

# Computer assisted triaging of public dental emergencies in South Australia

## Relative Needs Index RNI

Dr Andrew Chartier  
Evaluation & Research Unit  
S. A. Dental Service



Government  
of South Australia

---

SA Health



## What is the R.N.I. ?

- > Computer assisted dental triage tool
- > Prioritising 'Cons/Restorative' assessment
- > Conducted by front line staff
- > Series of 8 questions, script and prompt on-screen in patient's record – audit trail
- > Score determines priority for emergency care
- > Developed in collaboration with A.R.C.P.O.H.



## Aims

- > Reduce public dental resources consumed in “priority” emergency appointments
- > Increase resources for treating people on restorative waiting lists
- > Maintain client satisfaction with the dental service
- > Improved morale & dentist satisfaction
- > Standardise Access Criteria - fairness
- > Use research and ongoing clinic data that is regularly evaluated

# Brief History

- > Late 1990s - idea of prioritising care for adults
- > CDHP<sup>1</sup> Funding had reduced - struggled to meet emergency demand
- > Research by ARCPOH to develop a tool
- > Recognition - do less emergencies so can provide more complete general dental care.
- > Only chance to impact on long term oral health of card holders



## National Oral Health Survey 2004

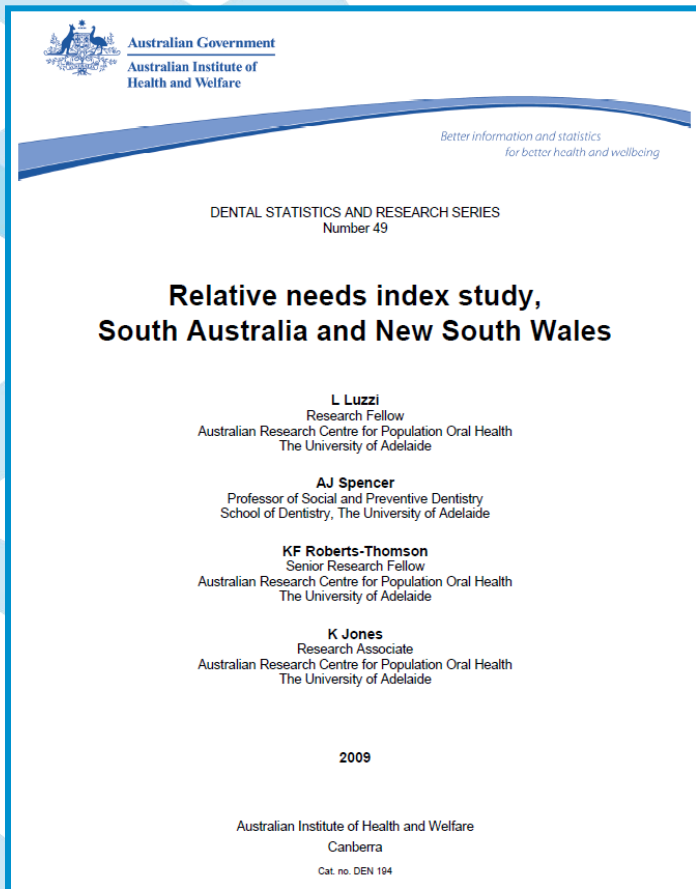
- > Many card holders suffer the direct impact of poor oral health on wellbeing
- > The better oral health outcomes for **non-** card holders came from early intervention
- > The poor oral health outcomes for card holders stem from late treatment for problems - frequently extraction

# Relative Needs Index Research by ARCPOH to develop a tool

[http://www.arcpoh.adelaide.edu.au/publications/report/statistics/htm\\_09/RNI\\_emergency\\_DSR\\_49.html](http://www.arcpoh.adelaide.edu.au/publications/report/statistics/htm_09/RNI_emergency_DSR_49.html)

The Relative Needs Index (RNI) Study applied indicators of patient-perceived treatment needs (i.e. symptom-based measures of disease, and social and psychological consequences of oral diseases and disorders) and compared them to a clinical judgment of urgency of care.

- > The RNI study sought to determine the relative need of patients attending for emergency and general dental care by assessing both patient-perceived need and a clinical determination of need stratified into a hierarchy of urgency of care.
- > Systems that give priority to patients with the greatest need first are deemed to be equitable, and should facilitate better access to adult dental care in both South Australia (SA) and New South Wales (NSW)



