MONASH University

Medicine, Nursing and Health Sciences

Meshing registries with clinical information systems (A noble aim)

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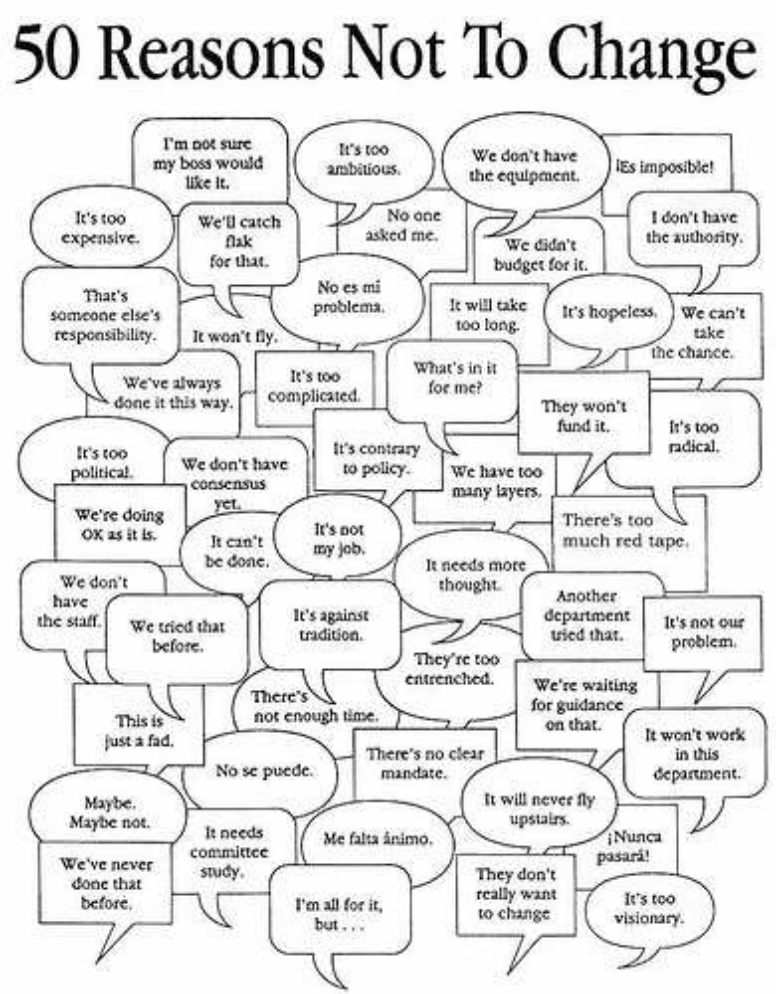
Overview

- Why
- Obstructions
- How
- Strategies
  - What are we doing at Alfred Health … ?
- Summary
- The Future ??

Why ?


50 Reasons Not To Change
I'm not sure my boss would like it.
It's too ambitious.
We don't have the equipment.
¡Es imposible!
It's too expensive.
We'll catch flak for that.
No one asked me.
I don't have the authority.
We didn't budget for it.
That's someone else's responsibility.
No es mi problema.
It won't fly.
It will take too long.
It's hopeless.
We can't take the chance.
We've always done it this way.
It's too complicated.
What's in it for me?
They won't fund it.
It's too political.
It's too radical.
It's contrary to policy.
We don't have consensus yet.
We have too many layers.
We're doing OK as it is.
There's too much red tape.
It's not my job.
It can't be done.
It needs more thought.
We don't have the staff.
We tried that before.
It's against tradition.
Another department tried that.
It's not our problem.
They're too entrenched.
We're waiting for guidance on that.
This is just a fad.
There's not enough time.
It won't work in this department.
No se puede.
There's no clear mandate.
It will never fly upstairs.
Maybe. Maybe not.
It needs committee study.
Me falta ánimo.
¡Nunca pasará!
We've never done that before.
They don't really want to change
I'm all for it, but . . .
It's too visionary.

- Why not ??

