
# Progress in Immunisation
# National and MNCH-PRRINN states performance

## A review of NICS 2010 data

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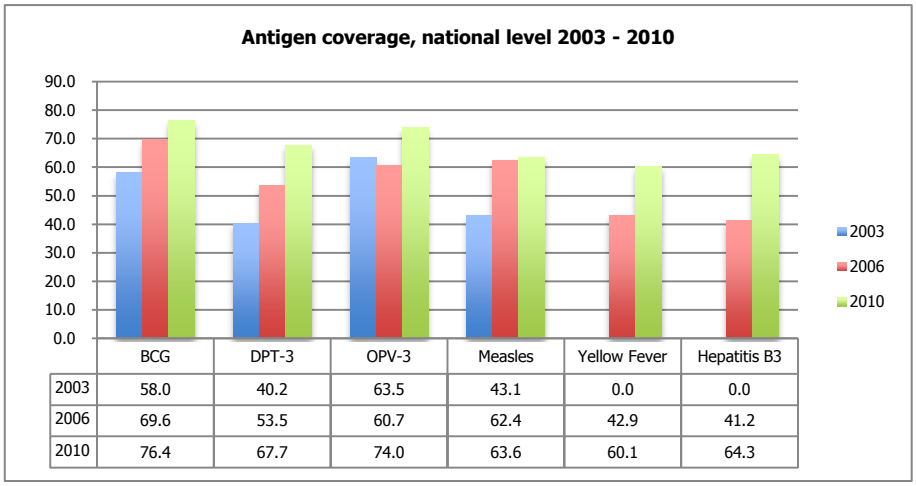
**February 2011**

## a) Background

A National Immunization Coverage Survey (NICS) was carried out in October 2010 by the National Primary Health Care Development Agency (NPHCDA), supported by WHO, UNICEF, DFID, Bill & Melinda Gates Foundation and implemented by Continental Research Nigeria. Its objective was to document progress on basic and complimentary antigens for children between the ages of 12 – 23 Months, and the tetanus status of mothers of infants age 0 -11 months Target groups were children aged 12 – 23 months, for assessment of infant immunization coverage, and mothers of children aged 0 – 11 months for assessment of maternal Tetanus Toxoid Immunization. The study was based on the classic WHO 30-Cluster Sampling Methodology, and was structured around a two stage sampling with random selection of Local Government Areas (LGAs), and communities, or clusters, based on Probability Proportional to Size (PPS), followed by random selection of households in the clusters.

## b) National level

i. Antigen coverage

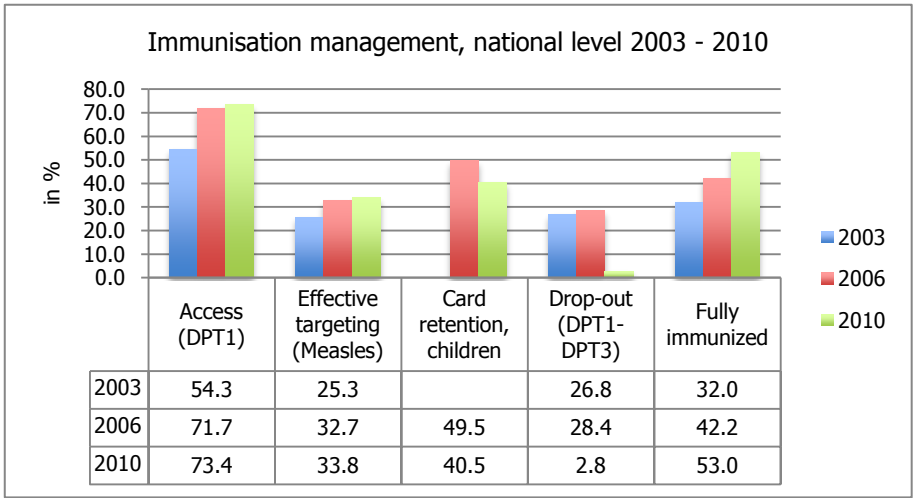



| | BCG | DPT-3 | OPV-3 | Measles | Yellow Fever | Hepatitis B3 |
|---|---|---|---|---|---|---|
| 2003 | 58.0 | 40.2 | 63.5 | 43.1 | 0.0 | 0.0 |
| 2006 | 69.6 | 53.5 | 60.7 | 62.4 | 42.9 | 41.2 |
| 2010 | 76.4 | 67.7 | 74.0 | 63.6 | 60.1 | 64.3 |

The antigens represent crude coverage, by card and history, for ease of comparison over time. The growth in coverage is consistent, and sustained (sole exception OPV3 03-06). Growth is less accentuated between ’06 and ’10, expression perhaps of the decrease in growth rate as immunisation coverage advances.

ii. Immunisation management

The graphs below show some of the indicators commonly used for assessing immunisation system access, service quality and utilisation. Access to immunisation services has continuously increased, as has the effective targeting (expressed as - % of children that received MCV precisely at 9 Months). While the extent of card retention has decreased, drop-out has dramatically moved below the 10% threshold limit of acceptable drop-out rates. The final result is a net increase in fully immunised children.

