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Why Southern Rajasthan Needs an ICMR Centre: A Case for Udaipur, Salumbar and Pratapgarh

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ABSTRACT

Southern Rajasthan, especially the Udaipur–Salumbar–Pratapgarh belt, requires a dedicated Indian Council of Medical Research (ICMR) centre because it combines a large tribal population, difficult forest and hill geography, a distinctive disease ecology, and important gaps in locally generated health evidence. The argument is not that existing medical colleges, district hospitals or the ICMR-National Institute of Health Research (NIHR), Jodhpur, are unnecessary. Rather, the region needs a permanent field-facing institution that can study health problems where they occur, strengthen district surveillance, train local researchers and translate evidence into public-health action. This chronological review traces the evolution of India's biomedical and tribal-health research agenda, examines the specific evidence from southern Rajasthan, and proposes the functions of a centre headquartered at Udaipur with field units in Salumbar and Pratapgarh.

Keywords: ICMR, Southern Rajasthan, NIHR, Health, Tribal Health

INTRODUCTION: FROM A NATIONAL MANDATE TO A REGIONAL NECESSITY

The case for an ICMR centre in southern Rajasthan begins with the constitutional and public-health principle that health research should reach populations whose needs are least visible. ICMR describes itself as India's apex body for formulating, coordinating and promoting biomedical research. Its stated mission specifically prioritizes vulnerable, disadvantaged and marginalized communities, strengthens research capacity in medical institutions, and translates innovations into the public-health system [1, 2]. A centre in southern Rajasthan would therefore be a direct application of ICMR's own mandate rather than an expansion based only on institutional prestige.

The proposed catchment is strategically coherent. Udaipur is a major education, referral and administrative hub; Salumbar, carved out as a separate district in the recent administrative reorganization, contains extensive rural and tribal areas; and Pratapgarh is part of the southern tribal belt adjoining the districts of Banswara, Dungarpur and Chittorgarh. The older district boundaries used in many surveys do not always match current administrative boundaries. This is important: the creation of Salumbar should not fragment epidemiological monitoring. A regional centre could maintain a longitudinal southern Rajasthan health observatory across present and former districts.[3, 4]

1911–1984: THE HISTORICAL LOGIC OF REGION-SPECIFIC RESEARCH

ICMR's institutional history reflects the idea that India's health problems are not uniform. The Council developed as a national coordinating body, but its research institutes have generally emerged around particular disease ecologies, populations or scientific needs. In Rajasthan, the earlier Desert Medicine Research Centre was established at Jodhpur on 27 June 1984. Its location recognized that arid ecology, climate, vector patterns, nutrition and occupational exposures could not be adequately understood from a distant metropolitan laboratory. The institute later became the National Institute for Implementation Research on Non-Communicable Diseases in 2019 and was redesignated the ICMR-National Institute of Health Research in 2026 [3, 4, 5].

This history is relevant to southern Rajasthan for two reasons. First, Jodhpur's existence demonstrates that regional biomedical research is compatible with a national ICMR structure. Second, Jodhpur cannot substitute for a permanent institution in the south-eastern and tribal part of the state. Southern Rajasthan differs from the Thar region in topography, rainfall, forest ecology, livelihoods, migration patterns, tribal composition and disease exposure. A single state-level institute located in the west cannot provide continuous field presence across remote blocks hundreds of kilometres away. Occasional projects are valuable, but they do not create the institutional memory needed for surveillance, cohort follow-up and implementation research.[6, 7]

2013–2018: THE TRIBAL-HEALTH EVIDENCE GAP BECOMES EXPLICIT

A major turning point came when the Ministry of Health and Family Welfare and the Ministry of Tribal Affairs appointed an Expert Committee on Tribal Health in 2013. After five years of work, the committee's 2018 report concluded that tribal populations continued to experience the country's worst health and nutritional status, a triple burden of communicable disease, non-communicable disease and malnutrition, and deficiencies in health infrastructure and human resources. It also identified a central information problem: tribal health was neglected partly because tribal-specific data were inadequate and because research and administrative systems were not sufficiently designed for tribal geography and culture. [8, 9]