Why ? (cont)

- Labour cost
  - why re-collect or transcribe the same data and information ? – eg ECOG
  - Extra work on data processing / storage
  - Extra work on quality control
- Extra storage and licensing costs
- Quality impact – parallel collection or re-entry has the potential for error
- Splitting of workflows / competing interests

Obstructions

- None insurmountable
  - Technical
    - Data standards and transmission mechanisms
    - Fitting with architecture
    - Its not all about the data - functionality
  - Commercial - what's in it for me from the vendor perspective
  - IP - from the commercial side
  - Privacy
  - Consensus
    - Especially with the clinical workforce
  - Goodwill

Strategies

- Have only seen it in one system at Alfred (home grown)
- These are suggestions .. …
- Perhaps a combination is needed ?
- Definitely depends on who / what you're dealing with

- A universal truth …. be CRYSTAL clear on what you want

Strategies (cont)

- Government drivers – eg - HDSS in Victoria and VAED changes
  - Mandated from centrally
  - Input process
  - Been working a long time
  - Split costs

- Direct payment
  - Perhaps small data sets and small vendors (eg – CHARM)
  - Especially if relatively large customer base

Strategies (cont)

- Market Forces / Customer need
  - User groups
  - MSIA
  - Professional bodies

- An Information Grid (providing a service, like electricity)

The Alfred Health Information Grid

AlfredHealth

The AH Information Grid – Structure

- Data content ……. can't have an electricity grid without electricity

- Data storage …… can't have electricity without ways and places to capture it for dissemination ….. and access points to get it from

- Who cares about standards ? ……

The AH Information Grid – Structure (cont)

MEDICAL HISTORY
Have you ever suffered with any of the following health problems?

Diabetes	☐ Yes	☐ No	Kidney or urinary disorders	☐ Yes	☐ No
Diabetes while pregnant	☐ Yes	☐ No	Stress urinary incontinence	☐ Yes	☐ No
Thyroid problem	☐ Yes	☐ No	Polycystic ovarian syndrome	☐ Yes	☐ No
Asthma	☐ Yes	☐ No	Vascular disease	☐ Yes	☐ No
Other breathing problems	☐ Yes	☐ No	Leg swelling or ulcers	☐ Yes	☐ No
Sleep Apnoea	☐ Yes	☐ No	Depression or other psychological disorders	☐ Yes	☐ No
Do you use CPAP?	☐ Yes	☐ No	Infertility	☐ Yes	☐ No
Heartburn or reflux	☐ Yes	☐ No	Peptic ulcer disease	☐ Yes	☐ No
High blood pressure	☐ Yes	☐ No	Deep vein thrombosis (DVT)	☐ Yes	☐ No
Heart disease	☐ Yes	☐ No	Bleeding or clotting disorders	☐ Yes	☐ No
Angina	☐ Yes	☐ No	Back pain	☐ Yes	☐ No
High cholesterol or lipids	☐ Yes	☐ No	Arthritis	☐ Yes	☐ No
Stroke	☐ Yes	☐ No	Pain in the hips or knees or feet	☐ Yes	☐ No
Anaemia	☐ Yes	☐ No	Joint replacement	☐ Yes	☐ No
Severe or recurrent headache	☐ Yes	☐ No	Skin conditions, especially under skin folds	☐ Yes	☐ No
Liver disease	☐ Yes	☐ No	Hay fever or an allergic disease	☐ Yes	☐ No
Gallstones	☐ Yes	☐ No		☐ Yes	☐ No

Please list what you regard as your major illness or health problems:

Presentation/Diagnosis: .....

Past Medical History: .....

.....

.....

The AH Information Grid – Structure (cont)

- 24 databases running, 5+ not used
- Poor naming conventions,
  - Databases: CPUCGMCExecutiveOperationsCommittee
  - Tables: Sheet1, JaneESAS13042008, extract
  - Views: View_1, vwDaysInMonthCFY, vwWIESReportPFY+1
- Data duplication between databases
  - Unit table in 7 databases,
    - SQLRepository, CPUEDKPI, CPUESTERFY2004, CPUOPASSwitch, CPUPatientAccess, CPUSurginetReport, CPUVACS
- In one database, there are over 400 views and 200 tables.


