

STAT™

Secure Technology Advancing Treatment

Application of **SmartCard/Biometrics** Technology
for
HIV/AIDS Anti-Retroviral Therapy
in
South Africa



March 9, 2005



Challenges in managing ART



- Secure method of verifying patient & provider identity;
 - Confidentiality & data security;
 - Retrieval & storage of patient records;
 - Attractiveness and user-friendliness of technology;
 - Managing data from multiple sources;
 - Reports;
 - Mobility of patients,
 - Opportunities for gaming the system;
 - Electricity & phone line availability;
 - ART inventory control, security, & data management;
 - Verifying private provider billing.
- Is there a way to overcome these challenges?**



NET1 system for pension payout



Net1 is a biometrics/smart card technology leader in South Africa



- More than 4 million pensions and social grants dispensed using SmartCard/ Biometrics in six South African Provinces since 1999;
- This indicated potential applicability to ART in overcoming challenges.

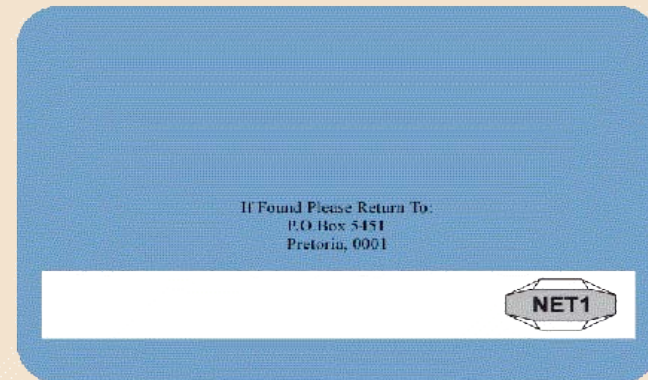
Pensioners receiving payouts from mobile unit



SmartCard/Biometrics for ART



- Based on inexpensive SmartCards;
- ART patients retain their cards;
- Service providers have their own cards;
- Cards hold 32Kb (patients) or 64Kb (providers) of data in 255 data wallets.

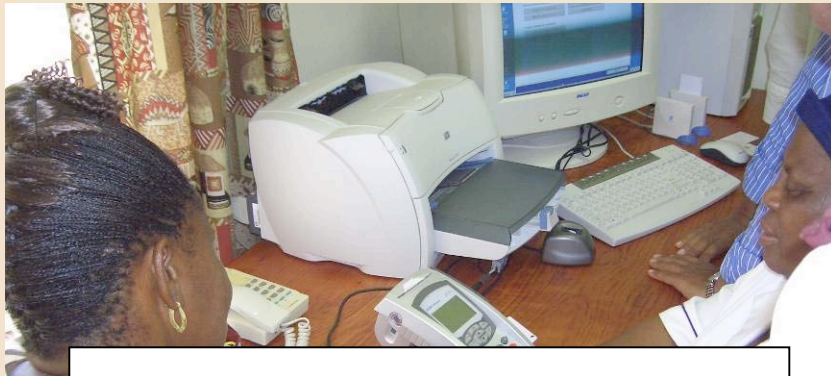


SmartCard/Biometrics Reader - Point of Service (POS) Device



- Portable, rechargeable battery operated card readers;
- Patient and provider cards inserted in card reader;
- Built-in fingerprint scanner;
- LED screen to guide provider through patient assessment and treatment protocol;
- Numeric keypad for data entry.

How it works: Patient ART Center Visit/Home Visit



OPTIONAL:
Provider prints prescription

Provider e drugs dis **Alternatively, if at ART Center...**

drugs to patient and
returns patient's STAT™

Card



Coded data entry:

- Symptoms
- Weight
- Lab results
- Drug regimen
- Prescription



ARVs Dispensed in Pharmacy



OPTIONAL:
Patient gives
prescription to
pharmacist



Pharmacist gives
drugs to patient,
returns patient's
STAT™ card

Script

Rx

Rx

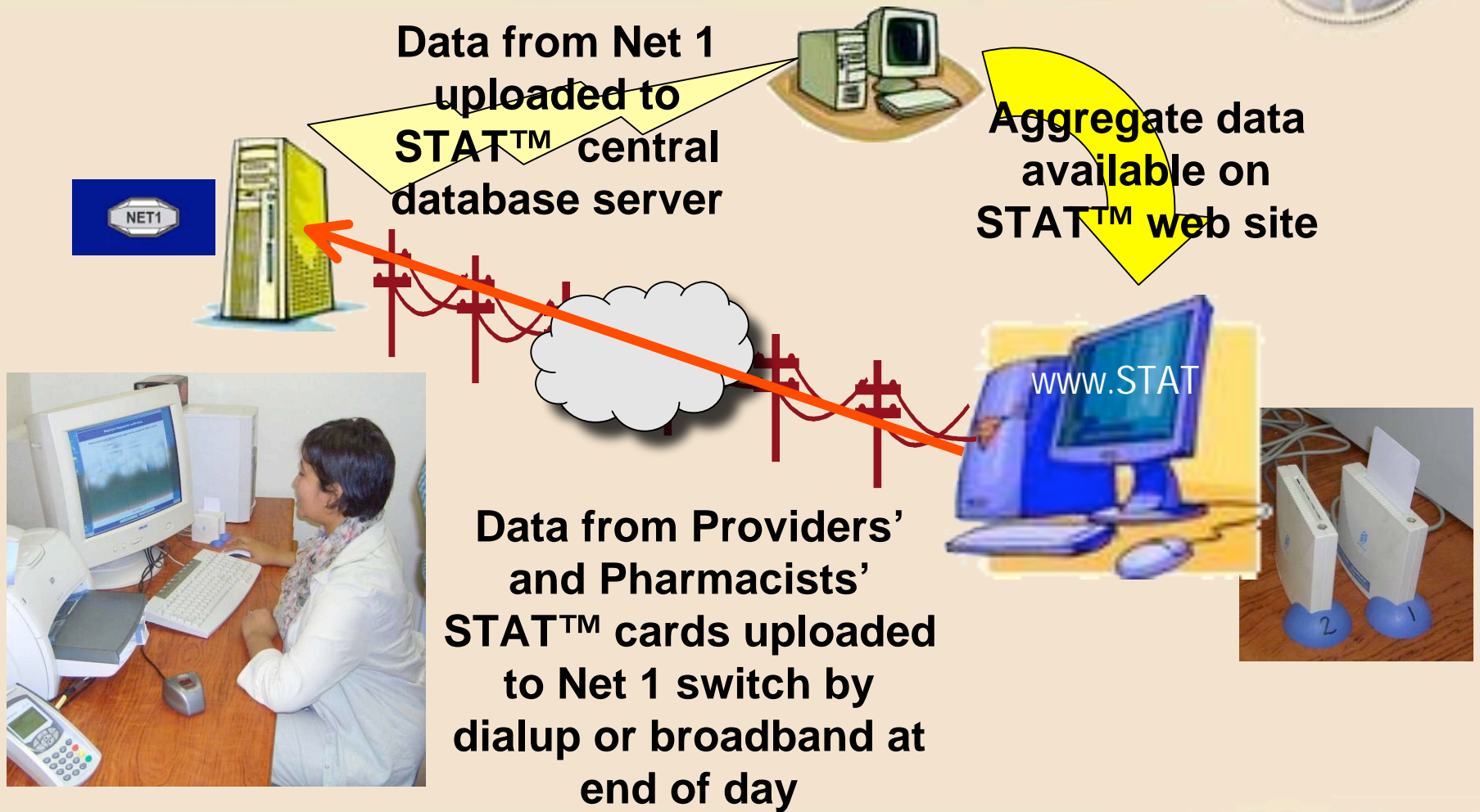
Rx



Pharmacist enters
codes for drugs
dispensed



Data management



Features of the STAT™ System



- Patients can use their cards at any STAT™ ART center;
- Card readers battery operated and portable - ideal for home visiting;
- STAT™ system functions off-line, with upload of data to central database at end of day;
- Central STAT™ database runs on Microsoft SQL relational database that is hosted on a MS-SQL Server incorporating Crystal Reportwriter;
- Ability to accurately track ARV inventory;
- Provides program managers and donors with performance indicators updated on daily basis.

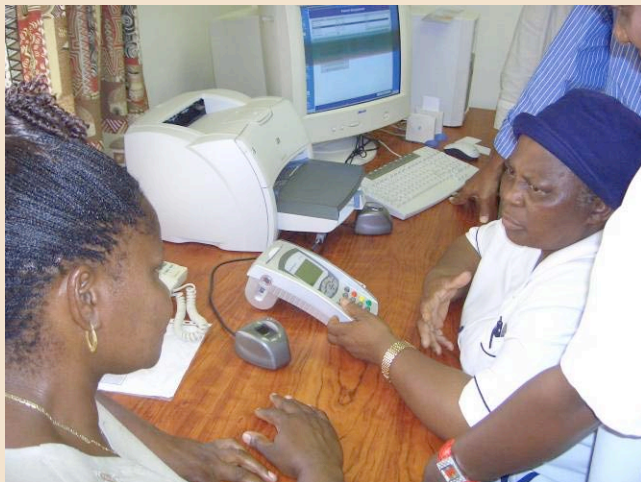


Overcoming the Challenges with STAT™ SmartCard/Biometrics



Secure method of verifying patient & provider identity:

- Securely encrypted STAT™ cards and fingerprint scanning provide absolute and reliable identification.