The report recommended substantial expansion of tribal-health research and proposed dedicated research and administrative mechanisms. This is more than a general argument for "more studies." It means that routine health records, national surveys and hospital statistics must be supplemented by locally designed studies that can explain why a service is or is not used. In hilly and dispersed settlements, distance to a facility may interact with transport costs, seasonal migration, language, trust, gender norms, traditional healing and the perceived quality of care. These mechanisms cannot be inferred reliably from urban hospital data.[10, 11, 12]

The same conclusion was emphasized by Bang in 2023: research should be conducted in tribal areas, begin by listening to tribal people, and move from research "on" communities toward research for, with and eventually by them 4. Udaipur is well placed to host that approach because it already has medical, nursing, public-health, social-science and civil-society institutions that could support community partnerships. Salumbar and Pratapgarh would provide essential field sites rather than being treated merely as peripheral beneficiaries. [1, 2, 14, 15]

2011–2021: POPULATION, GEOGRAPHY AND HEALTH-SYSTEM RELEVANCE

Census 2011 remains the most consistent population baseline for tribal composition. The Census provides district-level Scheduled Tribe tables for Rajasthan, including tribe, sex, religion and rural–urban disaggregation for Pratapgarh 5. Rajasthan's Scheduled Tribes include Bhil, Bhil Garasia, Garasia, Damor, Meena and other communities with different histories and settlement patterns. The Udaipur district profile records a population of 3,068,420 in 2011, with approximately four-fifths living in rural areas; government district material reports a Scheduled Tribe share of about 49.7% for Udaipur 6. Pratapgarh's 2011 population was 867,848 according to the Rajasthan Foundation profile 7. These figures describe a large and predominantly rural service population, not a small special-interest group.[1, 2, 3, 16, 17]

Current population totals will have changed, and the formation of Salumbar means that older figures cannot simply be added together. Nevertheless, the baseline establishes the scale and continuity of need. Research planning should therefore use updated district and block denominators while retaining Census 2011 as the historical reference. A centre would be able to generate a harmonized geographic information system linking villages, hamlets, schools, anganwadi centres, health facilities, roads, seasonal migration routes and disease events.[5, 6, 18, 19]

NFHS-5, conducted in 2019–21, provides district-level estimates for many population, health and nutrition indicators. Its design included household, women's, men's and biomarker questionnaires, including haemoglobin, anthropometry, blood pressure and glucose measures, with estimates designed for districts among 707 districts in the survey frame. NFHS is indispensable for comparison, but it is not a replacement for a regional research institution. It is a periodic survey, not a continuous surveillance platform; it is not designed to answer every local clinical or implementation question; and newly formed districts may not align with its sampling frame. An ICMR centre could use NFHS indicators as a baseline and then investigate the pathways behind them through repeated community studies.[7, 8, 20, 21, 22]

2022–2023: DIRECT EVIDENCE FROM SOUTHERN RAJASTHAN

The strongest direct argument for a southern Rajasthan centre comes from the ICMR-linked study of sickle-cell disease among tribal students. Mohanty and colleagues screened 36,752 students from 1,006 Maa-Baadi centres and 243 hostels across five tribal sub-plan districts of Rajasthan 9. The overall prevalence of sickle-cell disorder was 5.8%. District-specific prevalence was 6.53% in Udaipur and 5.51% in Pratapgarh; the highest prevalence among the major tribes was reported among Garasia students at 13.81%. The study also detected confirmed disease, not only carrier status, and documented clinical features such as leg ulcers and increased pulse rate. [10, 23, 24, 25]

This study demonstrates both need and feasibility. It shows that the region contains a measurable genetic-health burden requiring screening, counselling, referral, follow-up and family-oriented prevention. It also shows that research can be delivered through local educational and community structures. However, a pilot school-based study cannot answer all the questions required for a sustainable programme. A permanent centre could establish birth and adolescent screening pathways, confirmatory diagnostics, genetic counselling, hydroxyurea and pain-management follow-up, transfusion referral, pregnancy surveillance, and a privacy-protecting registry. It could also examine the social consequences of carrier status and ensure that testing does not produce stigma or discrimination.[11, 13, 26, 27]