vwACSC_DiabeticFoot
vwACSC_Diabetes
vwACSC_Asthma
vwDaysInMonth2007
vwPharmacyNetFY06
vwtblAdmSource
vwRunFrom
vwCGMCLOSMaxDisWard
vwTEMP_PL_ESSUPatients
vwSurg_WeekendRoles
vwtblDRGReport
vwBAYDRGPFY
vwDRGReportFY2007
vwWIESReportDataPFY
vwPAT_MDSeps_Daily
vwCGMCLOSSingleEntries
vwWIESReportDataYTD
vwCF_CFY
vwPAT_ICUExits_Monthly
vwtblWard
vwKPI_MentalHealthTrimmed
vwKPI_HITHLongStayXCheck
vwWIESReportDataWard
vwACSC_Gangrene
vwBurns_PFY
vwFromAllToWardPt1
vwPAT_GT14Days_Weekly
vwACSC_InfluenzaPneumonia
vwWIESReportWardPFY+1PFY
vwTEMP_TH_4AMU_WardLOS
AcuteLeukaemia
vwtblCareType
vwWIESReportData_F1
vwTEMP_PL_MaxWardExit_AAU
vwWIESReport-1
vwCGMCLOSMultiEntryOutput
vwKPI_MentalHealthMDSeps
vwWIESEstimateCorrect
vwTraumaID
dimCostingCalendar
vwACSC_DiabetesPrimary
vwWIESReportDataWardPFY
vwWIESReportDataWardYTD
vwWIESHistorical_0708Targets
vwDRGReportWardFY2008
vwHITHBeddays
vwPAT_SDMH_TransferAlf
vwPAT_SDMH_TransferBabies
vwtblWIESReportWIESFunded
vwWIESReportDataWardYTDPFY
vwKPI_F30_SubAcuteActivity
vwBAYDRGFY2005
vwWIESReportPFY+1
vwSurg_BeforeHourRoles
vwWIESReportFY2008DRAFT
vwKPI_AcuteSeps_SamedayAC
vwPAT_TransferstoALF_Weekly
vwPAT_EDTransfersICU_Weekly
vwPAT_CGMCTCPLOS_Weekly
vwTransplantCFY
vwSurg_AfterHoursRoles
vwCGMCClinicProgReportYTD
AcuteLeukaemiaDemographics
vwTEMP_PL_WardAfterESSU0809
vw_CGMC_SubAcute_RehabLv1_CFY
vwPAT_ESISXRemovals_Monthly
vwMissingDiagProc
vwCGMCLOSMaxDisDate
vwPAT_MDAdmits_Weekly
vw_CGMC_SubAcute_RehabLv2_CFY
vwAlfredCentreVSReportACOnly
vwPAT_CGMCOccupancy_Monthly
vwPAT_OccupiedMDBeds_Weekly
vwLateToWardFromEDPt2
vwACSC_Pyelonephritis
vwWIESVariance
vwPAT_MDESISRemovals_weekly
vw_AdmitsLast60Days
vwDetermineCodingICUStatus_1
vwPAT_ESISCat1Removals_Weekly
vwACSC_ConvulsionsandEpilepsy
vwWIESReportDuplicate
vwACSC_COPD
vwKPI_WIESSepsTotal
vwWIESDHSBaseTargetYTD
vwPAT_BabiesKSGAUnit_Monthly
vwHITHSeparations
vwWIESEstimateCorrectBoundary
vwPAT_ESIS500Removals_Monthly
vwPAT_EDTransfersCCU_Monthly
vwDRGReportFY2006
vwPAT_SDMH_TransferICU
vwPAT_CGMCOccupancy_Weekly
vwPAT_ESIS500Removals_Weekly
vw_TACReportRunTo_2
vwACSC_perforatedBleedingUlcer
vw_CGMC_SubAcute_target_gem
vwPAT_EstimatedLOSPart1old
vwPharmacyNetFY05
vwPAT_ICUBedsOpenSunday
vwtblWIESReportPFYWIESFunded
vwPAT_ESASRemovalsAtAlf_Weekly
vwUnitActual
vwPAT_DischargesSDBeds_Weekly
vwPAT_DischargesSDBeds_Monthly
vwPAT_ACAdmitsbyUnit_Monthly
vwBAYDRGCFY
vwPEandDVTCodeset
vwPAT_GT30Days_Weekly
vwPAT_PsychDischarges_Weekly
vwPAT_CurrentHITHSunday_Weekly
vwcgmc_subacute_rehablv2dollars
vwUnit
vwcgmc_subacute_rehabLv2_target
vwDoHInpatientJourneySubmission
vwTraumaSeps_PFY
vwDaysInMonthCFY
vwPAT_ESISCat1Removals_Monthly
vwACSC_Angina
vwPAT_ICUGT14DaysSunday_Monthly
vwWAUTarget_CFY
vwPAT_AlfredCentreAdmits_Weekly
vwPAT_CurrentHITH_Monthly
vwPAT_ESISCat1ApproachingTarget
vwACSC_Hypertension
vwPAT_CurrentHITHSunday_Monthly
vwKPI_AcuteSeps_SamedayPercentage
vwPAT_ESISScheduledAdm_Weekly
vwPAT_EstimatedLOSSunday_Weekly
vwCGMC_WIES
vwPAT_TransferstoALFfrom_Weekly
vwCGMC_SubAcute_CT6_NonCraft_CFY
vwKPI_TraumaSeps_Minor
vwtblReportingServicesWardUnionWIES