Confidentiality & data security:

- Highly encrypted data, not accessible without fingerprint scan;
- Picture ID cards not needed;
- No printed forms with patients' names in circulation.



Overcoming the Challenges with STAT™ SmartCard/Biometrics



Retrieval & storage of patient records:

- Patients retain their STAT™ cards;
- No need to retrieve patients' records since STAT™ card contains adequate patient information and clinical data and from past visits;



Attractiveness and user-friendliness of technology:

- STAT™ has proven to be well accepted by providers and patients in pilot test;
- Easy to use, robust equipment.



Overcoming the Challenges with STAT™ SmartCard/Biometrics



STAT™ System ART Reporting Module Version 1.0

*Developed by John Snow Inc. Reg No
2001/024695/10 with funding from the United
States Agency for International Development under
TASC Order 806*



Managing Health Information System data & reports:

- Data uploaded daily from ART sites to Net 1 switch and onward to central STAT™ database;
- Database can generate aggregate or individual ART center reports:
 - Patient encounter statistics;
 - PEPFAR indicators;
 - ARV inventories;
 - ARV forecasts;
- Web-based performance data available.



Overcoming the Challenges with STAT™ SmartCard/Biometrics



Mobility of Patients:

- Patients can use their STAT™ card at any STAT™ ART center to access services and drugs;
- Patient's STAT™ card contains adequate clinical data - no need to access the central database .



Overcoming the Challenges with STAT™ SmartCard/Biometrics



Opportunities for gaming the system:

- Only the owner of the STAT™ card can use it to obtain treatment;



without



=



- Patients cannot receive more than the appropriate amount of drugs in any month;
- Potential ARV leakage at ART centers minimized due to higher level of accountability through use of service provider STAT™ cards.



Overcoming the Challenges with STAT™ SmartCard/Biometrics



Electricity/phone line availability:

- Since card readers powered by rechargeable batteries, no electricity required during home visiting;
- Battery pack allows estimated 320 patient interactions on single charge;
- Patient visits at ART centers can continue during power outages;
- No need for constant online connection – dialup and upload at end of day only.



Overcoming the Challenges with STAT™ SmartCard/Biometrics



ART inventory control, security, & data management:

- Incoming drugs entered on pharmacist's STAT™ card and deducted from inventory on hand as drugs dispensed to patients;
- ARV stock status uploaded daily to national STAT™ database;
- Precise consumption data generated to enable accurate forecasting;
- Supervisors can check physical inventories against up-to-date stock status data.



Overcoming the Challenges with STAT™ SmartCard/Biometrics



Verifying Private Provider Billing:

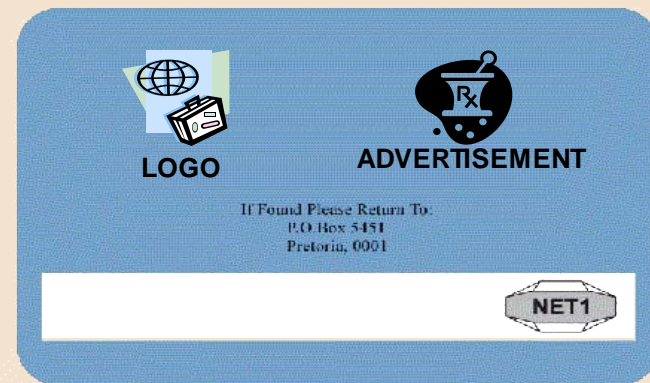
- Private practitioners can claim payment made through data uploaded through Net 1 switch;
- Eliminates need for paper billing.



Private-Public Partnership Opportunities



- Investment opportunities;
- Verifying payments to private practitioners;
- User friendly for private companies providing ART;
- Possible sponsoring of research update information publishable on STAT web site;
- Advertising on STAT™ cards.



STAT™ Today



- JSI/DELIVER staff in South Africa currently engaged in pilot testing STAT™ ART system at several CRS sites;
- Uplink to STAT™ central database will go live in April 2005;
- Rollout to all 23 CRS sites will commence in June 2005;
- Actively pursuing involvement of additional partners for rollout phase.

Thank you

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