


# Integrated Care Program Phase 2 Implementation

Brett Esler BSc BE(Hons)  
System Architect  
Pen Computer Systems Pty Ltd  
Brett@percs.com.au



# ICP Phase 2 Context

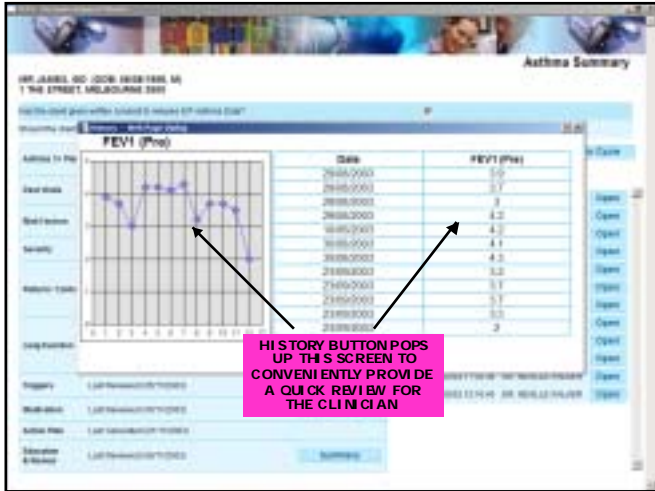
- Short development timeframe
- Initially addressed 2 clinical guidelines
- Short cycle iterative development
- GP desktop product delivery
- Supporting a GP in consultation
- Open standards realm
- High focus on evaluation.



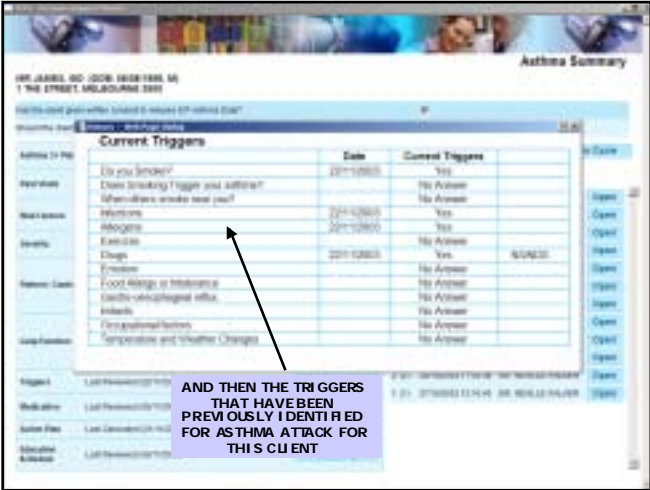

**OBSERVATION HISTORY**

**HIGHLIGHTS**

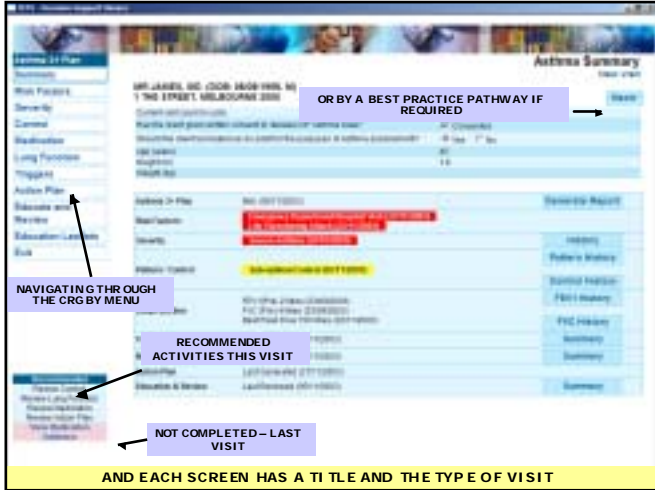
**PREVIOUS VISITS**



**HISTORY BUTTON POPS UP THIS SCREEN TO CONVENIENTLY PROVIDE A QUICK RBV/BW FOR THE CLINICIAN**



**AND THEN THE TRIGGERS THAT HAVE BEEN PREVIOUSLY IDENTIFIED FOR ASTHMA ATTACK FOR THIS CLIENT**



**OR BY A BEST PRACTICE PATHWAY IF REQUIRED**

**NAVIGATING THROUGH THE CRG BY MENU**

**RECOMMENDED ACTIVITIES THIS VISIT**

**NOT COMPLETED - LAST VISIT**

**AND EACH SCREEN HAS A TITLE AND THE TYPE OF VISIT**

AND INFORMATION SUPPORT FOR THE CLINICIAN OR CLIENT IS AT HAND VIA REFERENCE AND EDUCATIONAL MATERIALS

ANSWERS REFLECTED BY CALCULATED ASTHMA CONTROL SCORE

AND INFORMATION SUPPORT WITH RESPECT TO MEDICATION MANAGEMENT IS NOW AT HAND – AGAIN TO SUPPORT THE CLINICIAN OR THE CLIENT

