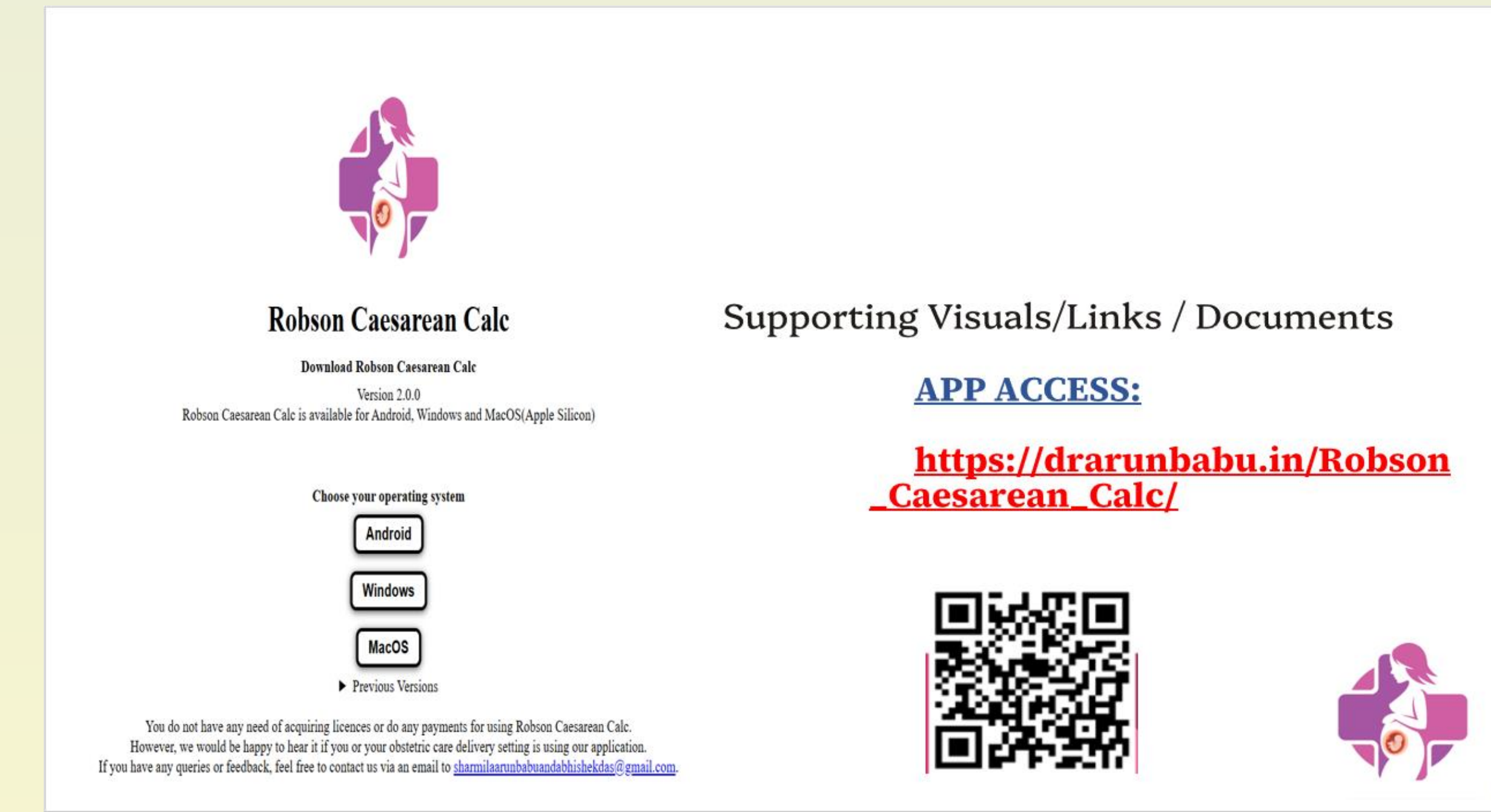
Key Learnings

- Simplicity drives adoption → a user-friendly, low-input design ensures rapid uptake across all cadres
- Real-time digital entry improves data quality → eliminates missing data and enhances audit reliability
- Data → Insight → Action → structured digital audits enable targeted clinical strategies

