are by no means infallible and several examples in support can be cited.

Perceptions with respect to the safety of food irradiation are likely to vary depending on (a) whether one looks at the problem from the point of view of an export-oriented food economy or otherwise, and (b) whether the one looking at the problem is the manufacturer and technologist who has been actively engaged in the development and promotion of the irradiation technology or a health scientist concerned with the health of the consumer.

Wheat is a food commodity in wide daily use by millions of people in this country. There are several well-tested, well-proven, safe, satisfactory and inexpensive methods of storage and preservation of wheat which are already in wide use. Under the circumstances, we see no valid reason for taking unnecessary risks with wheat which is the sole source of calories, proteins and nutrients for millions of poor in this country.

There is yet another important consideration which Health and Food Regulatory Agencies should take into account. At present, we have no simple and feasible methods which will help regulatory agencies to identify if foods have been irradiated and if so the dosage levels employed in the irradiation of different food items. In this regard, the regulatory sector has to depend entirely on certificates issued by the manufacturer and agencies conducting the food irradiation.

Our Government's earlier decision not to accord clearance for wheat irradiation at this stage was a prudent and eminently sensible one. It was a decision obviously motivated by the Government's desire not to take unnecessary risks with respect to a major food item which happens to be the staple of millions in this country. The recent reversal of that decision is unfortunate and unnecessary. In the interests of public health and safety, we hope that the Government will rescind this clearance immediately. The doubts and reservations which are being currently widely expressed all over the world (not just in India) over this matter should not be lightly brushed aside.

We are grateful to UNICEF for a matching grant towards the cost of this publication.

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**Health Care in Uttar Pradesh and Bihar**

K.N. Agarwal and D.K. Agarwal

Latest estimates (1985) of infant mortality rates (IMR) for the country from the Office of the Registrar General of India, based on the Sample Registration, indicate that IMR for the country as a whole now stands at 95 per thousand live births — 105 for rural areas and 57 for urban areas. These figures do represent a gratifying declining trend, but obviously, great progress needs to be achieved before we can hope to reach even the target of IMR 60 by 2000 A.D.

"Average" figures of IMR in a vast country with wide regional disparities with respect to the outreach and quality of health care can be misleading. The most "backward" States from the point of view of health care appear to be Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh and Orissa. According to the latest estimates, IMR in Uttar Pradesh still stands at 140, that in Orissa at 130, Madhya Pradesh 122, Assam 111, Rajasthan 108 and Bihar 105. The relatively "bright spots" are the southern States and Punjab, with Kerala very much in the forefront (32). No State in the country, other than Kerala, has yet achieved an average IMR of less than 60.

**The Health Profile**

Even "average" figures for individual States do not reveal the whole story. For example, there are pockets in rural Bihar and Uttar Pradesh with IMR far exceeding the State average — Gaya 245, Madhubani 180, Khagaria 162, all in Bihar; and Ghazipur 175 and Bareilly 160 in Uttar Pradesh (Agarwal, D.K. and Agarwal, K.N., _Ind. Pediatr._ — in press). According to official health statistics, over 35 percent of infant deaths in both States are attributable to "prematurity" (low birth weight). A study of 678 consecutive births in rural Varanasi showed that more than 50 percent of infants weighed less than 2500 g (Agarwal D.K., Proc. UNICEF Workshop — _MCH profile of Varanasi_, p. 75, 1985).

Malnutrition, according to official reports for 1982, is claimed to account for 10.3 percent of infant deaths in rural India, but this figure is possibly a debatable underestimate of the "nutrition factor" as a determinant of infant mortality, in view of the fact that apart from deaths directly attributable to extreme undernutrition, several undernourished children could be dying of terminal infections and may not therefore be listed as deaths from malnutrition. In both Bihar and Uttar Pradesh, neonatal tetanus still remains the major cause of neonatal deaths — > 60 percent in Uttar Pradesh and > 30 percent in Bihar. Genito-urinary infections in women, following on sterilisation and IUD insertions are by no means rare. Infection abscess following on DPT, TT or measles vaccination is not uncommon. Only 10 percent to 12 percent of pregnant women being covered by the anaemia prophylaxis programme (ICMR survey—authors) though surveys have revealed that 81 percent of pregnant women in Bihar and 87 percent in Uttar Pradesh had haemoglobin levels below 11 g/dl.

