

# ***New Directions in Cardiac Care in the NT***

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# Background - What do we have. Cardiology Department RDH

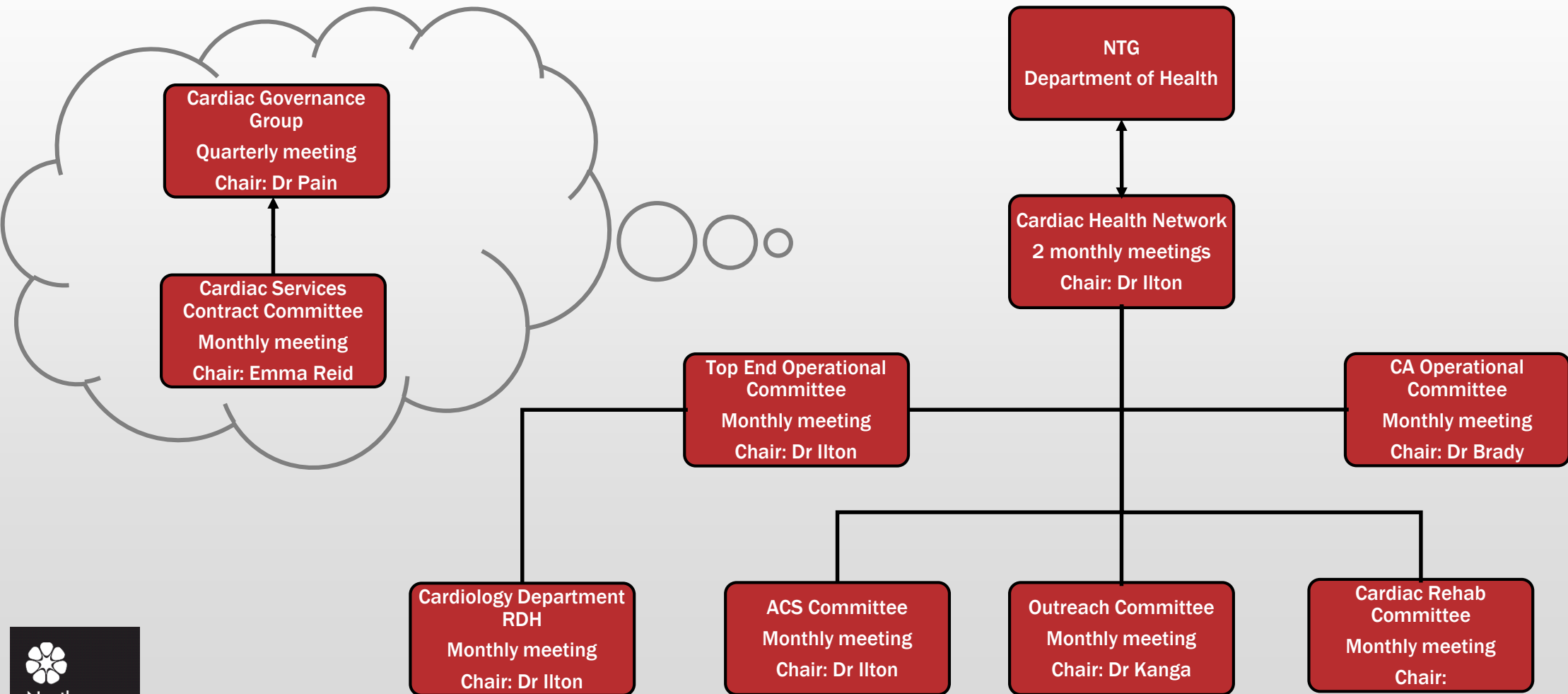


- Royal Darwin Hospital 363 bed hospital in Darwin
- Co-located with the Darwin Private hospital, 104 bed capacity
- Cardiology Department RDH – Part of Cardiac Health Network NT (TEHS and CAHS)
- **TEHS** - pop 200,000
  - Regional Hospitals
    - Katherine District Hospital - pop 10,000
    - Gove District Hospital - pop 4000
  - Remote clinics - 51
- **CAHS** - pop 50,000
  - Regional Hospitals
    - Alice Springs Hospital - pop 40,000
    - Tennant Creek Hospital - pop 4,000
  - Remote Clinics - 25