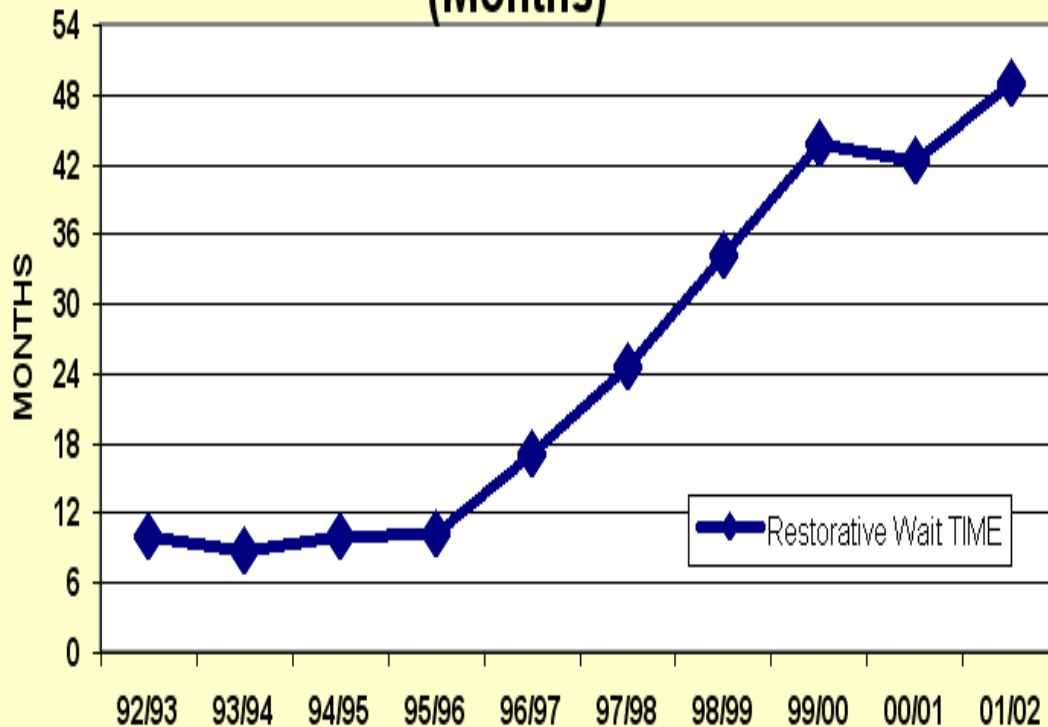
# Increasing Waiting Times Since CDHP – from 10 months 1996 to 2001/02

> Dental waiting lists increased to 49 months in 2002

> Demand for public dental care increased by 24% in one year (mostly emergency)

> More than 70% of public dental service clinical resources consumed in responding to 'emergency' needs

**South Australia Restorative Wait Time  
(Months)**





## Clinical strategies to improve the oral health outcome of card holders

### Goal:

- > Enable a significant proportion of card holders to receive timely early intervention and a **complete general course of care**
- > But where does the funding come from?

# Emergency demand management 2002/03 to 2005/06



> Reduced emergency appointments slots

> ADH overflow clinic

> Delayed appointments for lower severity

Higher copayments for emergency

Attendance at the clinic for private referral for emergency care



# Demand Management 2006/07 to Now



## **The Relative Needs Index System**

Integrated into Titanium electronic patient record system

- > Trialled in 4 sites July 2006
- > Evaluated and adjusted
- > Rolled out Statewide from November 2006

## **Medical emergency - immediate**

- > **Priority 1 - within 24 hours**
- > **Priority 2 - within 2 weeks (originally 3)**
- > **Priority 3 - waiting list** / private options

Alternate care pathways defined for  
Denture Repairs, Medical and Special Programs  
clients



# RNI - Relative Needs Index Emergency Assessment Tool

Titanium Oral Health Management - [Patient File]

File Edit View Transactions Reports Marketing Accounts Lab Configure Fixes Window Help

Patients Christies Beach HINDMARSH LeFevre Noarlunga

Search By UR Number [ ]

Details Recalls W/list Notes Med History Pathology Ortho Perio Chart CoC Doc's Laboratory RNI-EAT DOB:

History		
16/09/2009	09:58am	MICHEL
04/01/2010	10:24am	JOYR
05/03/2010	12:27pm	ART BL
08/04/2010	03:18pm	FELICIT

### RNI Emergency Assessment Tool

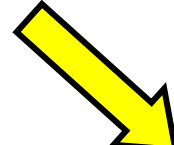

Reason for No RNI Assessment is:

Chief Complaint:

Emergency Assessment RNI Questions...

Score: 0.000

RNI Urgency Assessment Is:



RNI

## Add RNI-EAT Entry

### RNI Emergency Assessment Tool

Reason for No RNI Assessment Is

## View Non-Assessment Reasons

Code	Reason
DENTURE	Denture Related Problem so No RNI Required
TRAUMA	Trauma Appoint Immediately
SWELLING	Facial Swelling Appoint Immediately
BLEEDING	Severe Bleeding Appoint Immediately
SRF	SRF Resident Assess Under Standard Procedures
NO_CARD	No PCC or HCC Card So NOT Eligible
NO_ENGLISH	Not Speak English So NOT in STUDY at TRIAL SITE only
INCOMPLETE	Incomplete Question Responses->Patient Doesnt Know All A...
	Other Reason -> Write Reason In Dated Notes
	<b>Priority Medical Condition warranting By-Pass RNI</b>