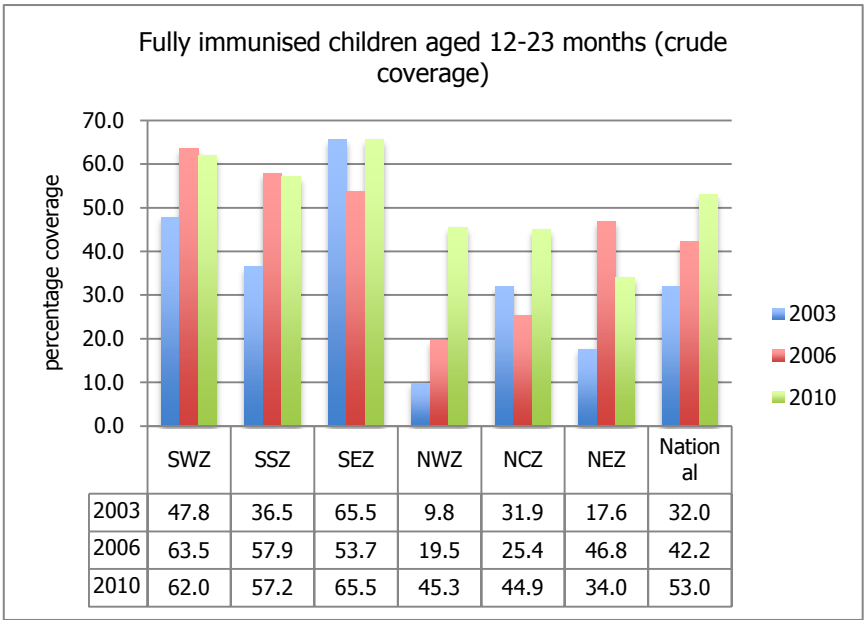



| | Access (DPT1) | Effective targeting (Measles) | Card retention, children | Drop-out (DPT1-DPT3) | Fully immunized |
|---|---|---|---|---|---|
| 2003 | 54.3 | 25.3 | | 26.8 | 32.0 |
| 2006 | 71.7 | 32.7 | 49.5 | 28.4 | 42.2 |
| 2010 | 73.4 | 33.8 | 40.5 | 2.8 | 53.0 |

The graph well illustrates the changes, especially the massive decrease in drop-out rates. It shows as well how an accelerated rate of increase in access is more difficult to maintain once a consistent level has been achieved. The fact that only half of the children have an immunisation card will influence other results dependent on presence of a card.

The location of immunisation services is predominantly health centres (37.6%), followed by hospitals (22,2%), outreach (6.6%), and supplemental immunisation activities (SIA, 4.3%). The remainder is done by private institutions (3.1%) and NGOs (0.2). 28.3% of respondents are unable to specify the source of immunisation.

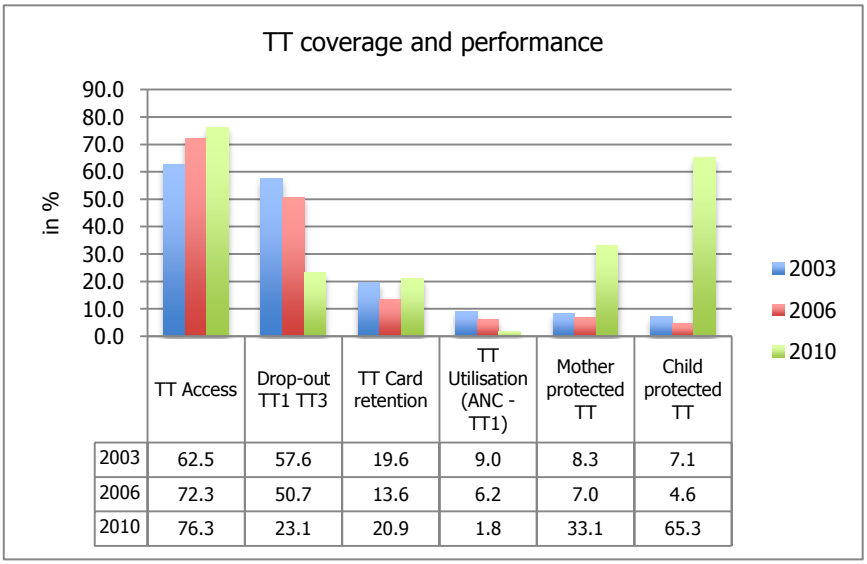
While progress at national level is relatively straightforward, at sub-national level this is uneven, and non-linear, as shown in figure below. Variation between Zones is substantial. Other results (see further below) confirm that variation is important within Zones, between States, and within States. Differences in study methodologies may account for part of the variation.




| | SWZ | SSZ | SEZ | NWZ | NCZ | NEZ | National |
|---|---|---|---|---|---|---|---|
| 2003 | 47.8 | 36.5 | 65.5 | 9.8 | 31.9 | 17.6 | 32.0 |
| 2006 | 63.5 | 57.9 | 53.7 | 19.5 | 25.4 | 46.8 | 42.2 |
| 2010 | 62.0 | 57.2 | 65.5 | 45.3 | 44.9 | 34.0 | 53.0 |

iii. TT coverage and performance

These results show a massive increase in child protection, and an equally important, if less dramatic, increase in mother protection. The other indicators of quality and access have changed less, by comparison. The proportion of women who had at least one ANC visit and did not receive the TT1 vaccine has gone down to very low levels. Access continues to increase, and drop-out rates continue to fall, although still high. The figure below details the percentage change over the years.




| | TT Access | Drop-out TT1 TT3 | TT Card retention | TT Utilisation (ANC - TT1) | Mother protected TT | Child protected TT |
|---|---|---|---|---|---|---|
| 2003 | 62.5 | 57.6 | 19.6 | 9.0 | 8.3 | 7.1 |
| 2006 | 72.3 | 50.7 | 13.6 | 6.2 | 7.0 | 4.6 |
| 2010 | 76.3 | 23.1 | 20.9 | 1.8 | 33.1 | 65.3 |

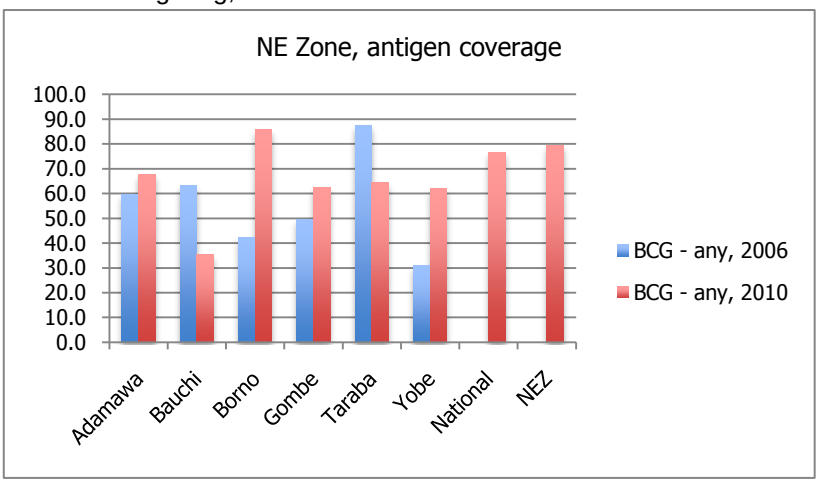
Altogether, the NICS 2010 shows an important acceleration of immunisation coverage and system performance. The Southern States are still ahead, although the Northern States, and some PRRINN