vwDRAFTWIESPerformancetoTarget078
View_1
vwPAT_SurginetCasesAlfred_Weekly
vwPAT_AlfredCentre>3days_Weekly
vwPAT_ESASRemovalsAtSDMH_Monthly
vwDetermineCodingICUStatus
vwCurrentReportingPeriod
vwtblReportingServicesUnionSeparationsvwDaysInMonth2008
vwPAT_AdmissionsbyCatchment_weekly
vwJOC
vwPAT_AlfredCentre>3days_Monthly
vwPAT_ESISCat1ScheduledAdm_Monthly
vwPAT_ESISCat2Removals_Weekly
vw_EstimateData
vwtblWIESReportDRAFT0708
vwPAT_MDOccupiedBedsSunday_Monthly
vwPAT_AdmitsDistinctSF3CKSGA_Weekly
vwACSC_DehydrationGastroenteritis
vwPcmUpdates
vwPAT_AcuteDischargestoSDMH_Weekly
vwReferenceRadiologyTargetsWeekly
vwClinSubProg
vwFromWardToICUPt1vwAlfCentreNotOnlyAlfCentre
vwWIESVariancePFY
vwPAT_AdmitsDistinctSF3CKSGA_Monthly
vwKPI_WIESSepsPublicPrivateNoRenal_old
vwtblReportingServicesWardUnionBeddays
vwACSC_IronDeficiencyAnaemia
vwCGMC_WIES_Target
vwPAT_AcuteTransferstoCGMC_Weekly
vwPAT_EDAttendancesExtWeekend_weekly
vwAlfredCentreVSReportCombined
vwRENLWIES
vwPAT_ElectiveAdmissionTargetAlf_Weekly
vwPAT_ESISSamedayRemovals_Weekly
vwDRGReportCFY
vwHIV_PFY
vwPAT_BabiesTransferedOut_Weekly
vwAlfCentreCombinedDHSwTransferHistory
vwPAT_MDAdmits_Monthly
vwtblReportingServicesWardUnionSeparations
vwPAT_CGMCAgedPsycAdmissions_Monthly
vwPAT_CGMCAgedCareAdmissions_Weekly
vwDRGReportFY2008
vwDRGReportFY2009
vw_CGMC_SubAcute_Rehablv1_Target
vwPAT_AcuteTransferstoCGMCfrom_Monthly
vwcgmc_subacute_craft
vwPAT_AcuteDischargestoSDMHfrom_Weekly
vwHIVCFY
vwCFCFY
vwPAT_ElectiveAdmissionTargetSDMH_Monthly
vwPAT_AdmitsSF3C_Weekly
vwPAT_ElectiveAdmissionTargetAlfFY09_Weekly
vwcgmc_craft_pfy
vwPAT_CGMCRehabilitationAdmissions_Monthly
vwCodingFinalised
vwPAT_AcuteDischargestoSDMHfrom_Monthly
BMT
vwPAT_MajorTraumaAdmitsExtWeekend_Weekly
vwHITHMeasure
vwtblReportingServicesActivityComparisonSeparations
dimCostingHospital
vwKPI_WIESSepsPublicPrivateNoRenalTARGET_old
vwWIESReportWardPFY+1
vwPAT_MajorTraumaAdmitsExtWeekend_Monthly
vwPAT_CGMCSubAcuteAdmissionsInHours_Weekly
vwCodedMonth
vwPAT_CGMCAllTransfersFromAlfred_Weekly
vwPAT_ElectiveAdmissionTargetAlf_Monthly
BMT_ICDCodes
vwPAT_ElectiveAdmissionTargetSDMHFY09_Monthly
vwcgmc_craft_CFY
vwPAT_CGMCSubAcuteAdmissionsInHours_Monthly
vwPAT_OccupiedMDBeds_Monthly
vwKPI_MentalHealthMDSeps_ECTOvernighCasesToExclude
vwPAT_SurginetCasesAlfredCentre_Monthly
vwPAT_ElectiveAdmissionTargetAlfFY09_Monthly
vwTheatreUnitReview_Discharges
vwPAT_ElectiveAdmissionTargetSDMHFY09_Weekly
vw_CGMC_SubAcute_Rehablv2_CFYv
vwPAT_SurginetCasesAlfred_Monthly
vwPAT_ESISCat1ScheduledAdmNextWeek_Weekly
vwPAT_AcuteTransferstoCGMCfrom_Weekly
vwUnitTargets
vwtblReportingServicesActivityComparisonWIES
vwWIESReportData
vwtblReportingServicesActivityComparisonBeddays
vwPAT_ESASRemovalsAtAlf_Monthly
vwPAT_CGMCTCP_NWBandWDSDisch_Weekly
vwExpectedDischargeDateEstimation
vwPAT_CGMCRehabilitationAdmissions_Weekly
vwPAT_EDAttendancesExtWeekend_Monthly
vwPAT_CGMCAllTransfersFromAlfred_Monthly
vwRunToLastWeek
vwPAT_CGMCAgedPsycAdmissions_Weekly
vwPAT_ElectiveAdmissionTargetSDMH_Weekly
vwPAT_AcuteDischargestoSDMH_Monthly
View_2
vwPAT_CGMCTCP_NWBandWDSDisch_Monthly