### History

16/09/2009	09:58am	MICHEL
04/01/2010	10:24am	JOYR
05/03/2010	12:27pm	ART BLA
08/04/2010	03:18pm	FELICIT

Split lower molar L side about 4 days ago

### Emergency Assessment RNI Questions...

Have You Had Pain In Your Teeth With Cold Food Or Fluids In The Last Week

Have You Had Pain In your Jaw When You Open Your Mouth Wide In The Last Week

Have You Had Shooting Pain In Your Face Or Cheeks In The Last Week

Have You Had Bleeding Gums In The Last Week

Have You Had A Broken Filling In The Last Week

Have You Had A Toothache In The Last Week

During The Last Week Has Your Dental Problem Caused Difficulty Sleeping

During Last Week Did You Worry A Lot About The Health Of Your Teeth/Mouth

Instructions: Once all Responses and Chief Complaint have been Completed Press [Calculate Score]

Calculate Score

Score:

0.478

RNI Urgency Assessment Is:

Priority Two

OK

Cancel

Yes	Yes
No	No
Yes	
No	Yes
Yes	No
Yes	
Sometimes	Sometimes
Never	
	Never
	Sometimes
	Fairly Often
	Very Often
	All The Time



# Outcomes

- > Significant reduction in hours of emergency dentistry – over 30% immediately  
up to 44% long term sustained after 3yrs
- > Over \$2 million p.a. (~ 10% CDS budget) effectively transferred from emergency care to waiting list patients
- > 16,000 more people on general waiting list received full course of care
- > Client satisfaction survey showed little reduction in client satisfaction
- > 48,000 RNI per annum - complaints very minimal

# Outcomes

- 2

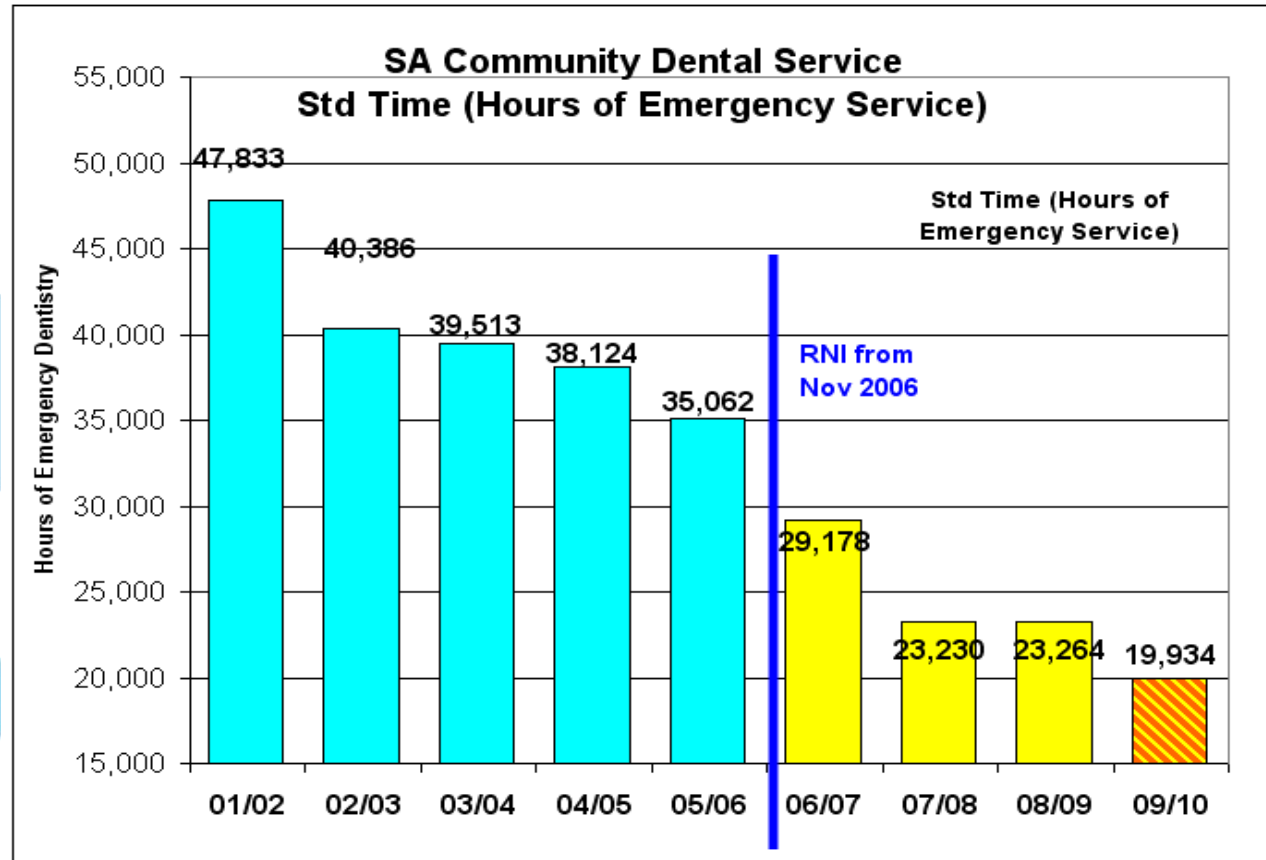
- > More consistency in emergency triaging – front line staff use it simply, efficiently and with a high level of skill
- > Dentists Assessment of Urgency has been very stable since introduction
- > More complete documentation of requests for priority care is a sound basis for managing complaints re access to care