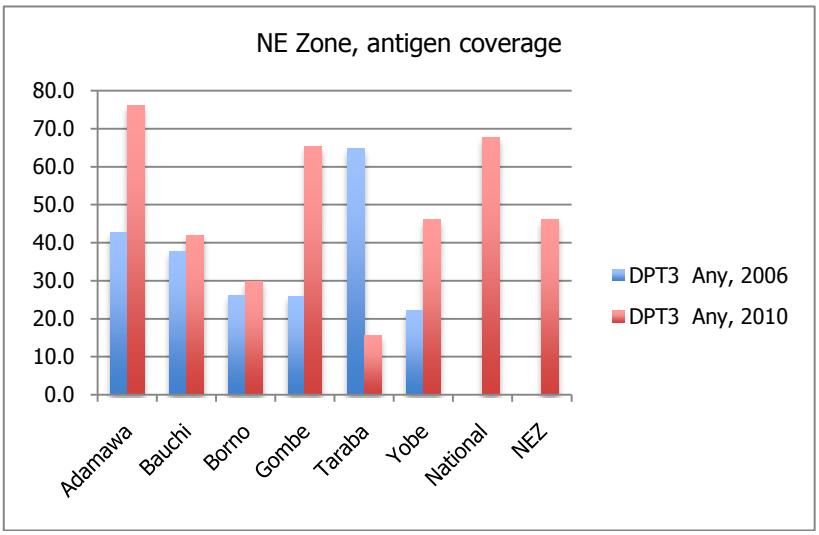
programme states in particular, have started catching up substantially. Variation in coverage and performance between North and South, between Zones, and between states is larger than can accounted for by regional differences in health system development. The section Conclusions suggests some of the possible causes.

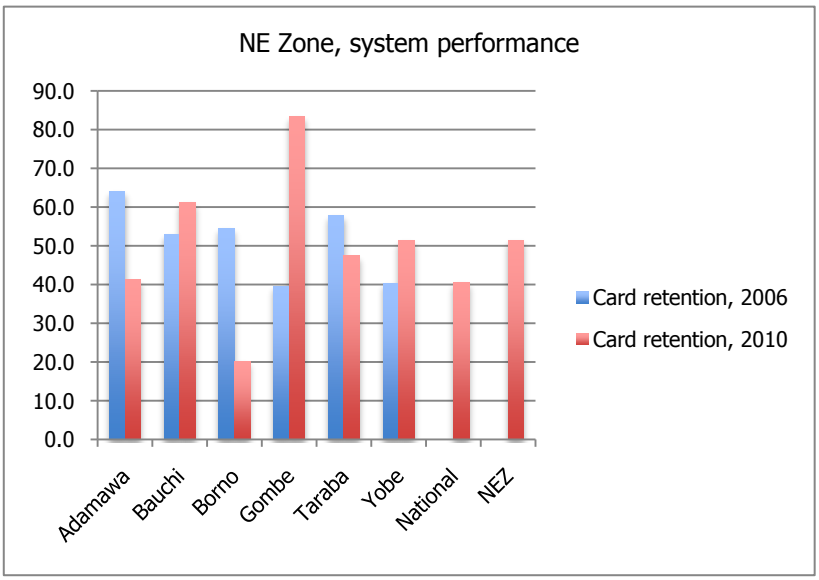
### c) Local level - PRRINN programme states

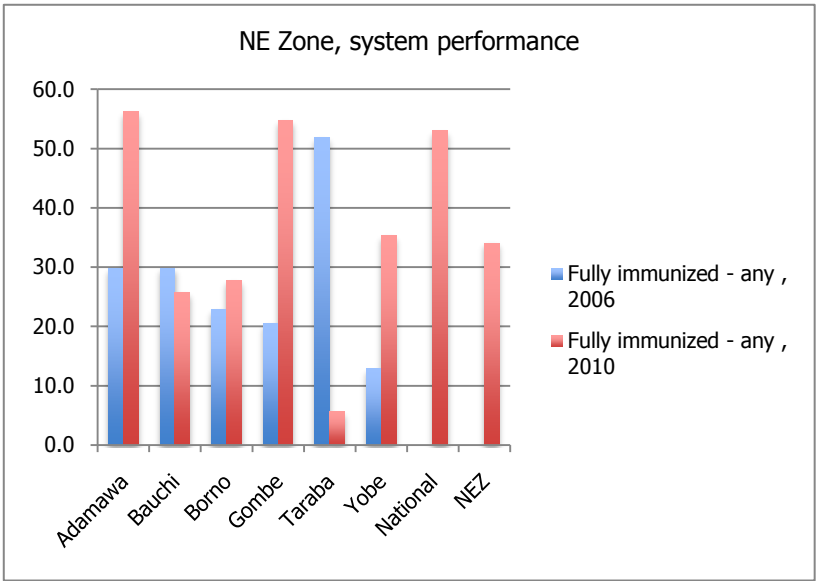
#### *i. North East Zone*

The NE Zone is a poor performer by most standards. Out of six national Zones, it ranks lowest for BCG, FIC, measles, DPT1, DPT3, Yellow Fever, OPV3, DPT3 - DPT1 drop-out, 5th for BCG and HBV3, and 3rd for effective targeting, and card retention.