vwPAT_ICUBedsOpenSunday_Monthly
vwPAT_ESISOvernightRemovals_Monthly
vwRunFrom_2
vwKPI_PrivateTreatedAsPublicAcuteMultiday
vwSameDayMedicalCap
vwKPI_MentalHealthTrimmedOver35Days
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vwPAT_MDOccupiedBedsSunday_Weekly
vw_AdmitsLast60DaysHITHTransferHistory
vwPAT_ESISOvernightRemovals_Weekly
vwPAT_ICUExits_Weekly
vwCGMC_SubAcute_CT6_nonCraft_PFY
vwPAT_CGMCDischargeTargets_Monthly
vwPAT_MDOccBedsSunOver80_Monthly
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vwPAT_EDAttendancesWeekend_Monthly
vwPAT_TransferstoALFfrom_Monthly
vwWIESReportDataYTD_F1
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vwPAT_AcuteTransferstoCGMC_Monthly
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vwReadmitED96Hours
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vwKPI_AcuteSeps_Sameday
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vwPAT_DischargesMDBeds_Weekly
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vwPAT_HITHSepsBeddays_Weekly
vwtblReportingServicesUnionBeddays
vwPAT_EDAttendances_Weekly
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vwPAT_CGMCDischarges_Monthly_1
vwReferenceTargetWIESRates
AcuteLeukaemia_ICDCodes
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vwACSC_PelvicInflammatoryDisease
vwPAT_ESISScheduledAdm_Monthly
vwtempview
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vwPAT_ESISCat2Removals_Monthly
vwCGMC_WIESDollars
vwPCMWIES
vwPAT_GT30Days_Monthly
vwPAT_CGMCTCPLOS_Monthly
vwPAT_HITHSepsBeddays_Monthly
vwPAT_ESISCat3Removals_Monthly
vwCF_PFY
vwCodingFinishedMonth
vwPAT_PsychDischarges_Monthly
vwDaysInMonth2010
vwPAT_EstimatedLOSPart1
vwACSC_OtherVaccinePreventable
vwKPI_AcuteMDLOS_AlfredHealthTotal
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vwPAT_CGMCDischarges_Monthly
vwPAT_MDESISRemovals_Monthly
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factCosting
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vwACSC_EarNoseThroatConditions
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vwPharmacyTotalFY05
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vwSWServicesINFD
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vwDRGReportWardFY2007
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vw_TraumaSourceReport
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vwMaxMonth
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vwWIESDHSBaseTarget
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vwPAT_MDSeps_Weekly
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vwCoded10Days
vwWIESReportWard-1
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vwCGMC_SubAcute
vwPAT_SDMH_TransferCGMC
vwDRGReportFY2005
vwBAYDRGFY2006
vwVADCFY
vwReadmitED28Days
vwKPI_AcuityMDPatients
vwCGMC_SubAcute_PFY_GEM
vwPAT_SDMH_TransferIn
vwWorkCoverWIES
vwICUAdmissions
BMTDemographics
vwTransplantPFY
vwDRGReportWardCFY
vwACSC_DentalConditions
vwCGMC_PFYWIES
vwTraumaTotals
vwBurns_CFY
vwUnitCombined
vwDaysInMonth2009
vwDRGReportFY2004
vw_TraumaSourceICDs
vwKPI_AcuteMDLOSAC
vwWorkCoverWIESDetails
vwVALPWIESYTD