➤ Recognised with a SA Premier's Award in 2008 for "Excellence in the Public Sector"

➤ Nominated for a Prime Minister's Award in 2008

# Resource Requirement for Emergency Care (Staff Time) Reduced



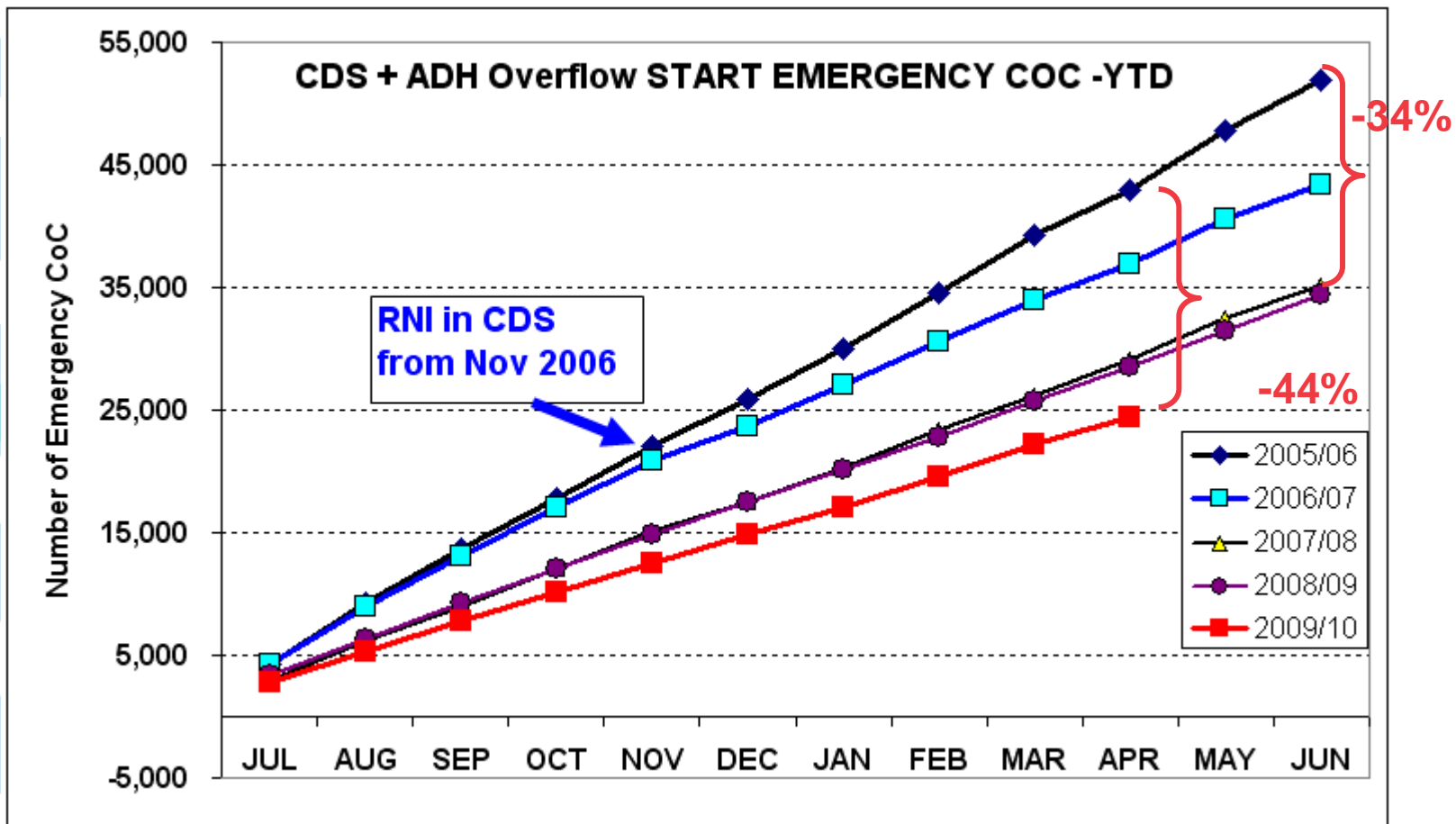
Quantified FTE Dentist Savings at an example of 6.0 hrs/day & 210 days /year