Forty percent of pregnant women in Bihar and Uttar Pradesh weigh less than

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**Table: Comparison of health facilities and related factors in four States**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Bihar</th>
<th>Uttar Pradesh</th>
<th>Kerala</th>
<th>Punjab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population (million)</td>
<td>69.9</td>
<td>110.8</td>
<td>25.4</td>
<td>16.8</td>
</tr>
<tr>
<td>Population below &quot;poverty line&quot;</td>
<td>57.5%</td>
<td>50%</td>
<td>47%</td>
<td>15.3%</td>
</tr>
<tr>
<td>Total number of registered nurses</td>
<td>8199</td>
<td></td>
<td>8567</td>
<td>16179</td>
</tr>
<tr>
<td>Total number of registered midwives</td>
<td>7109</td>
<td></td>
<td>10945</td>
<td>15886</td>
</tr>
<tr>
<td>Available hospital beds per lakh population</td>
<td>31.4</td>
<td>40.2</td>
<td>169</td>
<td>87</td>
</tr>
<tr>
<td>Literacy (female rural)</td>
<td>10.17</td>
<td></td>
<td>9.49</td>
<td>64.25</td>
</tr>
<tr>
<td>Percentage of marriages at which girls are below 15 years of age</td>
<td>71%</td>
<td>45%</td>
<td>negligible</td>
<td>negligible</td>
</tr>
<tr>
<td>Per caput annual expenditure on health services (1982)</td>
<td>Rs.15.6</td>
<td>17.38</td>
<td>36.81</td>
<td>32.66</td>
</tr>
</tbody>
</table>

*Ref: Health Statistics of India, 1985, CSBII, DGHS, Ministry of Health & F.W., G.O.I., N. Delhi*
45 kg in the third trimester (Agarwal, D.K., Agarwal K.N. and Tripathi, A.M.: Ind. Pediatr. 24:119, 1987). According to Khan et al. (ICMR/Ford Foundation Workshop, Gauhati, 1983), on an average, just 27 patients/day visited PHCs in Bihar as against 69 and 84 in Gujarat and Kerala respectively. In Bihar, each patient had to spend, on an average, 72 minutes to get medical care and finally got only 1.4 and 1.7 minutes' attention respectively. All this is a sad and eloquent commentary on the current status of health services in the two States.

We carried out a survey of the current status of health care services in four districts of Uttar Pradesh and five districts of Bihar in 1985 and 1986. The survey involved visits to 26 primary health centres and 58 sub-centres; our team spent 10 to 15 days at each primary health centre. A part of the results of our studies has been reported elsewhere (Ind. Pediatr. 24:119, 1987 and ibid. in press). Some of the data have been presented in the accompanying table wherein we have tried to compare what perhaps are the two most "backward" States in the country with the two most "forward" ones. In this communication, we set out some of our major conclusions of practical and operational significance and offer some suggestions for improvement of health services in the two States.

**Major Shortcomings**

The "backwardness" of the health system in Uttar Pradesh and Bihar cannot all be attributed to the inadequacies in health services and in the official "providers" of health care alone. The widespread illiteracy (especially female illiteracy), the absence of viable governmental efforts and non-governmental movements to organise rural women for constructive developmental programmes, poor transport and communication facilities, striking inadequacies with respect to safe drinking water and environmental sanitation, and more than all that, the pervasive poverty — all contribute very heavily to the current poor state of health and health care in the two States. The tremendous stimulus provided in the case of Kerala by female literacy and the socio-political forces, and in the case of Punjab by the economic prosperity accruing from the successful "green revolution" are unfortunately absent here.

While not minimising the importance of these socio-economic factors, in this communication we wish to point out some glaring inadequacies in the health services as such, as revealed by our surveys.