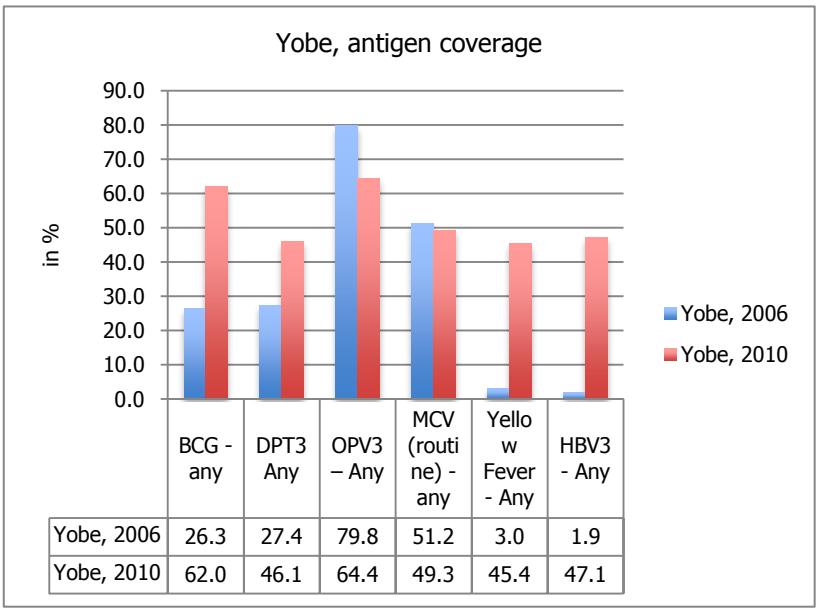



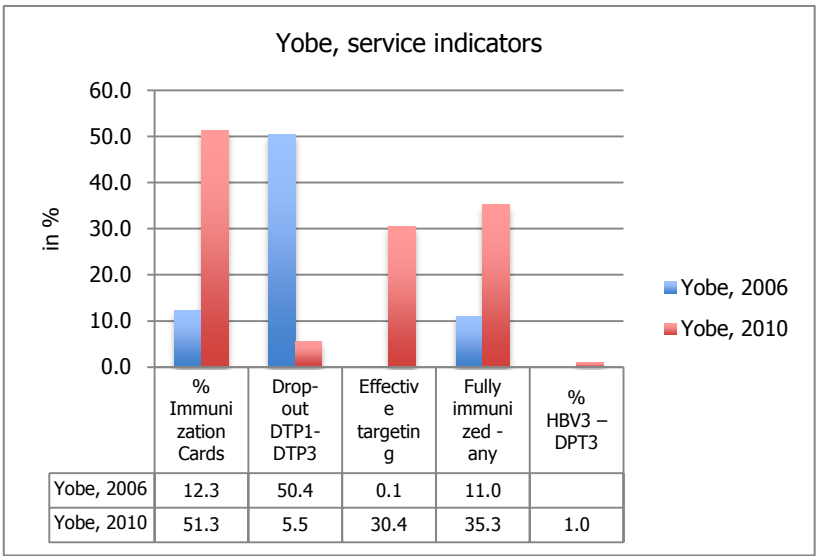



*ii. Yobe State*

Yobe State shows a good rate of progress, with an important increase in fully immunised children, although nationwide it ranks only 31st for FIC. Yellow Fever and HBV3 uptake has increased remarkably, by resp. 1413% and 2378%. Service indicators have substantially improved as well. Yobe however started out as one of the poor performers nation-wide, which means that its achievements still rank low, when compared to the other States. The rate of progress has been more important than absolute progress itself.



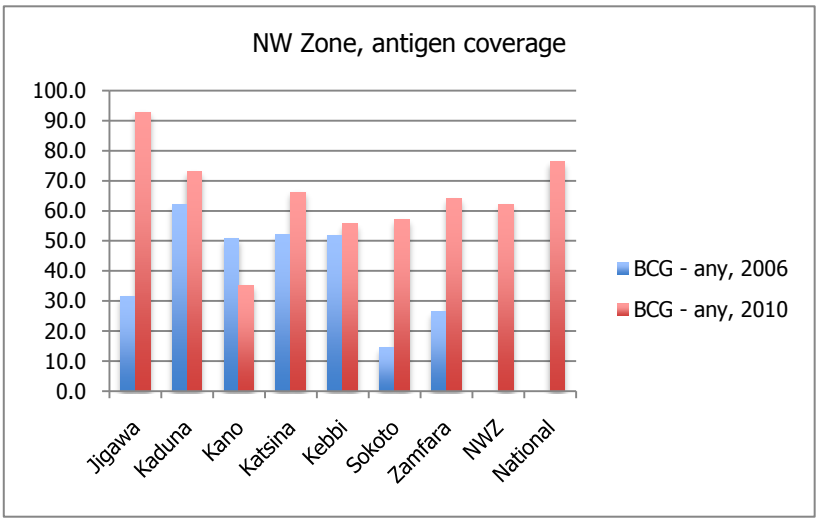

| | BCG - any | DPT3 Any | OPV3 – Any | MCV (routine) - any | Yellow Fever - Any | HBV3 - Any |
|---|---|---|---|---|---|---|
| Yobe, 2006 | 26.3 | 27.4 | 79.8 | 51.2 | 3.0 | 1.9 |
| Yobe, 2010 | 62.0 | 46.1 | 64.4 | 49.3 | 45.4 | 47.1 |

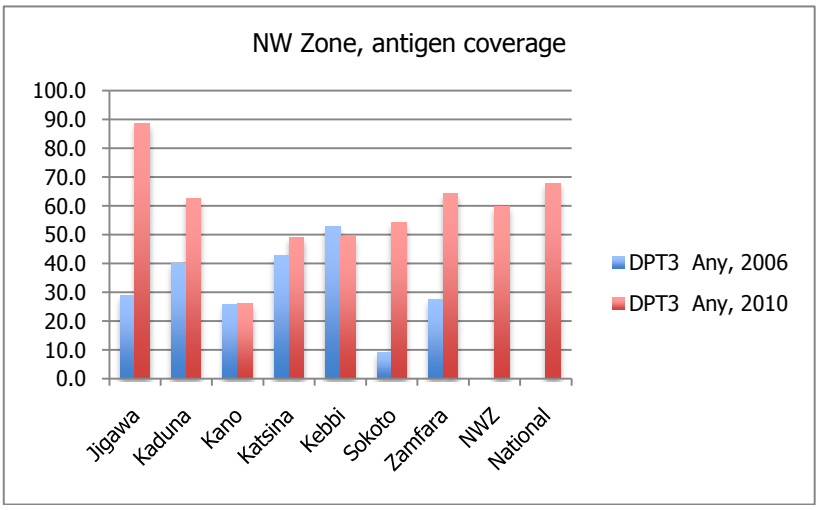


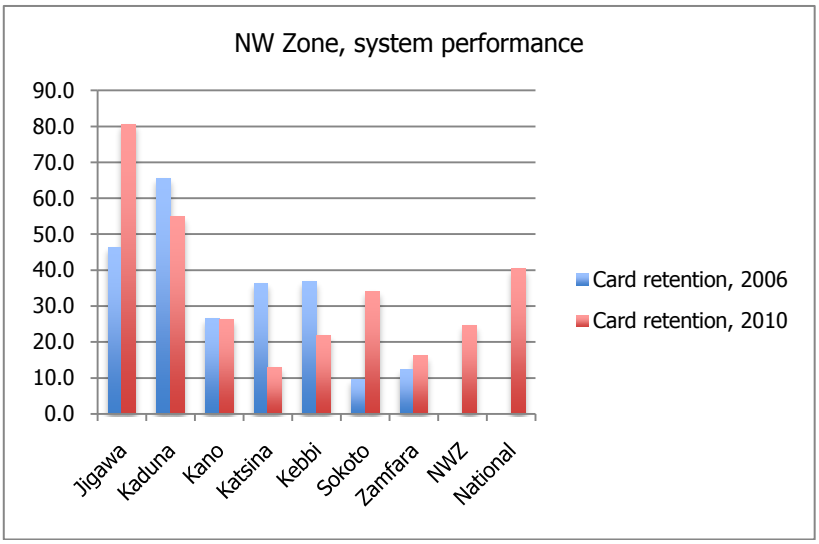

| | % Immunization Cards | Drop-out DTP1-DTP3 | Effective targeting | Fully immunized - any | % HBV3 – DPT3 |
|---|---|---|---|---|---|
| Yobe, 2006 | 12.3 | 50.4 | 0.1 | 11.0 | |
| Yobe, 2010 | 51.3 | 5.5 | 30.4 | 35.3 | 1.0 |

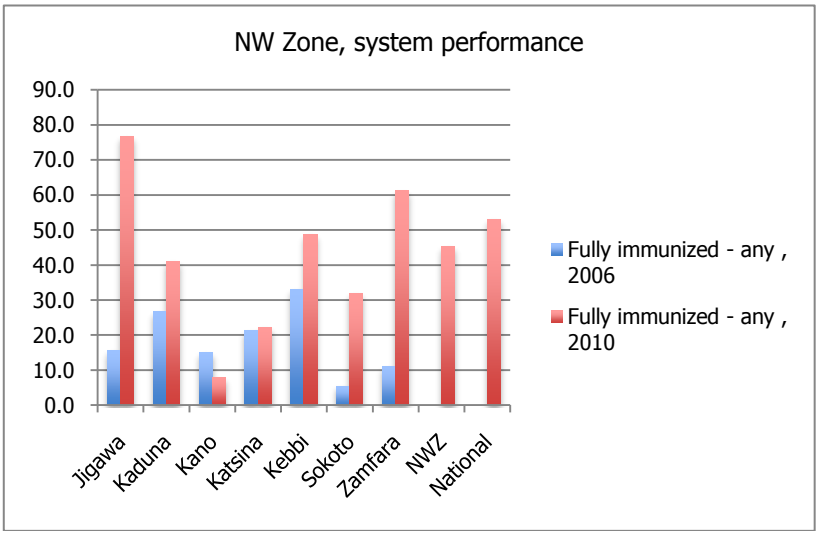
*iii. North West Zone*

Similar to the North East Zone, the North West performs low to medium at best. Among the six zones, it ranks 3rd for OPV3, 4th for FIC, 5th for measles, DPT1, DPT3, and Yellow Fever, and finally 6th for BCG, HBV3, effective targeting, drop-out, and card retention. Progress among the states greatly varies, and it does have an outlier, Jigawa, which has recorded impressive progress since 2006.

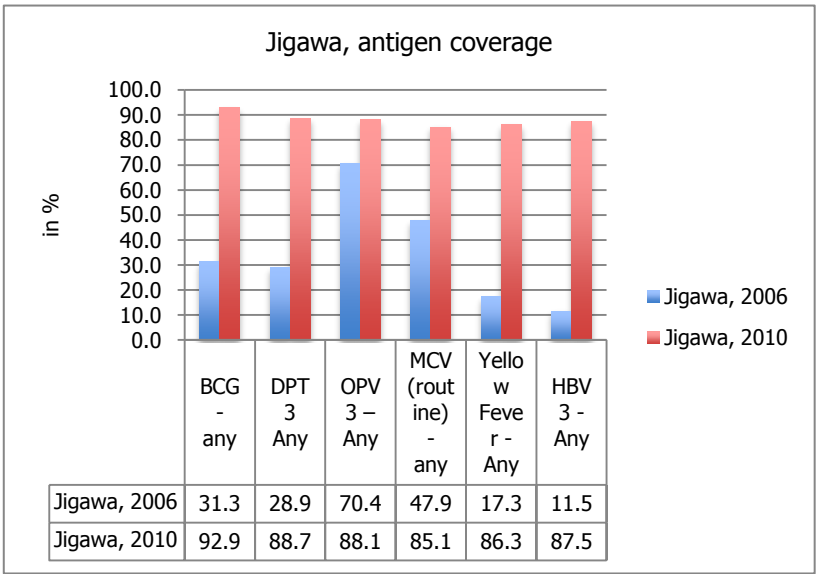




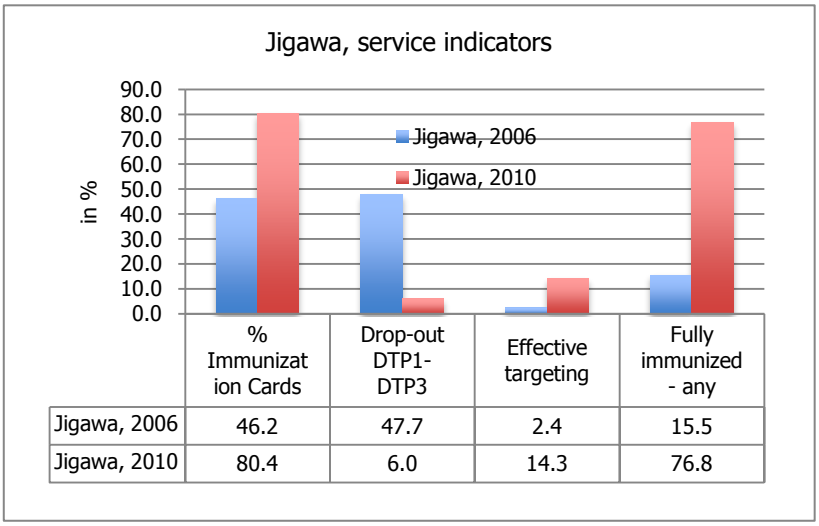

*iv. Jigawa*




| | BCG - any | DPT 3 Any | OPV 3 – Any | MCV (routine) - any | Yellow Fever - Any | HBV 3 - Any |
|---|---|---|---|---|---|---|
| Jigawa, 2006 | 31.3 | 28.9 | 70.4 | 47.9 | 17.3 | 11.5 |
| Jigawa, 2010 | 92.9 | 88.7 | 88.1 | 85.1 | 86.3 | 87.5 |

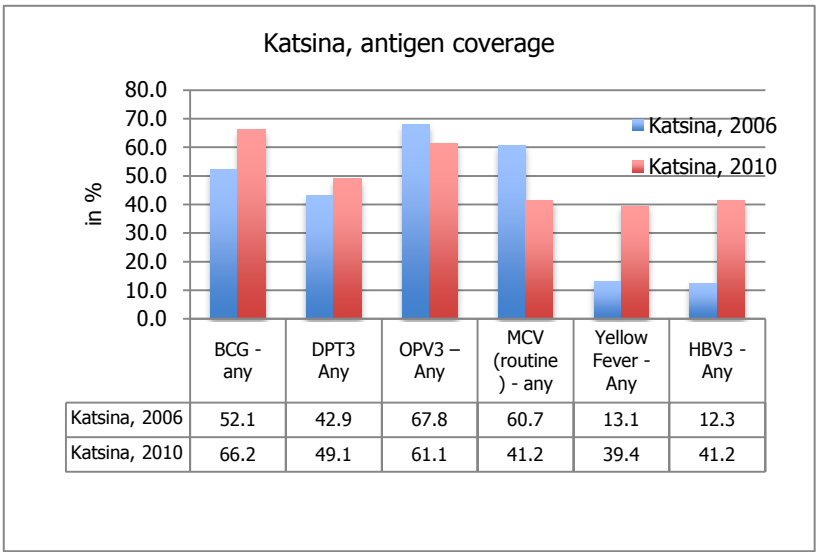
The State ranks as the 4th highest state in Nigeria for Fully Immunized coverage, Measles, HBV, OPV 3 and Card Retention, and 3rd highest for Yellow Fever. It scores higher than any other Northern State for DPT3, OPV3, HBV3, measles, Yellow Fever, FIC. It scores 11th for BCG with however a 92.9% coverage. It scores low for effective targeting (rank 33), and drop-out rate, at 31st, although the rate

itself is low. These results mark out Jigawa as one of the main achievers nation-wide, especially considering the low levels existing previously.



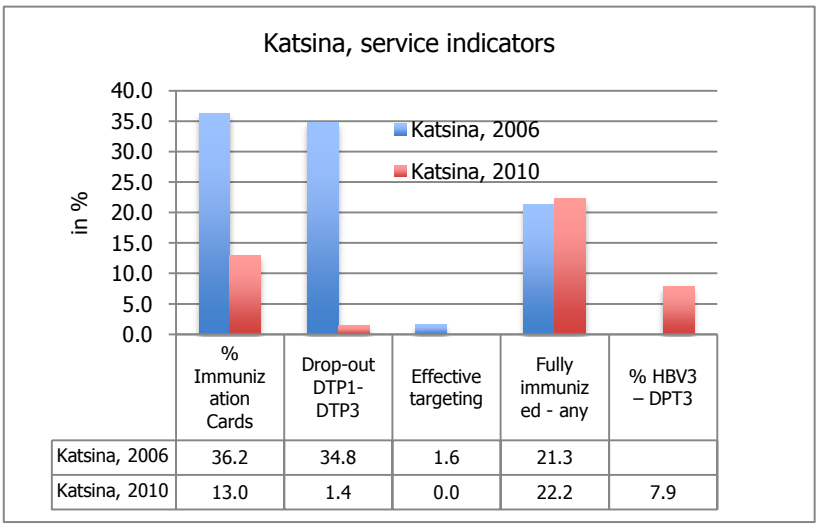

| | % Immunization Cards | Drop-out DTP1-DTP3 | Effective targeting | Fully immunized - any |
|---|---|---|---|---|
| Jigawa, 2006 | 46.2 | 47.7 | 2.4 | 15.5 |
| Jigawa, 2010 | 80.4 | 6.0 | 14.3 | 76.8 |