12mths to April'10

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
1 FTE Hours	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260
FTE Emergency Dentist Equivalents	39.06	37.96	32.05	31.36	30.26	27.83	23.16	18.44	18.46	15.82
Savings (vs 00/01)	-	- 1.10	- 7.01	- 7.70	- 8.80	- 11.23	- 15.90	- 20.62	- 20.60	- 23.24

**fewer CDS & ADH Dentists doing Emergency Services**

# Better than 1/3<sup>rd</sup> Reduction in Number of Emergency Courses of Care Maintained in subsequent years



## RNI Interim Results CATI data

Kelly Jones, Gary Slade and John  
Spencer

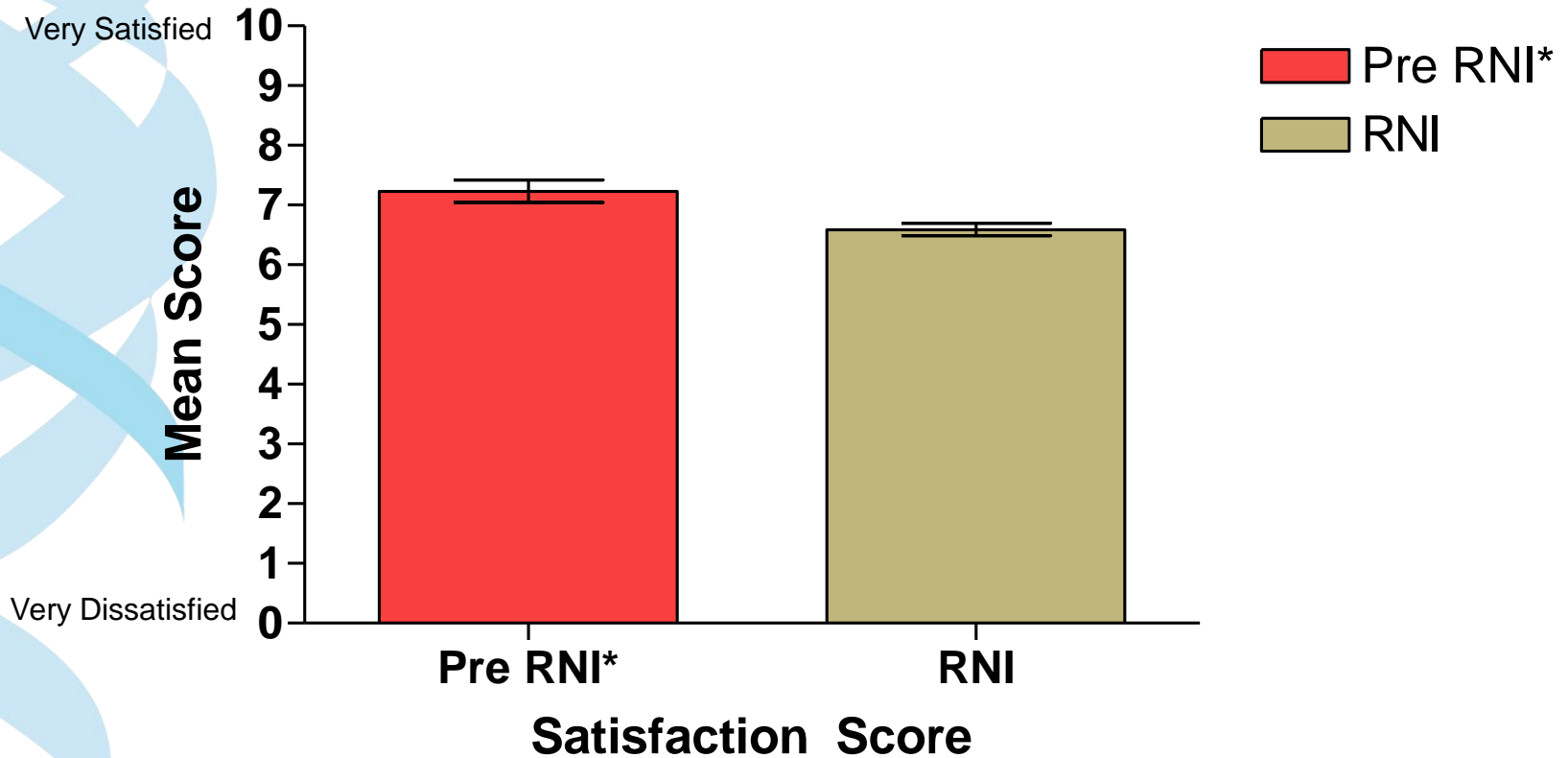
Australian Research Centre for  
Population Oral Health.

2006

arcpoh@adelaide.edu.au

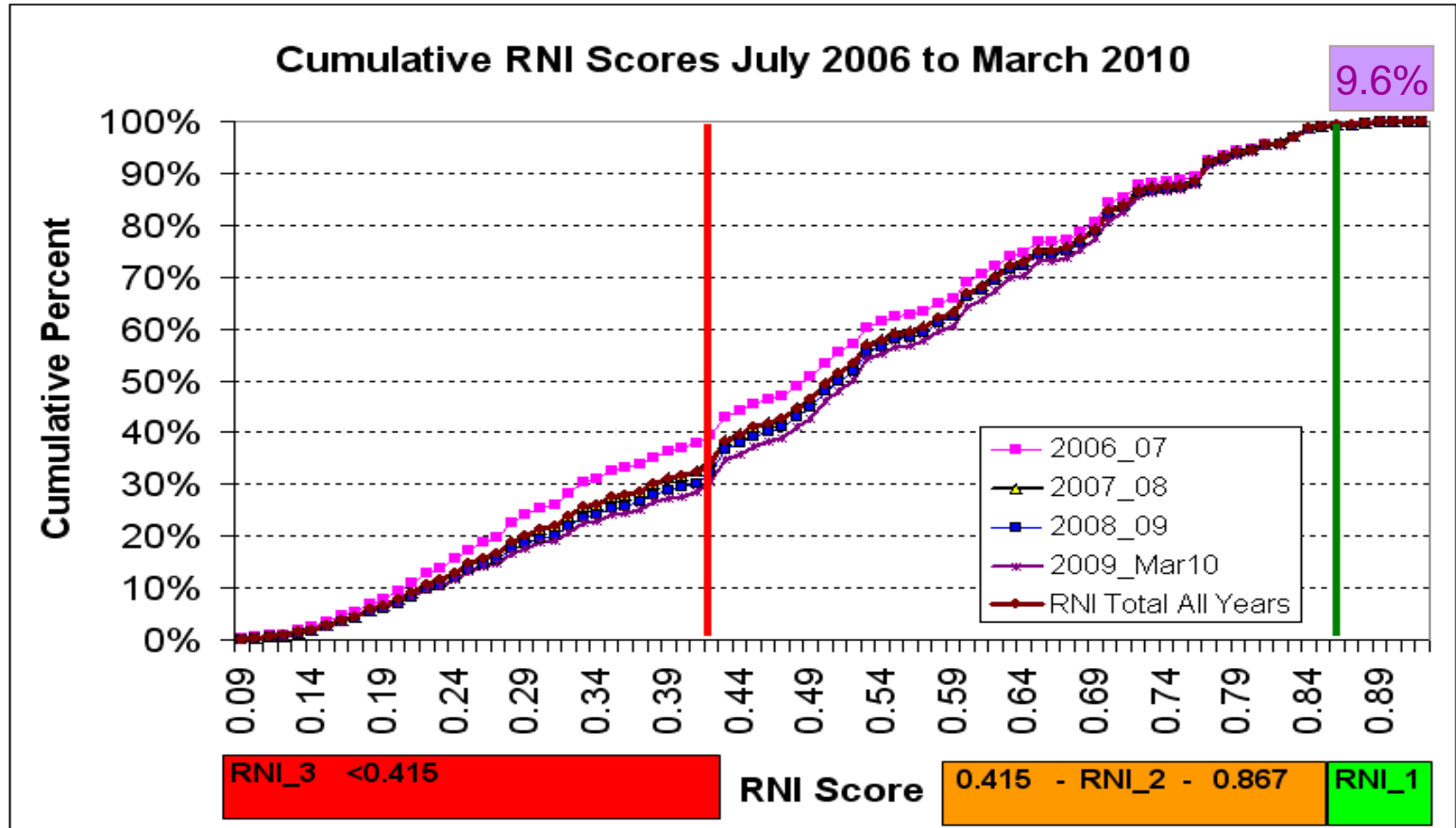
# Research Findings

Mean CATI satisfaction score with way the  
dental problem was handled by SA Dental  
(0 = very dissatisfied, 10 = very satisfied)



# Client RNI Profiles

\*\*\*



\*\*\* Excludes Trauma, Facial Swelling, Severe Bleeding, Medical Priority Condition (9.6%)  
 - Pros (Denture) Problems (6.3%) and SRF clients.  
 Alternate pathways to care.