Sickle-cell disease is only one example. The southern tribal belt experiences a changing combination of communicable disease, undernutrition, anaemia, maternal and child-health problems, occupational exposures and non-communicable diseases. The national literature describes this as a "triple" or, more accurately in some settings, quadruple burden that also includes mental health problems and addictions. Climate and land-use changes may alter mosquito and tick habitats. The region's forests, agricultural work, livestock contact and seasonal mobility create a One Health setting in which human, animal and environmental surveillance should be connected. Recent work on scrub-typhus risk in the Udaipur region illustrates why locally anchored ecological and laboratory research is needed rather than relying only on national averages. [28, 29]

Maternal and child health needs the same approach. Evidence from tribal communities elsewhere in India identifies poverty, geographical isolation, inadequate transport, lim-

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ited nutrition, gendered workload, harmful practices and poorly equipped facilities as interacting risks [12]. These findings should not be mechanically generalized to Udaipur, Salumbar or Pratapgarh, but they define questions that must be tested locally: when do women begin antenatal care; which barriers cause delay; how are high-risk pregnancies referred during the monsoon; what is the actual quality of newborn and sickle-cell care; and how do migration and food insecurity affect child growth and anaemia?[30, 31]

WHY UDAIPUR SHOULD BE THE HEADQUARTERS, WITH SALUMBAR AND PRATAPGARH FIELD UNITS

Udaipur is the logical headquarters because it combines a large tribal catchment with tertiary clinical services, medical education, laboratory potential, transport connectivity and established links with surrounding districts. A headquarters in Udaipur would make it possible to recruit scientists and technologists while maintaining field laboratories and implementation teams in Salumbar and Pratapgarh. The centre should not become an urban hospital research department with occasional rural camps. Its defining feature should be distributed field capacity.[32, 33, 34]

Salumbar should host a field unit focused on dispersed rural and tribal populations, maternal-child health, nutrition, migration and health-system access. Pratapgarh should host a field unit focused on tribal epidemiology, sickle-cell and other inherited disorders, anaemia, adolescent health, infectious disease and community-based surveillance. The two units would share protocols, laboratories, data systems and ethics oversight with Udaipur. Community advisory boards with representation from tribal women, youth, traditional healers, frontline workers, local government and civil-society organizations should participate in priority-setting.[35, 36, 37]

WHAT THE CENTRE SHOULD DO

The proposed centre should have five linked functions. First, it should operate a regional disease-surveillance and health-information platform that integrates laboratory data, primary-care records, verbal autopsies, school screening and environmental information. Second, it should conduct longitudinal research on sickle-cell disease, anaemia, nutrition, maternal-child health, tuberculosis, malaria, febrile illnesses, non-communicable diseases and mental health. Third, it should develop and evaluate practical interventions such as mobile diagnostics, teleconsultation, referral transport, community health-worker training and culturally appropriate health communication.[1, 38]

Fourth, it should strengthen human resources by offering research training, field epidemiology placements, laboratory fellowships and mentorship for faculty from Government Medical College Udaipur and neighbouring institutions. Fifth, it should function as a translation unit: evidence must return to district health authorities in usable forms such as dashboards, protocols, procurement specifications and training modules. ICMR's mandate explicitly includes taking medical innovations into the public-health system. A centre that only produces publications would not meet that mandate.[3, 6, 9, 10, 39, 40, 41, 42]

CONCLUSION

The chronological record is cumulative. ICMR's mandate has long supported research for vulnerable populations. Rajasthan's regional institute at Jodhpur established the value of location-specific research, but its desert orientation and western location do not provide continuous coverage for southern Rajasthan. The 2013–2018 national tribal-health process identified missing tribal-specific data and the need for dedicated research. Census and NFHS frameworks show a large, rural and changing population base. The 2022–2023 sickle-cell evidence demonstrates a substantial, locally specific burden in Udaipur and Pratapgarh and proves that field research is practicable. More recent evidence on maternal-child health and emerging infections strengthens the argument for a One Health, life-course and implementation-research model.

An ICMR centre headquartered in Udaipur, with permanent field units in Salumbar and Pratapgarh, would therefore fill a geographic, scientific and equity gap. Its purpose should be not to duplicate existing hospitals, but to connect communities, district systems, medical colleges and national programmes through continuous evidence. Southern Rajasthan needs a centre because its health problems are regionally distinctive, its most vulnerable populations remain underrepresented in routine data, and the solutions required must be researched and implemented close to where people live.

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