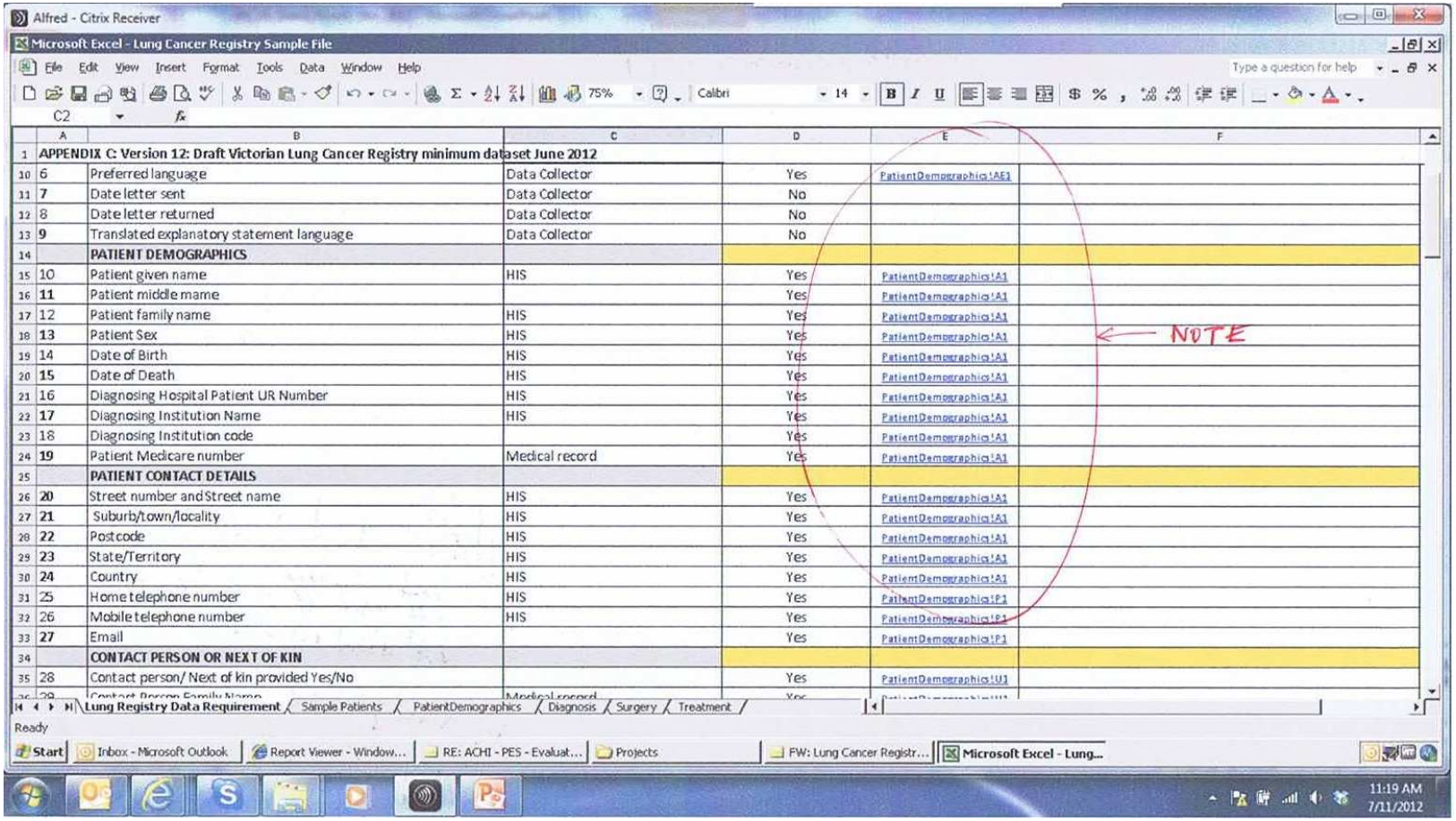
The AH Information Grid – Services

- Known delivery channels
- Horses for courses
- These may expand over time

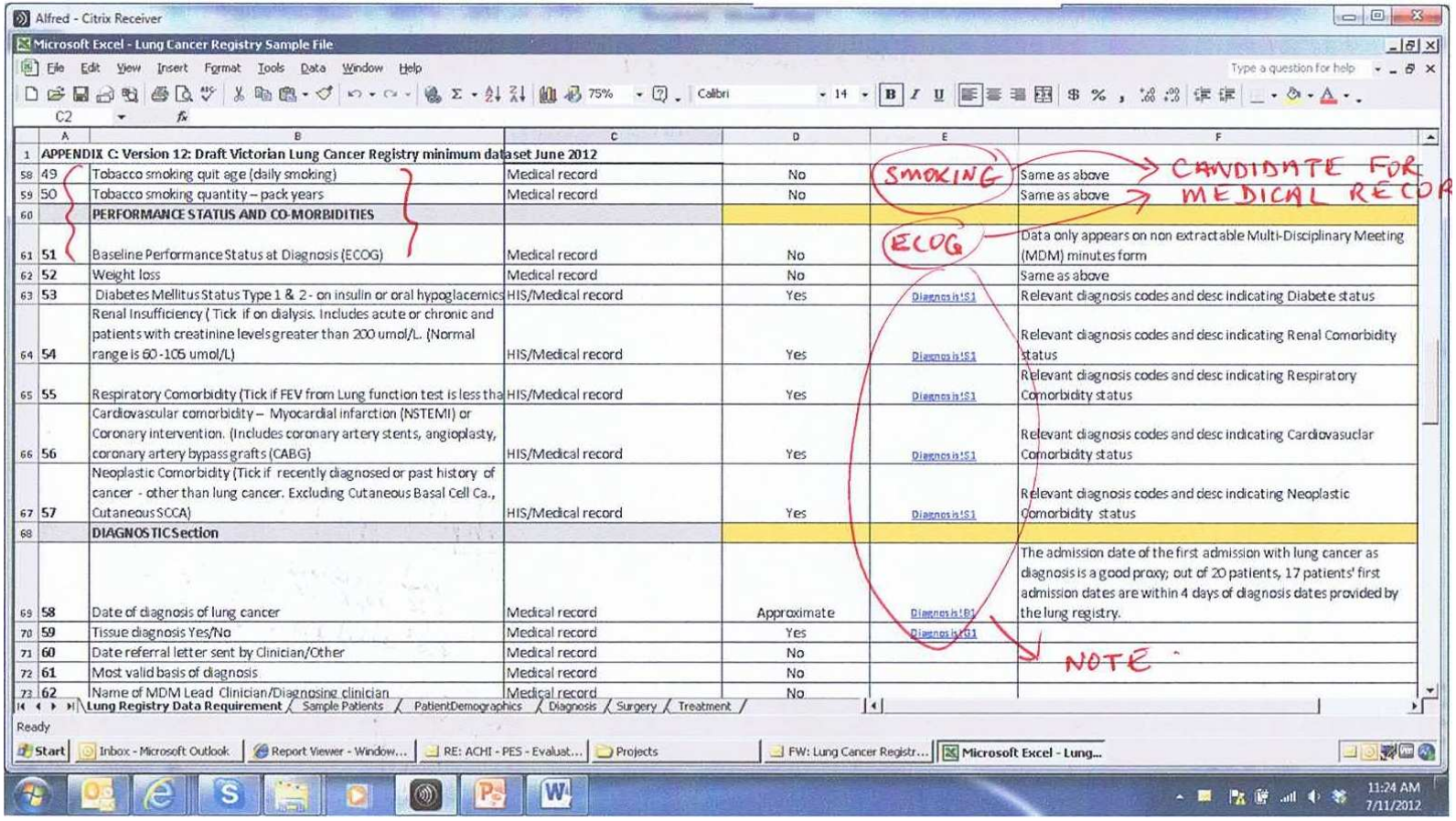
The Alfred Health Information Grid

AlfredHealth

AUTOMATED REGISTRY EXTRACTS

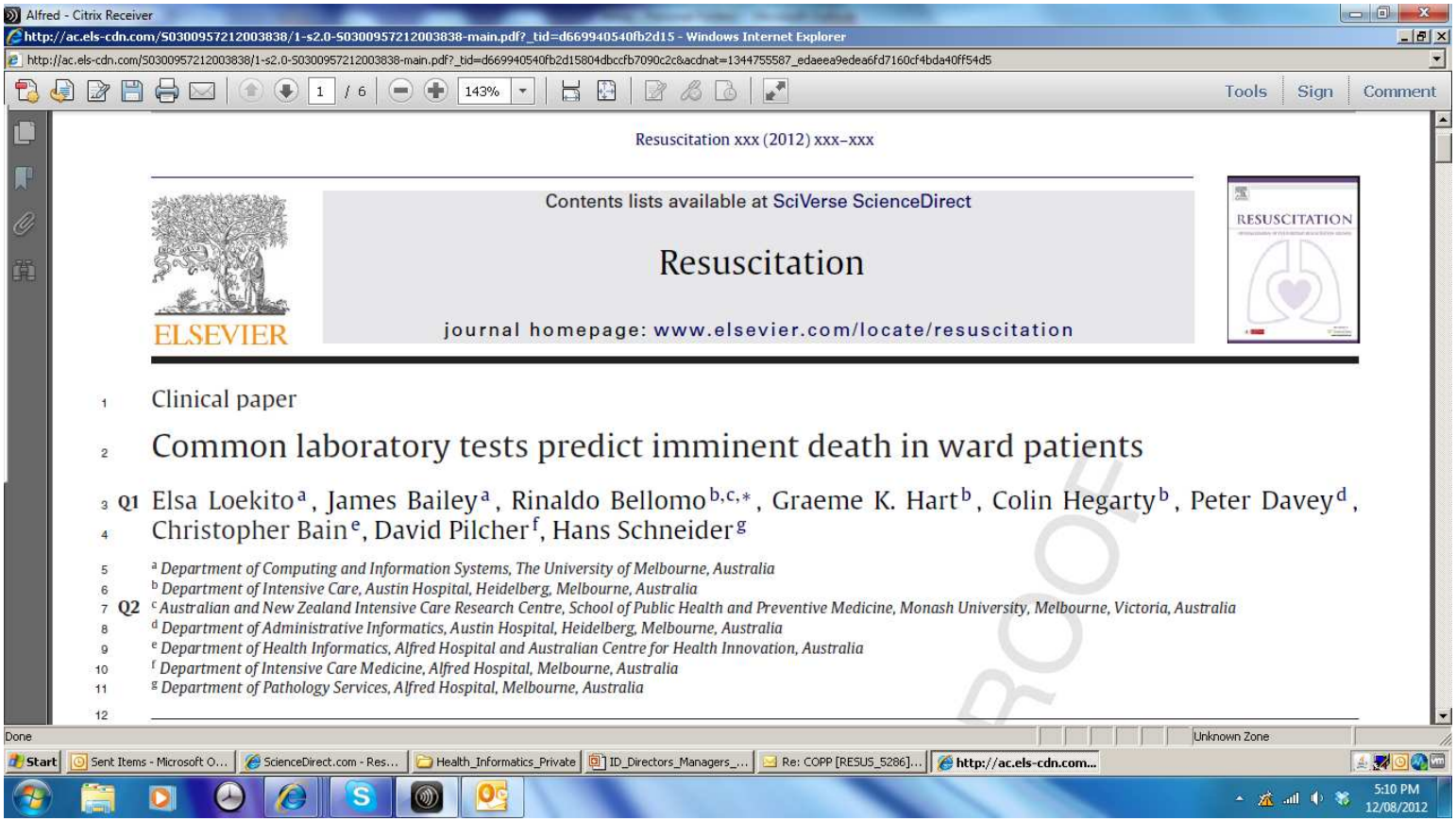


AUTOMATED REGISTRY EXTRACTS



	A	B	C	D	E	F
1	APPENDIX C: Version 12: Draft Victorian Lung Cancer Registry minimum dataset June 2012					
58	49	Tobacco smoking quit age (daily smoking)	Medical record	No		Same as above
59	50	Tobacco smoking quantity – pack years	Medical record	No		Same as above
60		PERFORMANCE STATUS AND CO-MORBIDITIES				
61	51	Baseline Performance Status at Diagnosis (ECOG)	Medical record	No		Data only appears on non extractable Multi-Disciplinary Meeting (MDM) minutes form
62	52	Weight loss	Medical record	No		Same as above
63	53	Diabetes Mellitus Status Type 1 & 2 - on insulin or oral hypoglacemics	HIS/Medical record	Yes	Diagnosis!S1	Relevant diagnosis codes and desc indicating Diabete status