- **Emphasis on family planning targets to the relative neglect of other duties**: A major distortion in health care has been brought about by the the wholly ill-conceived policy of setting of specific targets for birth control activities — especially sterilisation. Primary health care, instead of being operated as an integrated programme for promotion of health and well-being is being reduced to a "one point" programme aimed at reducing births. It is not surprising that this ill-conceived approach is not achieving the expected results even with respect to family planning. Health functionaries pressurised by family targets have learnt to largely neglect the other components of primary health care which are not being subjected to any achievement audit.

- **The auxiliary nurse midwife (ANM)**: The key person in the health care chain at the sub-centre is the ANM. Quite often, she does not reside near the sub-centre, for the reason that she either does not have a proper residential building or does not consider it "safe" to reside in it. Under the circumstances, her attendance even at the sub-centre itself is not punctual, and domiciliary visits to the villages under her care are extremely infrequent.

- **Medical officers**: Medical officers who are expected to set the tone and provide the leadership often prefer to reside (and practise) in the town rather than near the Primary Health Centre (PHC); the reasons advanced again are non-availability of suitable residential accommodation near the PHC, lack of facilities for their children's education and other basic amenities. Many PHCs are short of medical officers; frequently doctors with post-graduate qualifications in a special area are assigned duties quite outside their speciality leading to frustration; essential drugs needed at the centre are not supplied regularly and requests for their replenishment are ignored.

- **Apathy of the community**: Partly because health personnel are not available at regular times in the centre or sub-centre, the community has learnt not to depend too much on the health service. The impression on the part of the community that the health staff are more intent on achieving family planning targets rather than curing the sick has certainly not endeared the health services.

- **Poor transport facilities**: The mobility of health personnel is seriously hampered for lack of transport facilities. The ANM has to wait for her "confirmation" before she qualifies for a bicycle allowance. The vehicles available at the PHC are often withdrawn by the "higher-ups" in the district administration for their 'own' work in the non-health sector. In fact, only 60 percent of PHCs in Bihar have any vehicle at all. Though, on paper, there is an allocation of Rs. 20,000 per year for maintenance of vehicles, it often takes months to get even small repairs done because all jobs have to be sanctioned at the State headquarters by no less a functionary than the "Deputy Director, Technical Engineering"!

- **We are not diluting on other inadequacies in the health system such as (a) lack of concerted efforts to establish rapport and communication with the community, (b) poor orientation and training of health personnel, (c) poor supportive supervision and (d) ineffective functional linkages with other related services such as ICDS, rural development programmes and the rural school system. These have been discussed in several earlier communications.**

**Suggested Remedial Measures**

**Community involvement**: In any programme for the improvement of the health system, highest priority must be given to measures designed to energise and enthuse the community to become an active partner and participant in the health care system. Towards this end, imaginative programmes of the type advocated by the Nutrition Foundation of India in its earlier publications (Gopalan, C.: Home Science and Vocational Training for Rural Girls — Bull. Nutr. Found. India 5.1:1984; Health/Nutrition Education through the Rural School System: Nutr. Found. India. Scientific Report 3, 1984) need to be implemented. The growth and development of effective village community organisations — especially women's organisations — deserves encouragement. The psychological barriers that now seem to divide the "providers" and "recipients" of health care need to be bridged.

**Overcoming administrative and**
logistic problems: Many of the administrative and logistic problems that now hamper the effective functioning of health services can be easily removed by more imaginative and less irksome administrative procedures.

Recruitment to posts of medical officers in the health services should be done on a regular annual basis so that vacancies do not remain unfilled for long periods as at present; capricious transfers based on political considerations must be checked at the highest levels. Promotions to higher positions should not be withheld for unduly long periods. Decent accommodation and basic facilities for education of children, etc. must be provided if doctors should be attracted to serve in rural areas. The scarcity of drugs, and the poor facilities for expert care and referral, need to be overcome. The withdrawal of vehicles virtually immobilising doctors must be put an end to and district authorities must be clearly warned against such illegal diversion of an important health facility.