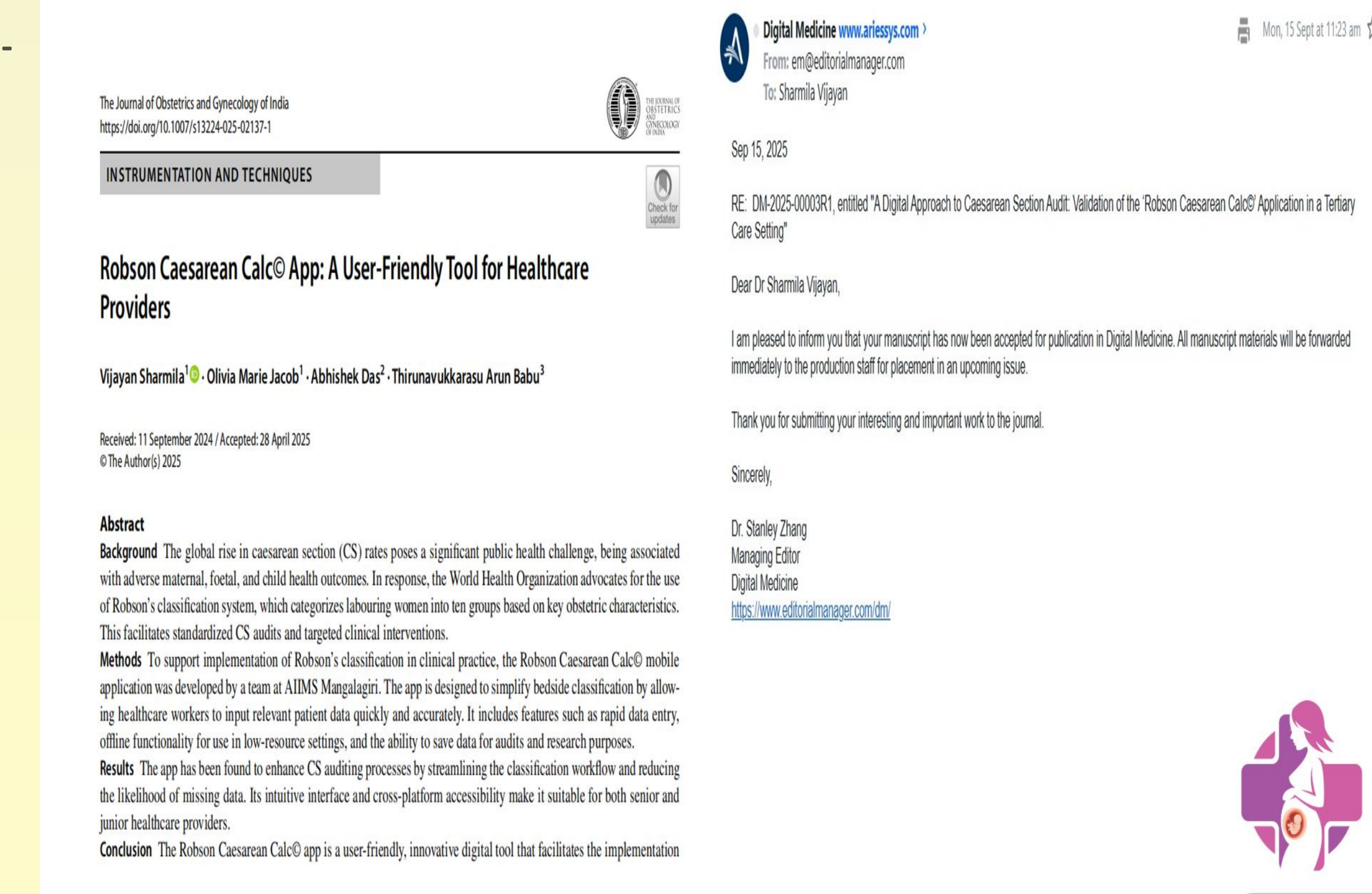
What Other Hospitals Should Consider?

- Intuitive interface - Ensures ease of use and minimal training requirement for frontline staff
- Offline capability for reliability in all settings
- Build clinical ownership (faculty-led implementation) for sustainability
- Use data not just for reporting, but for regular audit meetings and decision-making