# Match to Dentist Assessment of Urgency for Clients seen at CDS clinics (DUA)

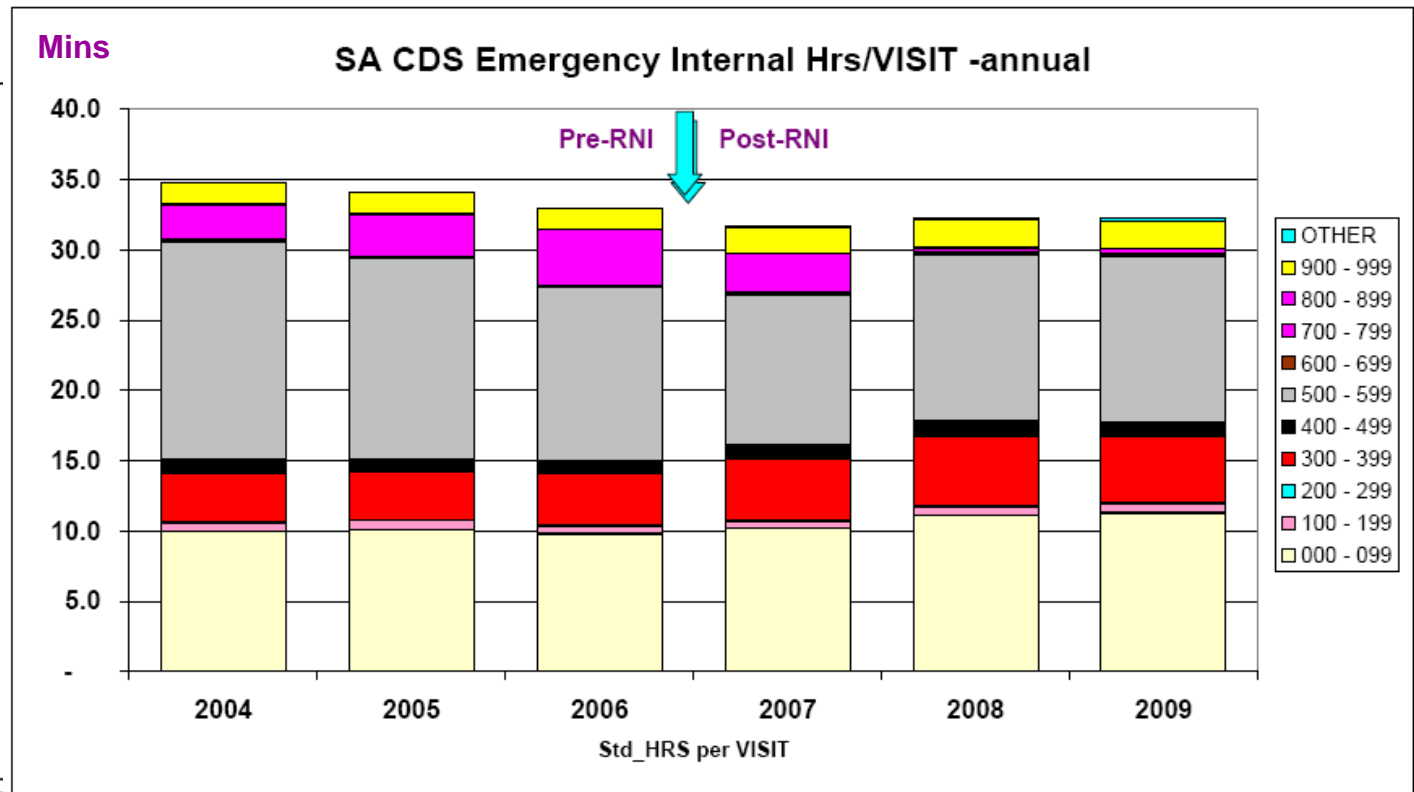
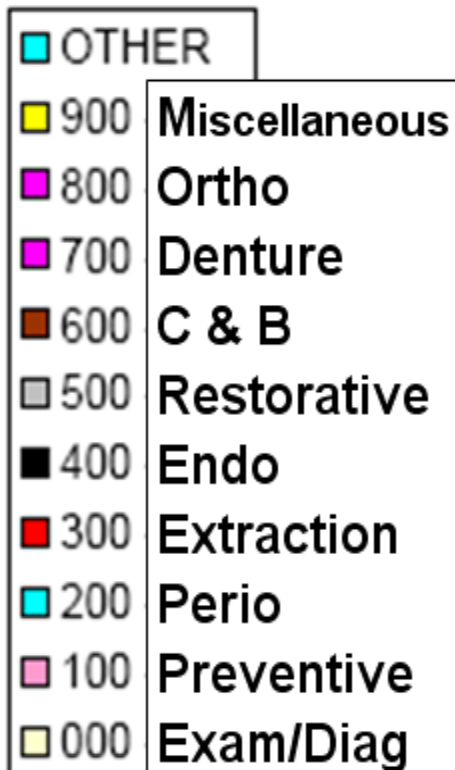
Jul09 to Mar10

RNI Scores - Clients seen at CDS clinics

		LINK RNI recommendation			
Emergency Exam (013)		Priority One	Priority Two	Priority Three	Grand Total
Dentist	013_DUA1	0.2%	9.7%	2.0%	11.9%
Assessment	013_DUA2	0.7%	60.7%	13.7%	75.2%
of Urgency	013_DUA3	0.1%	7.2%	5.8%	13.0%
<b>Grand Total</b>		0.9%	77.5%	21.5%	100%