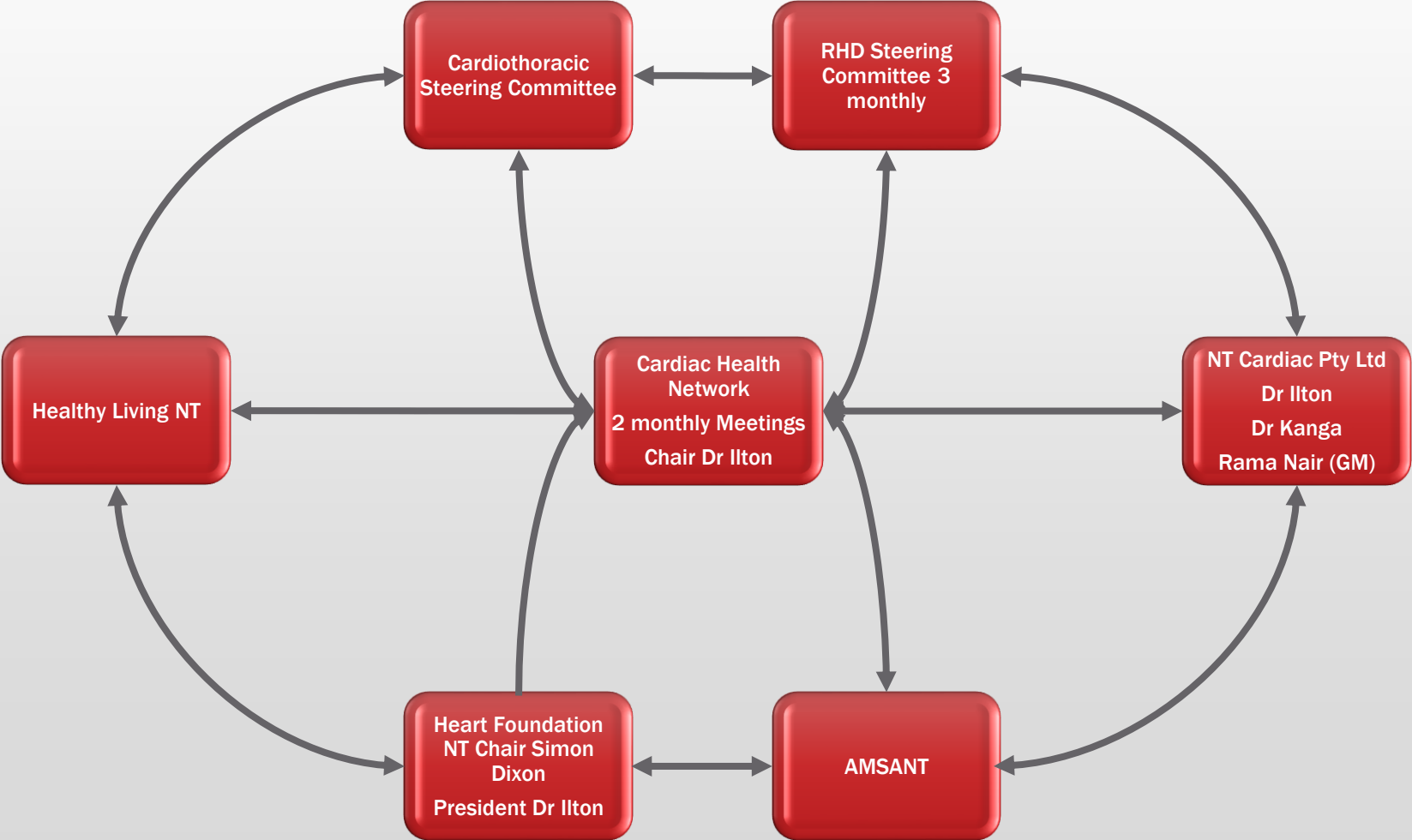
# Cardiology Health Network

- Advise, guide and provide direction to NT Health and the NT Government on a range of cardiac service issues and activities across the NT;
- Terms of Reference
  - **To develop comprehensive policy in line with key findings from KPMG Cardiac service review and to include:**
    - Development of Cabinet Submissions
    - Implementation of programs
    - Monitoring of programs
    - Future planning beyond 5 year cycle
  - Adequate admin and adequately funded / supported project officer.
  - Representatives from key stake holders across NT including NGO's
  - Regional Operational Committee's to report directly to CRG