NOW WE CAN REVIEW THE MEDICATION – THIS INFORMATION COMES DIRECTLY FROM THE DESKTOP PRESCRIBING SYSTEM

**Aspirin & NSAID Analgesics**

This educational sheet is for people with asthma and carers of children with asthma. It offers information on taking aspirin and other NSAID analgesics and information on how to avoid these risks.

People with asthma are advised to avoid taking products containing NSAIDs and aspirin. NSAIDs are a group of drugs that include aspirin and other NSAIDs. NSAIDs are used to relieve pain, reduce inflammation and to reduce fever. NSAIDs are also used to treat rheumatoid arthritis, osteoarthritis, gout, and other conditions.

NSAIDs can trigger asthma symptoms in some people. This is because NSAIDs can irritate the lining of the airways, causing the airways to narrow and produce more mucus. This can lead to asthma symptoms such as coughing, wheezing, and shortness of breath.

People with asthma should avoid taking NSAIDs and aspirin. If you are taking NSAIDs or aspirin, you should talk to your doctor about the risks and benefits of taking these drugs. Your doctor may recommend that you take a low-dose aspirin to reduce the risk of heart disease, but this should be done with caution.

**Allergy and Asthma**

This information sheet explains the process by which an asthma attack can be triggered by an allergy.

An individual can be exposed to a substance and over a period of time can become sensitised to it and future exposure will trigger an allergic reaction. This could be in the form of eczema, hives, hay fever, or asthma.

An allergen is a substance that generates an allergic reaction. There are a number of different allergens that can trigger asthma in different people. In asthma this airway is usually inflamed but may be treated, reduced or avoided to the extent.

Sometimes more than one part of the body can be affected at one time. This is why many people with asthma also experience hay fever and eczema.

Allergens include:

- Animals
- Grass
- Grains
- Food (e.g. shellfish)
- Latex
- Medicines
- Mould
- Pollen
- Spores
- Wool

THE EDUCATE AND REVIEW SCREEN SUMMARISES MATERIAL THAT HAS BEEN DISCUSSED OR PRINTED

CLINICIAN MEMORY JOGGER

THE PLAN MAY BE PRINTED FOR THE CLIENT

CLIENT CUSTOMISED PLAN

**ASTHMA ACTION PLAN**

Name: MR JAMES, 50  
 Doctor's name: DR NEVILLE HALLER  
 This plan prepared: 22/11/2010

**YOUR BEST PEAK FLOW IS: 250 L/min**

**When your PEAK FLOW is Above 80% (200 L/min)**

Your asthma is GOOD

Continue your maintenance medicine as usual. If you are taking a controller medicine, continue to take it. If you are taking a reliever medicine, use it only when you need it. If you are taking a controller medicine, use it only when you need it. If you are taking a reliever medicine, use it only when you need it.

**Between 80%-85% (120 and 200 L/min)**

Your asthma is GETTING WORSE

Check your medicine. If you are taking a controller medicine, use it only when you need it. If you are taking a reliever medicine, use it only when you need it.


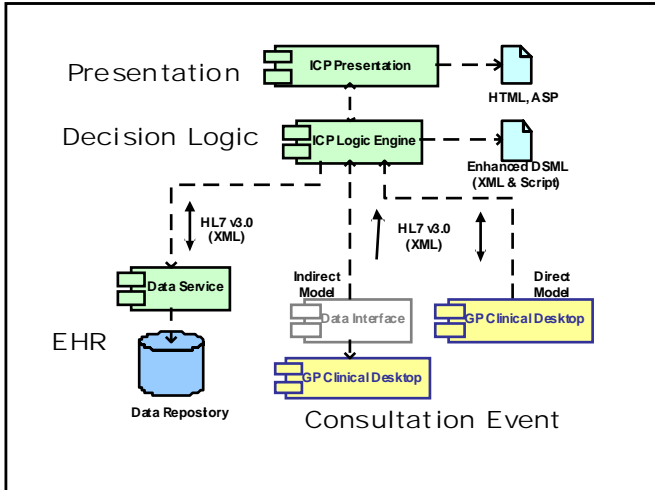
**Between 80%-85% (200 and 400 L/min)**

Your asthma is GETTING WORSE

Check your medicine. If you are taking a controller medicine, use it only when you need it. If you are taking a reliever medicine, use it only when you need it.