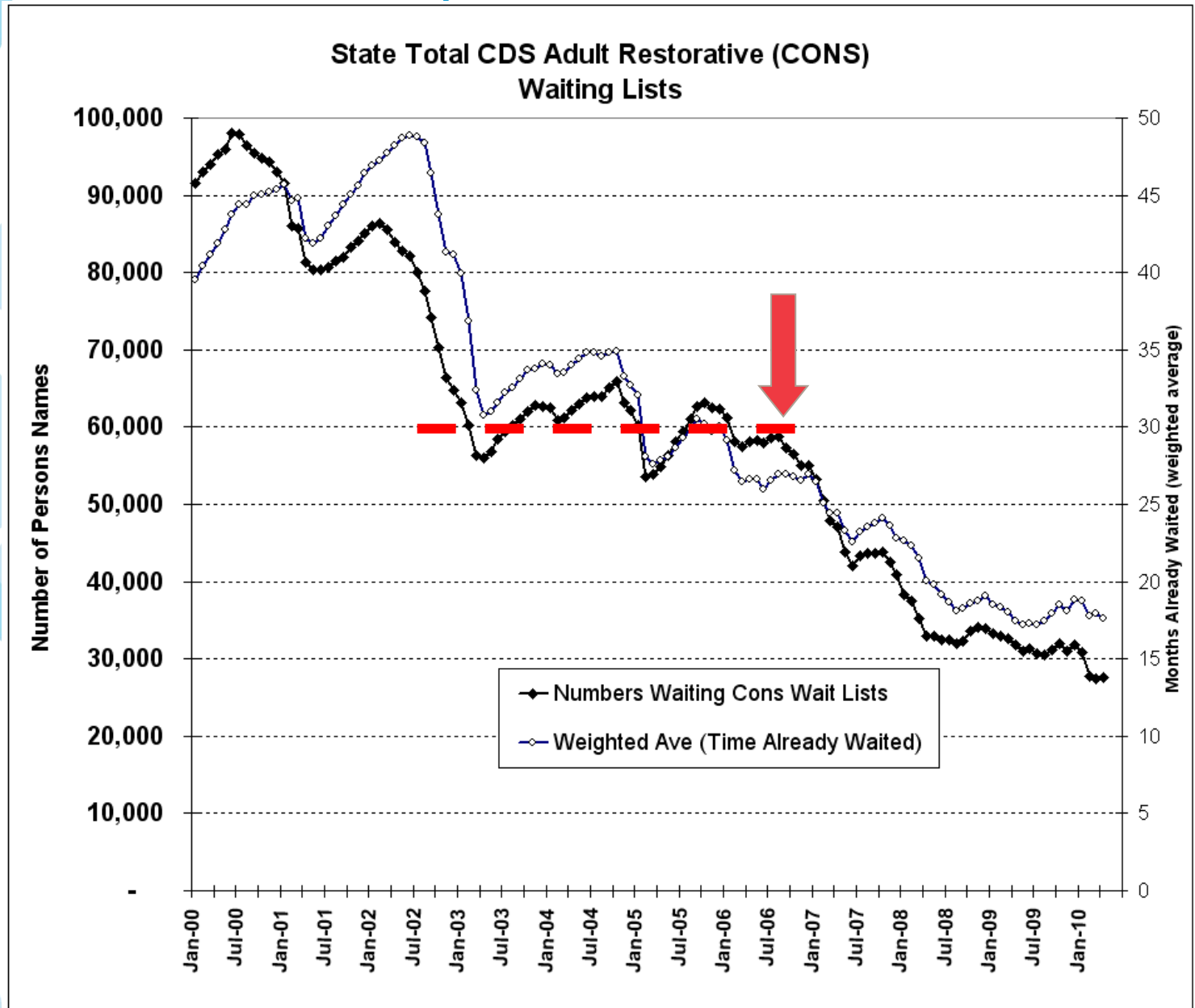
- > 66.6% Agreement between Dentist and RNI
- > 7.9% Dentists Assess at a lower category
- > 9.7% P2 Dentists would upgrade to Priority One
- > Reception override for short clinical appointment for Priority Three ~ 21.5%\*\* *less with Overflow referrals*
  - 73% of these cases DUA1 or DUA2
  - 27% Dentists agree DUA3 – low needs

# No real change in Complexity of Emergency Services Provided



- > 2% reduction in Services per Ave Visit
- > 4% reduction in Restoration / Visit
- > 15% more Exam/Diagnostic & 10% more Preventive services
- > 12% more Endo Services commenced & 31% Extractions\*\*\*
- > \*\*\*But a Change to Denture Repairs system → PDS outsourced

# Wait List Impact – Shorter Wait Time





## Why Successful?

Built on a strong foundation of

- > creativity
- > research
- > collaboration with stakeholders
- > project planning and change management
- > implementation
- > ongoing evaluation

# Lessons Learnt for Reform

- > Change Management
  - Clear Consultation & Communication
  - Representation
  - Early Immersed Involvement - Road Shows
- > Solid Research – Evidence Base
- > Political support **p & P**
- > Adjunctive component of aligned strategies; builds on each others success
- > Use Technology to aid standards
- > Skills base – auxiliary – break tradition
- > Ongoing evaluation



# **Government of South Australia**

---

SA Health