# Cardiac Health Network NT Governance Structure



# Cardiac Health Network NT



# Cardiology Department RDH 2017 (Public/Private model)

- **RDH Facilities**
  - CCU – 9 Acute Beds
  - Step Down Beds- Across all wards in old block – 3A preference
  - Exercise test on 1<sup>st</sup> floor outside CCU – 5 days a week report and letter same day
  - Inpatient Echocardiography and Holter – Contract with NT Cardiac
  - Nuclear Scan – Perfusion and Gated blood pool scans – Radiology Department
  - Cardiac Rehab – Contracted out to Healthy Living NT
- **NT Cardiac Facilities – Offices Ground floor DPH**
  - All Cardiology Outpatients- NT Cardiac offices ground floor Darwin Private Hospital
  - Stress Echo/ CTCA at NT Cardiac - Chest Pain Assessment Clinic- ground floor DPH
  - Angiography/Angioplasty/Pacemakers/ICD – Cath Lab 1st floor DPH- Contract NTG/  
JV (Healthscope/NT Cardiac)
  - Cardiac Outreach – Echo/Cardiologist and Registrar support – 50 communities

# Cardiology Department RDH Staff-2017 (Public/Private model)

- **Nursing Staff**
  - 24 RN – CCU
  - 1 Exercise Test Nurse
  - 1 Heart Failure nurse
  - 3 Nurse Outreach coordinators
  - 1 Nurse Unit Manager
  - 1 Research Nurse (0.5 FTE)
- 7 Adult Cardiologists (0.5 FTE RDH and 0.5 FTE NT Cardiac)
- 1 Paediatric Cardiologist
- 4 Registrars
- 2 Residents
- 1 Intern
- 1-2 meds students



# Cardiology Department RDH Staff-2017 (Public/Private model)

- **Nursing Staff**
  - 24x RN – CCU
  - PSA
  - 1 Nurse Unit Manager
    - Also Coordinator chronic disease program
  - 1 Exercise Test Nurse
    - Co ordinates and attends stress tests 5 days /week
  - 1 Heart Failure nurse
    - Hayley – Co ordinates and provides education for CHF and PHT patients
  - 3 Nurse Outreach coordinators – Co ordinates Patient care across 3 regions
    - Katherine
    - East Arnhem
    - Darwin/Daly/West Arnhem
  - 1 Research Nurse (0.5 FTE)
    - Co ordinates Concordance
  - Aboriginal Health Worker
    - Works with Nurse CNC
  - Administration
    - Chronic disease
    - Ward Clerk

# Cardiology Department Medical Staff 2017

- **7 Adult Cardiologists**
  - **Duties**
    - **1 week on call starts Friday Ward Rounds –Daily Ward round at 08:00 and PM Handover at 16:00.**
    - **ACS on call 24/7**
    - **1 week as consult support – 10:00 until 14:00**
    - **Registrar/RMO/ Med student training/teaching**
      - **Ward Round**
      - **Wednesday Journal Club 08:00 to 09:00**
    - **Angiography/PCI/PPM/Echo/TOE/CTCA/Stress Echocardiogram**
    - **Outpatient and outreach**

# Cardiology Department Medical Staff 2017. cont

- **4 Registrars**
  - **Cardiology Advanced Trainee x 2**
    - 6 month rotation FMC
      - Daily Ward Round Mon/Friday
      - On call 3 nights/week/ General Med Ward cover 1 weekend day 2 months
      - Angiography/Echo/TOE/ Outpatients/Outreach
      - Co ordinates Junior Staff/Journal Club/M&M meeting
    - **Combined Cardiology/ Gen Med Trainee**
      - 12 months alternative month Gen Med Cover
      - Ward Service – 1<sup>st</sup> on call 1 week in 2 month cycle/ 1 week ward consults in 2 months cycle
      - Angiography/Echo/TOE/ Outpatients/Outreach
  - **Out Reach Cardiology Registrar - Dr Rosemary Weber**
    - GP Trainee
    - Outpatients/ Outreach/ Exercise testing
  - **1 x Medical Basic Trainee –**
    - Daily ward rounds CCU/ Daily ED /Ward cover
    - Outpatients/ Exercise testing/ Outreach



# Cardiology Department RMO Staff 2017.

- **2 RMO**
  - **10-12 week term**
  - **Rotate 2 weekly between CCU / Stress Testing**
  - **Daily Ward rounds**
  - **Attend RDH Theatre –DC Cardioversion/TOE observation**
  - **Attend Cath Lab- Angiogram/Angioplasty/PPM/ICD – observation**
  - **Attend Teleconference – Cardiothoracic –Cath Lab Thursday16:30 SA time**
  - **One out reach trip per term**

# Cardiology Department Intern / Medical Students 2017.

- **1 Intern**
  - **10-12 week term**
  - **Daily Ward rounds**
    - **CCU/ED/Wards**
  - **Attend RDH Theatre –DC Cardioversion/TOE observation**
  - **Attend Cath Lab- Angiogram/Angioplasty/PPM/ICD – observation**
  - **Attend Teleconference – Cardiothoracic –Cath Lab Thursday16:30 SA time**
  - **One out reach trip per term**
- **1-2 Medical Students**
  - **NT Medical school/FU/JCU**
  - **4-6 week term**