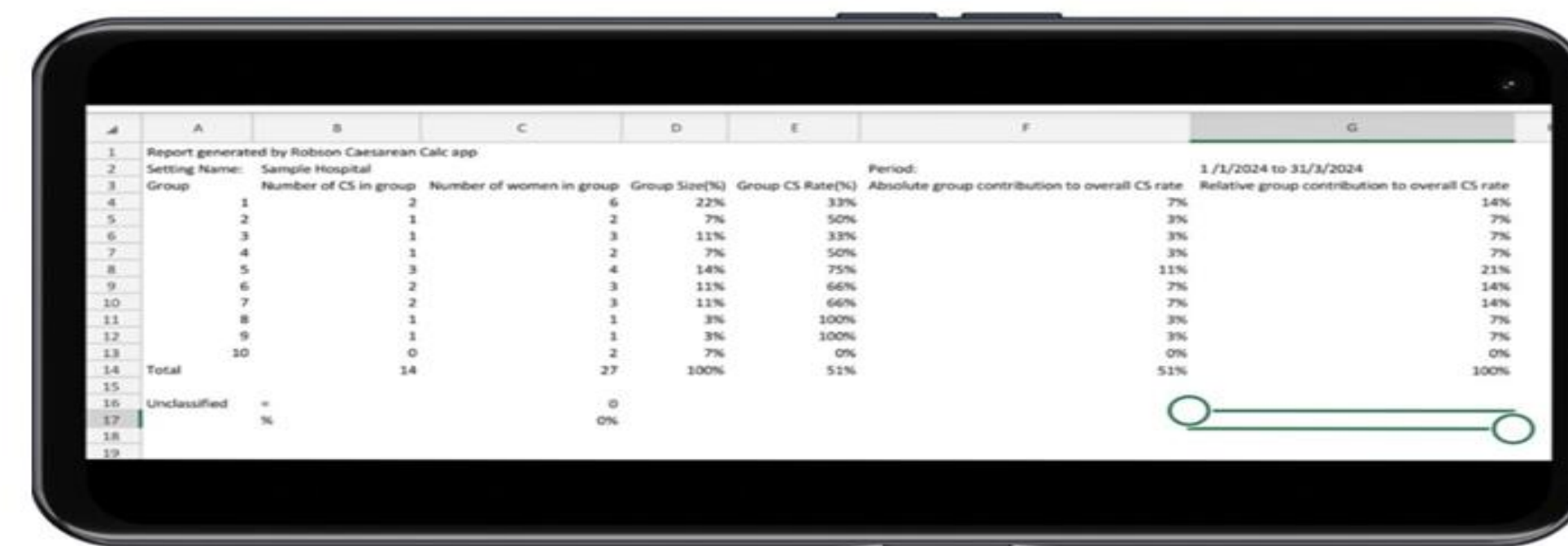
Supporting Visuals/Links / Documents



Relevant Links / Documents



Download report and view in external spreadsheet software



Report

Report generated by Robson Caesarean Calc app

Setting Name: AIIMS Mangalagiri

Period: 4/11/2025 to 4/12/2025

Group	Number of CS in group	Number of women in group	Group Size(%)	Group CS Rate(%)	Absolute group contribution to overall CS rate	Relative group contribution to overall CS rate
1	8	27	29.03%	29.63%	8.60%	15.38%
2	8	15	16.13%	15.33%	8.60%	15.38%
3	3	14	15.05%	21.43%	3.23%	5.77%
4	0	0	0.00%	0.00%	0.00%	0.00%
5	30	32	34.41%	93.75%	32.26%	57.69%
6	0	0	0.00%	0.00%	0.00%	0.00%
7	1	1	1.08%	100.00%	1.02%	1.92%
8	0	1	1.08%	0.00%	0.00%	0.00%
9	0	0	0.00%	0.00%	0.00%	0.00%
10	2	3	3.23%	66.67%	2.15%	3.85%
Total	52	93	100%	55.91%	55.91%	100%

Key results generated with Robson calc app from recent data over 3 months

Robson's Group	No of group	No of women in group	Group size	Group CS rate	Absolute group contribution to overall CS rate	Relative contribution of group to overall CS rate
1	23	96	29.2	24.0	7.0	15.3
2	24	49	14.9	49.0	7.3	16.0
3	5	56	17.0	8.9	1.5	3.3
4	0	4	1.2	0.0	0.0	0.0
5	76	85	25.8	89.4	23.1	50.7
6	5	5	1.5	100.0	1.5	3.3
7	2	2	0.6	100.0	0.6	1.3
8	2	3	0.9	66.7	0.6	1.3
9	1	1	0.3	100.0	0.3	0.7
10	12	28	8.5	42.9	3.6	8.0
Total	150	329			45.6	100.0

Conclusion

Robson Caesarean Calc© is not just an application- it is a scalable digital solution that transforms audit into actionable clinical insight.

It has the potential to improve maternal outcomes and help reduce unnecessary caesarean sections

SALIENT FEATURES

Robson Caesarean Calc is an innovative health care application to classify deliveries according to WHO endorsed Robson classification and audit caesarean section rates among health care facilities and hence will prove highly beneficial for all the Obstetricians worldwide.

The app has a user friendly interface with features to:

- Classify pregnancies according to the WHO endorsed Robson Classification system
- Save and View all saved results in one page with edit, delete and filter options
- Generate structured reports in WHO-prescribed format that provides comprehensive insights
- Import and export options for Collaboration and Data can be shared for auditing/academic purposes
- Options to choose between light or dark mode, or sync with system settings.
- The App operates offline, ensuring data privacy and is available for Android, Windows and Linux OS.
- Available for free download at https://drarunbabu.in/Robson_Caesarean_Calc/ or by scanning the following QR Code:

