

# Global Expansion of Offender DNA Databases

Presented by Tim Schellberg  
Gordon Thomas Honeywell Governmental Affairs  
Washington State Patrol  
June 18, 2015



# DNA Offender Databases

## Public Safety's Greatest Weapon



Solve



Prevent



Exonerate



Save



# The First 20 Years Criminal Offender DNA Database



United Kingdom, USA, New Zealand, Australia  
& Western Europe



Data from early adopters pushed the rest of  
the world forward



Countries to follow: 50 Countries Implemented

# 50 COUNTRIES HAVE IMPLEMENTED NATIONAL PROGRAMS OVER 60 MILLION OFFENDER SAMPLES



Australia  
Austria  
Bahrain  
Barbados  
Belarus  
Belgium  
Brazil  
Canada  
Czech Republic  
Chile  
China  
Croatia  
Cyprus  
Denmark

Estonia  
Finland  
France  
Germany  
Hong Kong  
Hungary  
Iceland  
Israel  
Japan  
Jordan  
Kuwait  
Latvia  
Lithuania  
Netherlands

New Zealand  
Macedonia  
Malaysia  
Mauritius  
Norway  
Oman  
Panama  
Poland  
Portugal  
Qatar  
Russia  
Slovenia  
Slovakia  
Singapore

South Korea  
Spain  
Sweden  
Switzerland  
Taiwan  
United Arab Emirates  
United Kingdom  
United States  
Uruguay

These countries have implemented legislation/polices on a national basis to database the DNA of a defined category of criminal offender



# Offender Database Sizes

## Databases over 1 Million

China - 30,000,000 \*

United States - 13,700

United Kingdom -  
4,898,074

France - 2,547,499

## Databases over 100K

Germany - 832,695

Australia - 590,607

Japan - 400,000 <sup>i</sup> \*

Russia - 300,000\*

Spain - 297,494

Canada - 288,660

Israel - 230,000 <sup>ii</sup>

Netherlands - 152,049

Singapore - 190,000 <sup>iii</sup>

Austria - 187,331

Switzerland - 169,317

New Zealand - 145,512 <sup>i</sup>

Finland - 150,188

Sweden - 143,061

Czech Republic - 137,475

Hungary - 120,765

Denmark - 105,824

South Korea - 100,000 <sup>i</sup>

## Databases over 50K

Taiwan - 91,831

Jordan - 74,000 <sup>i</sup>

Chile - 72,603

Norway - 55,428

Latvia - 53,327

## Databases 50K or less

Slovakia - 46,769

Estonia - 46,494

Poland - 37,498

Kuwait - 35,000

Belarus - 35,000 (2010)\*

Belgium - 31,340

Croatia - 31,199

Hong Kong - 30,000\*

Slovenia - 29,332

Romania - 25,235

UAE - 25,000 <sup>i</sup>

Panama - 12,000 <sup>ii</sup>

Iceland - 5,000\*

Portugal - 3,381

Oman - 2,000\*

Barbados - 2,000\*

Macedonia - 1,000

Cyprus - 389

Brazil - 80

2014 figures

<sup>i</sup> 2013

<sup>ii</sup> 2012

<sup>iii</sup> 2011

\* estimate

# National Database Implementation Countries



## IRISH EXAMINER

### Legislation passed to establish DNA database

Thursday, June 12, 2014  
By Cormac O'Keeffe  
Irish Examiner Reporter

The DNA database promised seven years ago should be operational by the end of the year, justice officials have said.

Legislation creating the database passed all stages of the Oireachtas yesterday, marking a landmark in criminal law and policing.

- ▣ Legislation passed June 2014
- Limited to more serious crimes



## GIORNALE DI INFORMAZIONE GIURIDICA

### DNA databank will be operational by 2015

Posted Thursday, February 5, 2015 24:45

As announced by the Minister of Justice, Andrea Orlando, in a report sent on the occasion of a meeting held on 4 February 2015, in Rome, the second half of 2015 will see a concrete start of the DNA data bank, so that the judiciary and the judicial police, will benefit from the most effective tools to conduct investigations.

- Legislation passed in 2009
- Minister of Justice declares implementation in 2015



- Legislation passed in 2009
- Implementation plans uncertain



# National Database Implementation Countries



## PARLIAMENT PASSES DNA BILL

9/10/2014

*The Deoxyribonucleic Acid (DNA) Bill was passed in the Parliament today (Wednesday) with a provision of bringing the DNA test process under a legal framework.*

*State Minister for Women and Children Affairs Begum Meher Afroz piloted the bill in the House, which was passed in voice votes.*

- ▣ Parliament passed database legislation – September 2014
- Implementation schedule is unknown
- DNA infrastructure for national database is limited



- Database legislation passed in late 2013
- Lab construction underway to handle new samples created by legislation
- Implementation expected in 2016

# Significant Pilot Countries

Thailand



## PATTAYA MAIL

### Justice Ministry creating inmate DNA database

Thursday, 13 November 2014 By MCOT

BANGKOK, Nov 12 -- Thailand's Ministry of Justice is creating a DNA database of all prisoners in the Thai penal system, with DNA data to be incorporated into inmates' criminal records to be used in tracking them after their release.

- ▣ 90,000 prisoner samples by 2016
- Arrestee testing legislation under discussion

## THAN NIEN NEWS

### FBI to transfer DNA testing software to Vietnam police

Vietnam News Agency/Thanh Nien News  
WASHINGTON - Tuesday, March 17, 2015 21:12



Minister of Public Security Tran Dai Quang (L) shakes hands with Director of the Federal Bureau of Investigation (FBI) James Comey in Washington on March 16, 2015. Photo credit: CAND

- CODIS agreement signed with FBI – March 2015
- 50,000 prison samples by 2016
- 150,000 samples by 2018
- Arrestee testing legislation under discussion

Vietnam



Mexico



- Multiple Mexican states operate stand alone databases
- Crime pressure forcing discussion of national database program



# CODIS

→ GOING FORWARD

**CODIS has become the International DNA Database software standard...**

- Of the 50 countries that have implemented nationwide criminal offender DNA database programs, **35 are using CODIS software.**



**Other 25%**

**CODIS Software 75%**

# Thailand

# CODIS

## Bangkok Post

gkokpost.com

THE NEWSPAPER YOU CAN TRUST

WEDNESDAY, NOVEMBER 28, 2012

### FBI to help set up DNA database

KING-QUA LAOHONG

The Justice Ministry is teaming up with the US Federal Bureau of Investigation (FBI) to develop a national DNA database to help police solve violent crimes.

DNA samples in Thailand are currently collected on a case-by-case basis, with

IS agreement with  
November 26, 2012.





# Significant Pilot Countries



- ▣ State of Punjab (Lahore) has created a database of 5,000 prisoners & suspects
- No national database discussion



- Notable unofficial database
- Legislation under discussion

# Other Countries with Active Legislation Discussions Underway



- ▣ Solid DNA infrastructure in government
- Ministry of Justice's Legal Medicine positioned to lead database effort, not Turkish police
- Legislation likely in 2016



- Legislation under discussion in the Peruvian Congress
- Disagreement on who will operate the database has caused delays



## THE INDIAN EXPRESS 'Efforts on to table DNA Bill in Budget Session'

By: [Express News Service](#) | New Delhi | Posted: January 14, 2015 4:35 am | Updated: January 14, 2015 4:36 am

The Centre on Tuesday informed the Supreme Court that it has stepped up its efforts and "earnest endeavours" were being made for introduction of the Human DNA Profiling Bill in the Budget Session of Parliament. The Budget Sessions usually begins in the third or fourth week of February.

- Legislation in process and expected to pass in 2015



# Other Countries with Active Legislation Discussions Underway



## ***Establishment of a forensic DNA databank pushed***

*Total views: 96 09 April 2015 07:47:01 AM*

*Writer: Jazmin S. Camero, Media Relations Service-PRIB*

*A lawmaker has filed a bill establishing a forensic deoxyribonucleic acid or DNA databank to boost the country's criminal justice system.*

*Rep. Mark A. Villar (Lone District, Las Piñas City), author of House Bill 5372, said recent advances in forensic DNA testing are now paving the way for reforming the manner by which cases are resolved in courts of law through the way suspected offenders are apprehended during criminal investigation.*

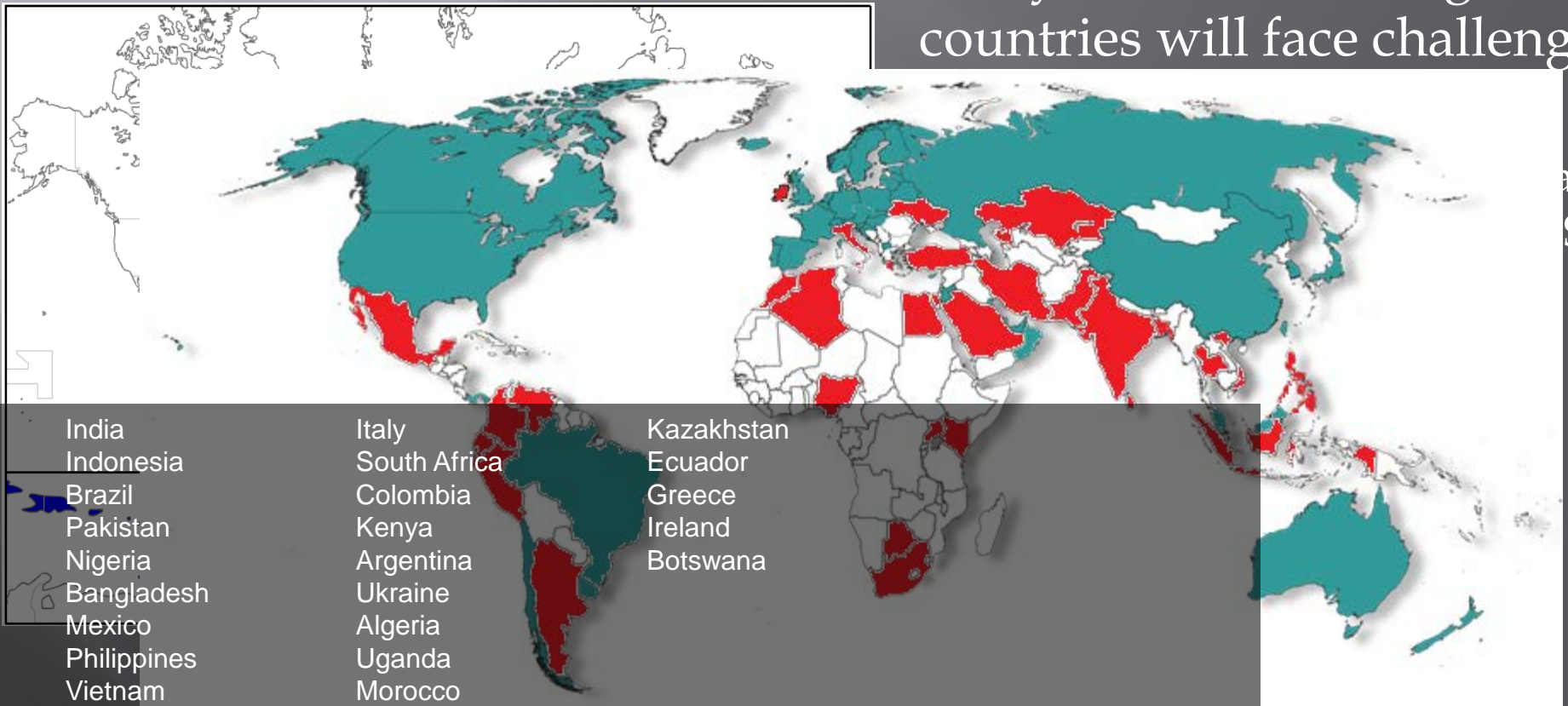
- Arrestee testing legislation – Introduced April 2015
- Philippines National Police (PNP) is actively building the DNA infrastructure
- CODIS installed at PNP in 2014

# Looking Forward

2015-2025 Predictions  
**Beyond 2025**

80 Countries, 100–150 Million Profiles

Many of the remaining 117 countries will face challenges



India  
Indonesia  
Brazil  
Pakistan  
Nigeria  
Bangladesh  
Mexico  
Philippines  
Vietnam  
Iran  
Egypt  
Turkey  
Thailand

Italy  
South Africa  
Colombia  
Kenya  
Argentina  
Ukraine  
Algeria  
Uganda  
Morocco  
Saudi Arabia  
Peru  
Venezuela  
Sri Lanka

Kazakhstan  
Ecuador  
Greece  
Ireland  
Botswana

MOVE FORWARD



# Arrestee Testing



**Marper v. United Kingdom - 2007**

**King v. Maryland - 2013**

**Arrestee Testing is Constitutional & Acceptable**

- *If Profile & Sample are Destroyed when not convicted*

# THE REAL WINNERS

## OF OFFENDER DNA DATABASES: VICTIMS AND SOCIETY

### THE DEBBIE SMITH ACT (2004)

**AUTHORIZES OVER \$2 BILLION TO  
BE SPENT ON FORENSIC DNA**

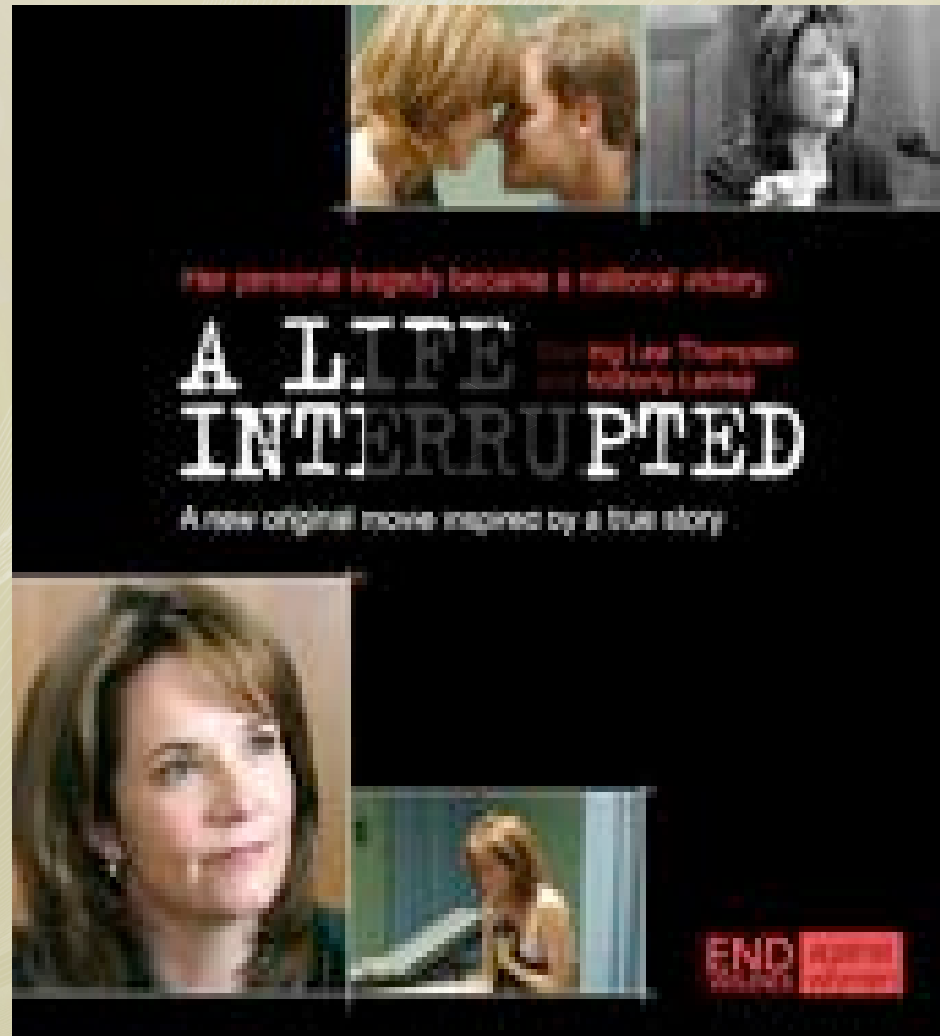
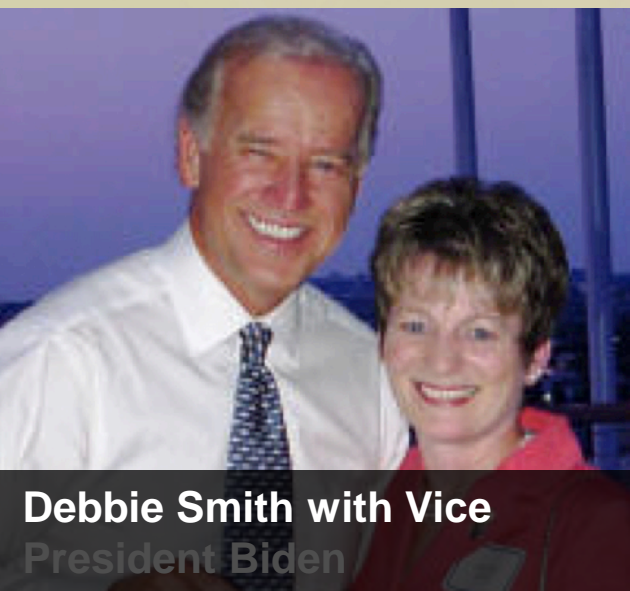
**DRAMATIC IMPACT ON STATES'  
ABILITY TO TO REDUCE BACKLOGS  
AND EXPAND DATABASES**





# THE REAL WINNERS

## OF OFFENDER DNA DATABASES: VICTIMS AND SOCIETY



# The Case that Caused Congress to Act

Belo Horizonte Serial Murderer - Marco Trigueiro

**2006:** Brazilian Congress rejects legislation to allow DNA to be taken from every convicted offender.

**2008:** Marco Trigueiro released from prison in 2008 for a violent crime conviction - no DNA taken as legislation failed.

**2009:** Rapes and murders five women in Belo Horizonte during 2009, leaving DNA at all crime scenes

**2010:** Families of victims realize that most of the victims would still be alive if Congress would have passed the legislation in 2006

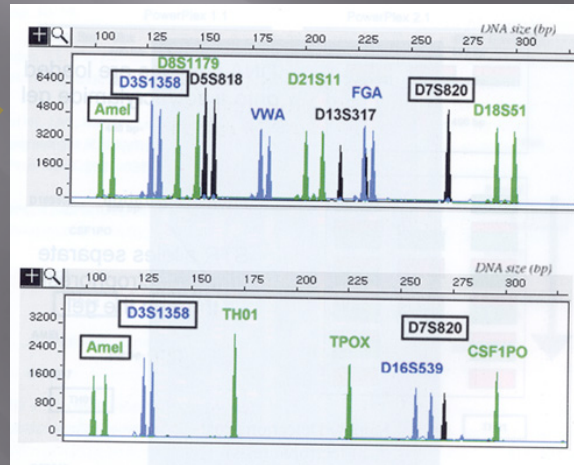
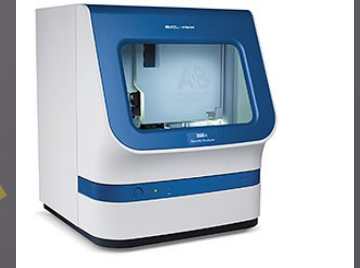
**2011:** Families organize and lobby Congress to pass legislation to save lives in the future