# Health Services NT

- **Hospital Networks**
  - **Tertiary Hospital**
    - Local RDH
    - Interstate
  - **Regional Hospitals**
    - ASH / TCH
    - KDH/ GDH
  - **Remote Clinics**
    - Government
    - AMS



# Cardiac Services - NT

- **Acute Care**
  - Remote Clinics
  - Regional Hospitals
  - Tertiary Hospitals – RDH and Interstate
- **Chronic Disease Management**
  - Remote Clinics
  - Regional Hospitals
- **Rehabilitation**
  - Remote Clinics
  - Regional Hospitals

# Cardiac Services - NT

- **RDH (ASH)– Interstate Tertiary Hospitals**
  - **Acute Care**
    - ACS - IHD
    - Heart Failure
    - Arrhythmias
    - Acute rheumatic fever / RHD/Endocarditis
    - Congenital Heart disease
  - **? Chronic disease Management**
    - IHD
    - Heart Failure
    - Arrhythmias
    - RHD and other valvular heart disease
    - Congenital Heart disease

# Cardiac Services - NT

- **Remote Clinics / Regional Hospitals**
  - **Acute Care**
    - ACS - IHD
    - Heart Failure
    - Arrhythmias
    - Acute rheumatic fever / RHD/Endocarditis
    - Congenital Heart disease
  - **Chronic disease Management**
    - IHD
    - Heart Failure
    - Arrhythmias
    - RHD and other valvular heart disease
    - Congenital Heart disease



# Drivers for getting it right

There has always been strong social and economic arguments for addressing:

- Avoidable 'early' mortality
- Reduced morbidity
- Avoidable admissions in NT Hospitals
- Avoidable intra state and interstate transfers
- Avoidable cost such as unnecessary emergency evacuations, transfers interstate, and high cost interventions (e.g. surgery)

# Investing in critical points across the disease pathway can

- Reduce the progression and/or pace of progression, of cardiovascular disease in patients;
- Reduce health care costs; by enhancing primary healthcare and improving local access to early diagnosis and interventions
- Improve the productivity of Territory residents, particularly those who are long term residents, who are profoundly affected by chronic illness and early death

# Where have we come from? – Cardiac History

- **1992 -1997 Visiting cardiologist RAH**
  - Dr Sangster/ Dr Leo Mayer / Dr Richard Yeang
  - 4 clinics a year Darwin and Alice Springs
- **Jan 1996 - Beginning of an Echo service RDH**
  - General ultrasound 2 afternoon sessions / week
  - Started by Peadiatrics – Dr Charles Kilburn
- **1996 Dr Jonathon Carapidis Paper on RHD in the indigenous population in the NT**
- **Aug 1997 – Commencement of Resident Cardiologist RDH**
  - Regular Cardiology Outpatients RDH and DPH
  - Regular Adult Echo service 2 afternoons a week shared with peadiatrics
- **Sep 1997 First Pacemaker inplant RDH**





# Dates

- **Nov 1997 Establishment of the Rheumatic Fever Registry**
  - Established by CRC, THS, and MSHR
- **March 1998**
  - **NT Cardiac Services (NTCS) Established as a consequence of:**
    - Decision by RDH CEO Michael Martin/ DoH Secretary Peter Plummer/ DMS RDH Len Notaris/ NT Imaging to outsource RDH inpatient/outpatient echos and TOE.
      - This was the only way we could establish an adequate echo service at RDH
  - **Initial Echocardiogram contract NT DoH and Joint venture NTCS and NT Imaging**
  - **RDH - Daily echocardiographic and TOE service**
  - **Commencement of Cardiology Outreach service Top End**
    - 6 weekly clinics to Katherine Hospital and Gove District Hospital

# Dates

- **March 2001 Coronary Angiography established DPH**
  - RDH contracted Joint venture between NTCS and DPH (Healthscope Hospital)
  - Initially 300 public patients – now 850 public patients /year
  - 37% increase in re vascularisation in first year. Predominantly in the indigenous population
  - First Intra aortic balloon pump insertion RDH 2001
- **2001**
  - Healthy Living NT established – to provide Cardiac Rehabilitation to RDH and Darwin
- **Feb 2002 2<sup>nd</sup> Resident Cardiologist in Darwin**
  - Dr Tristram Smyth
  - Expanded Outreach Service – now including regular visits to smaller communities Top end