Better facilities for ANMs: Auxiliary nurse midwives, likewise, must be provided decent residential accommodation near the sub-centres. They must also be insulated from political and bureaucratic pressures unconnected with their professional duties. Strong and articulate women's organisations at village levels can provide such "insulation".

Enlisting the private sectors: "Private" registered medical practitioners in rural areas must be freely enlisted into programmes of health delivery. This can be done without any financial implication. Supplements like Vitamin A, iron-folic acid tablets, meant for free distribution to the public, could be made freely available to all private registered practitioners in rural areas who are willing to undertake their distribution free. Vaccines like tetanus toxoid, polio, DPT and measles vaccine could be freely provided to all registered medical practitioners in rural areas who have refrigerators in their clinics. They may even be allowed to charge a nominal sum, of say one rupee per head, for an injection to cover the cost of maintaining the cold chain and for syringes and needles. They could all be given a manual indicating the dosage and frequency of administration, etc. and being qualified medical practitioners (as qualified as those in the regular health service), they can be expected to handle these drugs the way they should. There may be some misuse of these drugs and it is possible that drugs which are expected to be given free may be sold to the illiterate public, but a vigilant community organisation could check this practice and errant practitioners could be blacklisted. The practitioners may be asked to maintain a list of patients to whom these drugs, freely made available to them, have been distributed and lists may be sent to PHCs periodically when replenishment of drugs is desired.

Since family planning programmes and MCH programmes seem to be suffering for lack of lady doctors in some villages, arrangements for private lady practitioners to work on a part-time basis in PHCs could be instituted. These arrangements will greatly increase the outreach of health services and will break down barriers between the official health personnel, non-official health personnel and the community. It must be remembered in this connection that even at present the doctors in the regular government health service are being allowed private practice and are in fact spending a considerable part of their time in such practice. It must also be remembered that quite a considerable part of health care in rural areas is being undertaken by private practitioners; rural folk sometimes prefer to go to them in order to save time involved in long waits and in order to get what they perceive to be better individual attention.

More liberal travelling and per diem allowances must be made available to all levels of health personnel for domiciliary visits, which could be strenuous and time-consuming, especially where villages are remote and unconnected by good roads.

The system of fixing targets for sterilisation must be given up. Instead, a system of rewards to be shared by all PHC staff as a whole, to centres which have shown exceptional work, on the basis of immunisation coverage, domiciliary visits, mortality reduction, etc., could be introduced.

Integrated Child Development Service (ICDS): We have fortunately a fairly extensive ICDS system, and there is a proposal to increase the number of blocks in the country served by ICDS from 1,000 to 2,500. This is to be welcomed. The ICDS system stands in need of improvement in several respects, and it is not the purpose of this paper to discuss these at length. The important point, however, is that the ICDS system is a most valuable and unique input, and with the desired modifications it can make a significant contribution to the promotion of maternal and child health in the country. The ICDS system must work in close concert with the health system and the ANM and the anganwadi worker must constitute a single functional team. We propose that the emphasis of anganwadi should shift to mothers and children below one year. The anganwadi worker could run a 'mother and infant clinic' for two days a week and the other four days she could continue to devote to preschool education. Her tasks should include (i) weighing of pregnant women (refer those women who do not gain weight), (ii) giving tetanus toxoid injections, (iii) distribution of iron-folic acid tablets, (iv) non-formal education on breast-feeding, colostomy feeding and early weaning, diarrhoea management, coverage of children in universal immunisation programme and (v) advice for small family norms and methods made available through her. More importantly, the psychological barriers between the regular health workers and ICDS workers must go.

In the ultimate analysis, real improvement in health system can come about not through such marginal changes in administration as discussed above, but through qualitative changes brought about by an entirely new approach to health care, according to which health care will be looked upon not just as a governmental bureaucratic operation, but as a mission and a service to a cause - the cause of betterment of our human resources. Such a qualitative change is hard to bring about. It can, however, be brought about through the joint efforts of the health personnel and the community with the cooperation of the bureaucracy and political leadership.

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NUTRITION NEWS

Dr. C. Gopalan has been elected Fellow of the Royal Society (F.R.S.).