**2012:** President Dilma signs legislation





# CE and STR Technology Dominating the First 20 (30) Years



# Legislative Impact of New DNA Technology



Next Generation  
Sequencing  
(NGS)



Rapid DNA

# Rapid DNA Testing

## Impact on Public Policy and Legislation



- ❑ GOING FASTER WITHOUT LAB PERSONNEL - WHAT'S THE IMPACT?
  - Reference Samples
    - US Legislation - Necessary to upload to NDIS
    - State Legislation
      - Many states will require legislation to upload to SDIS
      - Concerns have also been raised that public record and evidentiary laws will also need to be changed.
- ❑ Casework
  - Inevitable – Protocols will be necessary
  - Legislative restrictions will likely develop
- ❑ Ownership
  - Putting DNA in the hands of law enforcement will increase utilization



# Rapid DNA Creating New Databasing Application



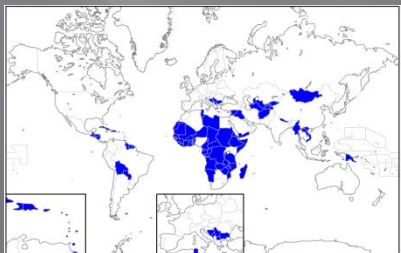
**Military**



**Boarder Control - Detainee**



**Immigration/Refugee Process**



**The 117 Countries Who May Not  
Have Infrastructure**

# Next Generation Systems

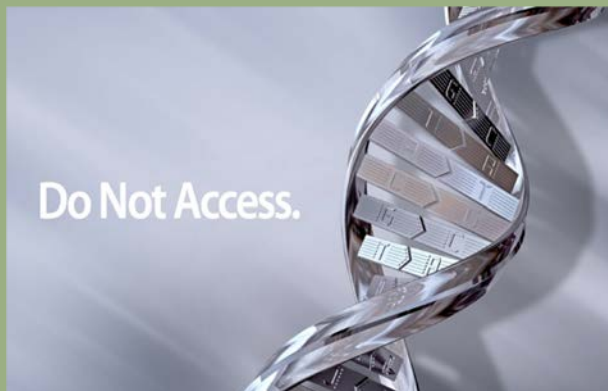
## Impact on Forensic DNA Policy and Legislation



How deep should we look?

Casework:

- More STRs ☒
- mtDNA ☒
- “Appearance” SNP’s ☒
- YSTRs/Other Pedigree Assisting Markers ☐
- “Personal Information” SNP’s ☒
  - Impact on Innocent Suspects
  - Duty of Government to Inform



Prediction:

We will see legislation to regulate the use of NGS in casework.

International discussion and protocols would be beneficial

# Next Generation Systems

## Impact on Forensic DNA Policy and Legislation



Reference Samples:

Existing loci NGS debate and  
impact on legislation

Proposed expanded loci debate  
and impact on legislation



# Civil DNA Databases



Peru Newborn  
Pilot



Discussion for whole  
population databases  
grows in the Middle  
East



Changing Attitudes

**Denmark Study:**  
*"Nearly 80% say that  
cataloging the DNA of  
everyone in the country  
is a good idea."*

- **Copenhagen Post**  
(February 4, 2015)

# Impact of Personalized Medicine on the Criminal DNA Database Debate

Privacy issues with  
Personalized Medicine

Whole Genome  
Health Systems  
Doctors  
Research Institutions  
Multiple Government Agencies  
Insurance Companies  
Big Data Companies  
Paternity Awareness  
Genetic Weakness

Privacy issues with Human  
Identification Databases

Limited Identity Genetic Markers  
Limited Government Agencies