*v. Katsina*



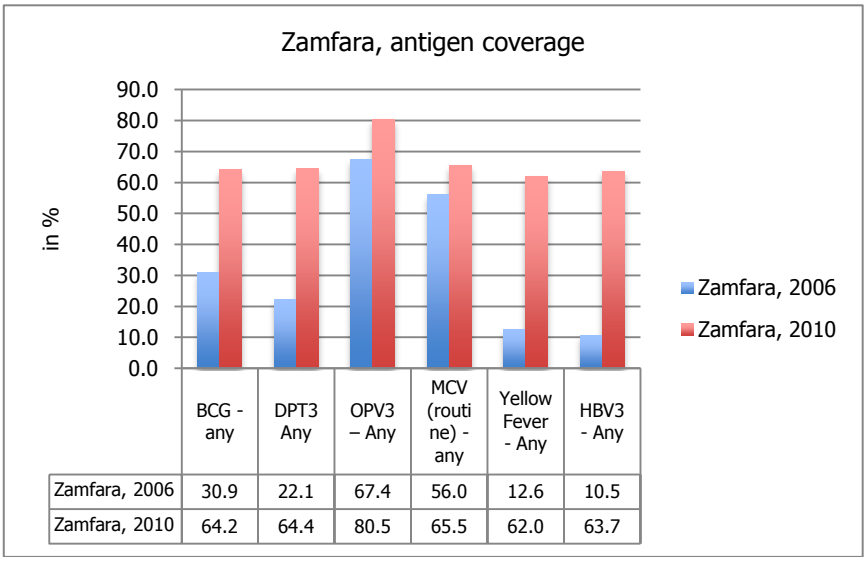

| | BCG - any | DPT3 Any | OPV3 – Any | MCV (routine) - any | Yellow Fever - Any | HBV3 - Any |
|---|---|---|---|---|---|---|
| Katsina, 2006 | 52.1 | 42.9 | 67.8 | 60.7 | 13.1 | 12.3 |
| Katsina, 2010 | 66.2 | 49.1 | 61.1 | 41.2 | 39.4 | 41.2 |

The situation is quite different in Katsina and can be described as stagnant. While Yellow Fever and Hepatitis 3 have shown improvement, BCG and DPT3 have changed only moderately, while OPV3 and measles coverage has actually declined. Service indicators reflect this situation, with card retention having gone done substantially. Drop-out rates are however very low. Compared to the other states, Katsina ranks consistently among the lower performing states for almost all indicators, finally achieving 35$^{th}$ out of 37 in terms of fully immunised children.



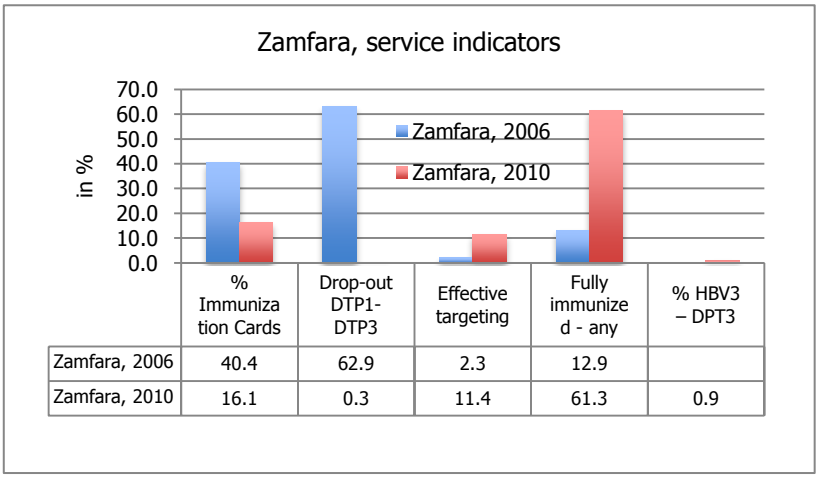

| | % Immunization Cards | Drop-out DTP1-DTP3 | Effective targeting | Fully immunized - any | % HBV3 – DPT3 |
|---|---|---|---|---|---|
| Katsina, 2006 | 36.2 | 34.8 | 1.6 | 21.3 | |
| Katsina, 2010 | 13.0 | 1.4 | 0.0 | 22.2 | 7.9 |

*vi. Zamfara*




| | BCG - any | DPT3 Any | OPV3 – Any | MCV (routine) - any | Yellow Fever - Any | HBV3 - Any |
|---|---|---|---|---|---|---|
| Zamfara, 2006 | 30.9 | 22.1 | 67.4 | 56.0 | 12.6 | 10.5 |
| Zamfara, 2010 | 64.2 | 64.4 | 80.5 | 65.5 | 62.0 | 63.7 |

Zamfara shows a good performance, with sustained increases in BCG and DPT3, Yellow Fever and HBV3. Service indicators are mixed, with improvement in drop-out and effective targeting, but not in card retention. Nevertheless, the increase in fully immunised children (up by 375%) is striking, placing Zamfara at rank 16 nationwide. As for the other indicators, Zamfara ranks among the lower 25% to 50% in most, except for the drop-out rate where Zamfara is 3rd best. It scores 12th for OPV3, with a respectable 80.47% coverage.




| | % Immunization Cards | Drop-out DTP1-DTP3 | Effective targeting | Fully immunized - any | % HBV3 – DPT3 |
|---|---|---|---|---|---|
| Zamfara, 2006 | 40.4 | 62.9 | 2.3 | 12.9 | |
| Zamfara, 2010 | 16.1 | 0.3 | 11.4 | 61.3 | 0.9 |

## d) Conclusions

The NICS 2010 shows important progress in major indicators among most if not all states. The PRRINN programme states offer a mixed picture, with Jigawa having become a major success state, Zamfara and Yobe improving well, and Katsina lagging behind. The reasons for improvement or its absence are multiple, and speculative. The important degree of variation between Zones and between States has been mentioned already. Variation occurs between Zones and States as well in the reasons for failure to immunise. A generally valid explanation is therefore unlikely. At national level however, access (which has changed little) set against improvements in the quality and use of the service (reflected in major decreases in dropout rates, rate of invalid doses, variance between Yellow Fever and measles – latter two results not shown), and increase in fully immunised children point to improved performance at health centre level. Given that it is the most frequently quoted source for immunisation, any explanation needs to take local reality into account.

According to the NICS 2010 report, mothers may be responsible for increased uptake, on the basis of their knowledge of the benefits of immunisation ("to prevent sickness" for 34.8% of mothers, and "for protection" for 34.4%). The report further suggests that low uptake may be a systemic problem, ("distance too far" for 12.5% of mothers, and "lack of vaccine" for 8.6%). Lack of vaccine is certainly

the main reason for immunisation failure in the North East. However, lack of vaccine was a major cause for failure already in 2006.

As far as PRRINN states are concerned, where improvement has occurred, the following factors are suggested to explain performance.