# The Architecture


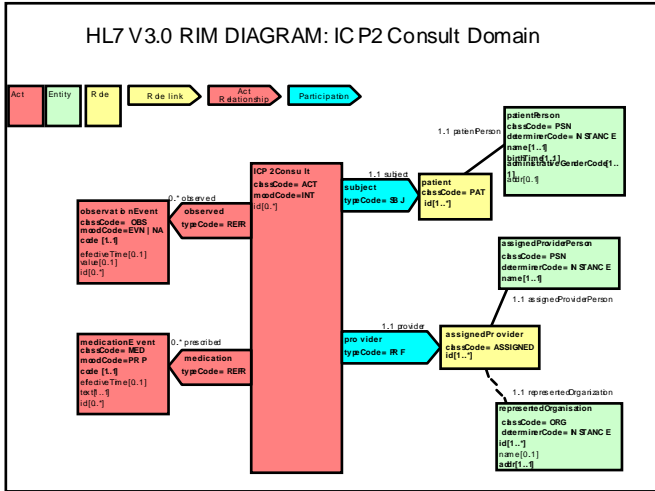
What we built and the context of our choices

# EHR & Consultation Event


Used:  
HL7 v3.0 Draft Message format

Alternatives:  
openEHR, CDA, HL7 v2.x

# HL7 v3.0 Domain Message Supports:


- Recurring Patterns
  - Age, Visit History, Observation History
- Custom/Semi-Custom Concepts
  - Predicted Spirometry, Asthma
  - Asthma 3+ Plan incentive
- Folders/Groupings
  - By visit or episode
  - By observation type
    - LOINC, ASTHMA3+ PLAN




# Decision Logic

Used:  
Enhanced DSML (XML, JavaScript)


Alternatives:  
GLIF, Arden Syntax, GEM, GELLO





## Enhanced DSML – What did it give us?

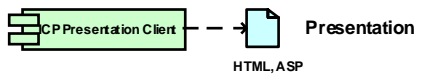
- Multiple definitions – areas, contexts
- Best practice paths, Decision tree
- Workflow data model
- Relationship to client health record data
- References to other material
- Multiple scripting engine choices (Default: JavaScript)



## Presentation

Used: HTML, ASP, XSL, CSS

Alternatives: Java UI, JSP




```

graph LR
    A[CP Presentation Client] --> B[Presentation]
    B --- C[HTML, ASP]
  
```




## What did it give us?

- Standard Display Patterns:
  - Menu System
  - Best Practice Navigation
  - Question and Answer
  - Client Demographic
  - Provider Demographic
  - Visit History
  - Observation History: Chart & Table
  - Recommended Items Event List & Prompting
- Customisable display
- Suitable for browser display




## A few considerations for future developments

- Context Based Tools
- Patterns and Modelling
- Scaling up




## Context Based Tools

- Role based – Client, Receptionist, Nurse, GP, Specialist
- Task based – Client pre-visit, Practice nurse tests, GP consult, Home visit etc.
- User devices – GP desktop computer, clinic terminals, mobile devices



## Patterns & Modelling

- Electronic Health Record Modelling
  - Coding standards and mappings
  - Domain models and translations
  - Health record object tools, components
- Linking and Embedding
  - Cross referencing
  - Embedded content
- Versioning and Support
  - Versioning of content
  - Versioning of framework models
  - Backwards compatibility



## Scaling Up

- Global Services
  - Standards for models & messages
  - Directory services
  - Connectivity, Security, Authorship
- Governance Process
  - Consolidation, optimisation
  - Validation, clinical and implementation
  - Authorship, Versioning
- Population Health Management
  - Outcome tools & analysis
  - Incentive program development
  - Distributed access, Multidisciplinary care



## Thoughts for today.

- Strategic Technical Planning
- Management Projects
- Technical Infrastructure Projects
- Validation and Quality Assurance
- Evaluation & Recommendation