# Dates

- April 2004 – Opening of New Coronary Care Unit RDH
  - 6 beds initially – insufficient funds for full nursing funds.
  - All 9 beds opened 2006
- 2004 – Outreach service in Central Australia and Barkley region established
  - Dr Warren Walsh
- Jan 2005 3<sup>rd</sup> Resident Cardiologist
  - Dr Nadarajah Kangaharan
  - Expanded Cardiology and echocardiography Outreach services to Alice Springs Hospital Congress and 5 CA communities
- 2007 Further Expansion Out reach services Top End
- Jan 2007 – Regular echocardiogram service established Alice Springs Hospital (in association with new DoH contract for Angiography and echocardiography services)
  - Stress Echocardiogram ASH 2010
  - TOE ASH 2013

# Dates of Reports and Reviews

- **2003 – CASPA – Audit of ACS in CA and Top End**
  - Data 2001 to 2002
  - Alex Brown Et al
- **2006 – Cardiac Services in the Northern Territory 2006-2015**
  - Interviews Sep 2004 / Tabled by Gov Feb 2006
  - Dr Michael Frommer and Dr Phillip Harris
- **2010 - KPMG Report**
- **2011 -NT Cardiac Implementation Plan**
- **2017 – Further KPMG report pending**

# Cardiology Service Development 2010/17

- Establishment of CRG and Operational Committees - May/June 2010
- Stress Echocardiography TCH, GDH, KDH - April / July 2013
- Expanded Outreach -April 2013 ongoing
- 5 Regional Nurse Coordinators - September 2013
- Chest Pain Assessment Unit - April 2013
- Cardiac CT Darwin/ASH - May 2013
- Expanded Concordance Data Base - Oct 2013 not complete

# Cardiology Service Development 2010/17 cont

- Phase 1 – ACS Network - Oct 2013
- Phase 2 ACS Network - Nov 2013
- Phase 3 ACS Network /Full Epiphany - Feb 2016 not complete
- CVIS - 2014- not complete
- Low Risk Angioplasty Service - April 2014
- Holter ECG for Remote Clinics - August 2016
- Cardiology Health Network NT - September 2016
- Cardiac MRI ASH - October 2016
- Expanded Cardiologist Work Force - 7 Adult/1 Paediatric Cardiologist Feb 2017



# Future Cardiology Service Development - 2017

- Cardiac MRI Darwin - October 2017
- Electrophysiology Service Darwin - August 2017
- Expanded Angioplasty service - August 2017
  - Rescue PCI
  - Primary PCI
- Complete Data Sharing DoH/NT Cardiac/ AMS - August 2017
- Data Service - 2017
  - Research Nurse
  - Data entry for Q/A KPI review and annual reports
- Expanded Outreach - August 2017
  - Nurse Coordinator
- Cardiothoracic Surgery - May 2018

# Future Service Planning

- **MRI service**
  - Available ASH 2016
  - Negotiations TEHS/ Regional Imaging - 2017
  - Indications
    - Cardiomyopathy
      - Sarcoidosis/ amyloidosis
    - Arrhythmia
    - Congenital heart disease
- **Electrophysiology Services**
  - Dr W. Choo – to commence 6 months Cath Lab 2017
  - Arrhythmia mangement
    - SVT – foacal / re entrant
    - Atrial Flutter
    - VT

# Future Service Planning cont

- **Expanded PCI**
  - **Rescue PCI post thrombolysis**
    - Protocols being developed
  - **Primary PCI**
    - Gradual Phase in with 2<sup>nd</sup> Interventional Cardiologist (working hours to start with)
  - **Balloon Valvuloplasty**
    - Once Cardio thoracic established
- **Cardio thoracic service**
  - Funding available
  - TEHS – Steering Committee
  - RDH service to start 2018

# Future Service Planning cont

- **Cardiac Rehabilitation/Secondary Prevention**
  - Overseen by Cardiac Rehab Committee.
    - Patient centered
    - 3 phase program
    - Multi disciplinary
  - Innovative technologies and programs
  - Monitor outcomes
- **Quality monitoring and service maintenance and improvement**
  - Regular annual review across all cardiac service in NT
- **Develop local and indigenous workforce across**
- **Research**
  - Rheumatic Fever prevention
    - Vaccine – eradicate heart
  - Risk factors – eg low HDL
  - Systems of care

# Aspirations for the Future.

- **Close the survival gap for the indigenous population of the NT**
  - Better control of relevant risk factors through primary health care
  - Eradicate Acute Rheumatic Fever
  - Enhance Health literacy
- **Provide easier access to a fully integrated, evidence based, patient centered cardiac service across the whole NT**
- **Develop training initiatives in all elements of cardiac care for the local NT population.**