- Continuous support on system strengthening and governance work has contributed in improving RI coverage
- A programme cluster study carried out by PRRINN-MNCH in early 2010 indicated that there are significant differences between LGAs with community engagement activities compared to non-community engagement LGAs.
- In Jigawa, the establishment of a functional district health system and increased allocation for RI and PHC through programme advocacy work resulted in remarkable progress exceeding even most of the national average coverages. Similar findings were found as well in Enugu state where the district health system has been established during the PATHS1 programme.
- Community engagement activities and state wide PRRINN-MNCH communication works in Jigawa led to increased knowledge of vaccination schedules and improved rate of standing permissions from the husbands for mothers to take children to health facilities for immunisation.
- Supply side assessment has also indicated improvement in availability of supplies and antigens. PRRINN-MNCH carried out a rapid immunisation assessment, which showed considerable improvement in a range of immunisation services and activities. It also identified problems that states were addressing through out 2010.
- PRRINN-MNCH has only just reached the point where detailed questions about coverage rate can be asked. Uncertainties about the target population, lack of clear relationship between doses given at LGA level and at health facility and uncertainty about effective immunization (valid vaccines) means that assessment of the programme should focus on process, and not yet outcome. The 2009 rapid immunization survey revealed the presence still of macroscopic problems, such as 50% of health facilities in JG not receiving all vaccines requested during one month, or 50% of health facilities in JG running out of child health and antenatal cards during the previous 3 months.

As a speculative general conclusion, the rate of increase of coverage has been greater in the PRRINN states than in others, especially considering the low baseline values. In addition, PRRINN's own survey results show that improved performance is higher in LGAs supported by the programme.

**e) Annexe, datasheets, NICS 2010 data**

North East Zone

| State | BCG - any | DPT3 Any | OPV3 – Any | HBV3 - Any | Measles | Yellow Fever - Any |
|---|---|---|---|---|---|---|
| Adamawa | 67.50 | 76.10 | 74.84 | 74.21 | 69.81 | 69.18 |
| Gombe | 62.50 | 65.27 | 67.07 | 65.87 | 58.68 | 58.68 |
| Yobe | 61.96 | 46.05 | 64.38 | 47.09 | 49.26 | 45.39 |
| Bauchi | 35.42 | 42.04 | 54.14 | 44.59 | 40.91 | 40.26 |
| Borno | 85.71 | 29.86 | 69.44 | 30.56 | 37.50 | 34.72 |
| Taraba | 64.29 | 15.63 | 18.75 | 14.38 | 18.24 | 20.13 |
| NEZ | 79.37 | 46.16 | 57.96 | 60.22 | 32.49 | 45.15 |
| National | 76.41 | 67.73 | 73.95 | 64.27 | 63.55 | 60.12 |

| State | Card retention | Drop-out DTP1-DTP3 | Effective targeting | Fully immunized - any | % HBV3 – DPT3 |
|---|---|---|---|---|---|
| Adamawa | 41.25 | 0.63 | 13.51 | 56.25 | 1.89 |
| Gombe | 83.33 | 6.55 | 53.26 | 54.76 | 0.60 |
| Yobe | 51.34 | 5.51 | 30.36 | 35.27 | 1.04 |
| Bauchi | 61.29 | 11.25 | 26.67 | 25.63 | 2.55 |
| Borno | 20.14 | 3.47 | 38.10 | 27.78 | 0.69 |
| Taraba | 47.50 | 11.25 | 15.38 | 5.63 | 1.25 |
| NEZ | 51.47 | 6.15 | 32.49 | 34.02 | 0.55 |
| National | 40.46 | 2.76 | 33.76 | 53.01 | 3.42 |

North West Zone

| State | BCG - any | DPT3 Any | OPV3 – Any | HBV3 - Any | Measles | Yellow Fever - Any |
|---|---|---|---|---|---|---|
| Jigawa | 92.86 | 88.69 | 88.10 | 87.50 | 85.12 | 86.31 |
| Zamfara | 64.17 | 64.40 | 80.47 | 63.70 | 65.48 | 61.98 |
| Kaduna | 72.92 | 62.50 | 71.53 | 58.33 | 63.38 | 53.52 |
| Kebbi | 55.62 | 49.30 | 63.75 | 51.28 | 60.00 | 50.63 |
| Katsina | 66.20 | 49.07 | 61.11 | 41.20 | 41.20 | 39.35 |
| Sokoto | 56.98 | 54.22 | 71.30 | 32.92 | 50.42 | 29.84 |
| Kano | 35.23 | 26.14 | 36.93 | 19.32 | 16.48 | 15.34 |
| NWZ | 61.96 | 59.86 | 75.30 | 58.93 | 52.35 | 50.11 |
| National | 76.41 | 67.73 | 73.95 | 64.27 | 63.55 | 60.12 |

| State | Card retention | Drop-out DTP1-DTP3 | Effective targeting | Fully immunized - any | % HBV3 – DPT3 |
|---|---|---|---|---|---|
| Jigawa | 80.36 | 5.95 | 14.29 | 76.76 | 1.19 |
| Zamfara | 16.12 | 0.30 | 11.44 | 61.28 | 0.86 |
| Kaduna | 54.86 | 4.86 | 46.67 | 40.97 | 4.17 |
| Kebbi | 21.88 | 0.63 | 0.00 | 48.75 | 1.88 |
| Katsina | 12.96 | 1.39 | 0.00 | 22.22 | 7.87 |
| Sokoto | 34.06 | 1.98 | 22.16 | 31.82 | 21.30 |
| Kano | 26.14 | 4.55 | 28.57 | 7.95 | 6.82 |
| NWZ, 2010 | 24.62 | 1.16 | 16.62 | 45.33 | 7.10 |
| National | 40.46 | 2.76 | 33.76 | 53.01 | 3.42 |

Files utilised

| | |
|---|---|
| National level, Antigen coverage | National comparison children.xls |
| National level, Immunisation management | National comparison children.xls |
| TT coverage and performance | National comparison TT.xls |
| Local level - PRRINN programme states Zonal overview | state comparison children.xls |
| Local level - PRRINN programme states State overview | individual states comparison children.xls |
| datasheets | state comparison children.xls |