64	54	Renal Insufficiency (Tick if on dialysis. Includes acute or chronic and patients with creatinine levels greater than 200 umol/L. (Normal range is 60-105 umol/L)	HIS/Medical record	Yes	Diagnosis!S1	Relevant diagnosis codes and desc indicating Renal Comorbidity status
65	55	Respiratory Comorbidity (Tick if FEV from Lung function test is less tha	HIS/Medical record	Yes	Diagnosis!S1	Relevant diagnosis codes and desc indicating Respiratory Comorbidity status
66	56	Cardiovascular comorbidity – Myocardial infarction (NSTEMI) or Coronary intervention. (Includes coronary artery stents, angioplasty, coronary artery bypass grafts (CABG)	HIS/Medical record	Yes	Diagnosis!S1	Relevant diagnosis codes and desc indicating Cardiovasuclar Comorbidity status
67	57	Neoplastic Comorbidity (Tick if recently diagnosed or past history of cancer - other than lung cancer. Excluding Cutaneous Basal Cell Ca., Cutaneous SCCA)	HIS/Medical record	Yes	Diagnosis!S1	Relevant diagnosis codes and desc indicating Neoplastic Comorbidity status
68		DIAGNOSTIC Section				
69	58	Date of diagnosis of lung cancer	Medical record	Approximate	Diagnosis!B1	The admission date of the first admission with lung cancer as diagnosis is a good proxy; out of 20 patients, 17 patients' first admission dates are within 4 days of diagnosis dates provided by the lung registry.
70	59	Tissue diagnosis Yes/No	Medical record	Yes	Diagnosis!G1	
71	60	Date referral letter sent by Clinician/Other	Medical record	No		
72	61	Most valid basis of diagnosis	Medical record	No		
73	62	Name of MDM Lead Clinician/Diagnosing clinician	Medical record	No		

RESEARCH EXTRACTS



Alfred - Citrix Receiver

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Clinical paper

Common laboratory tests predict imminent death in ward patients

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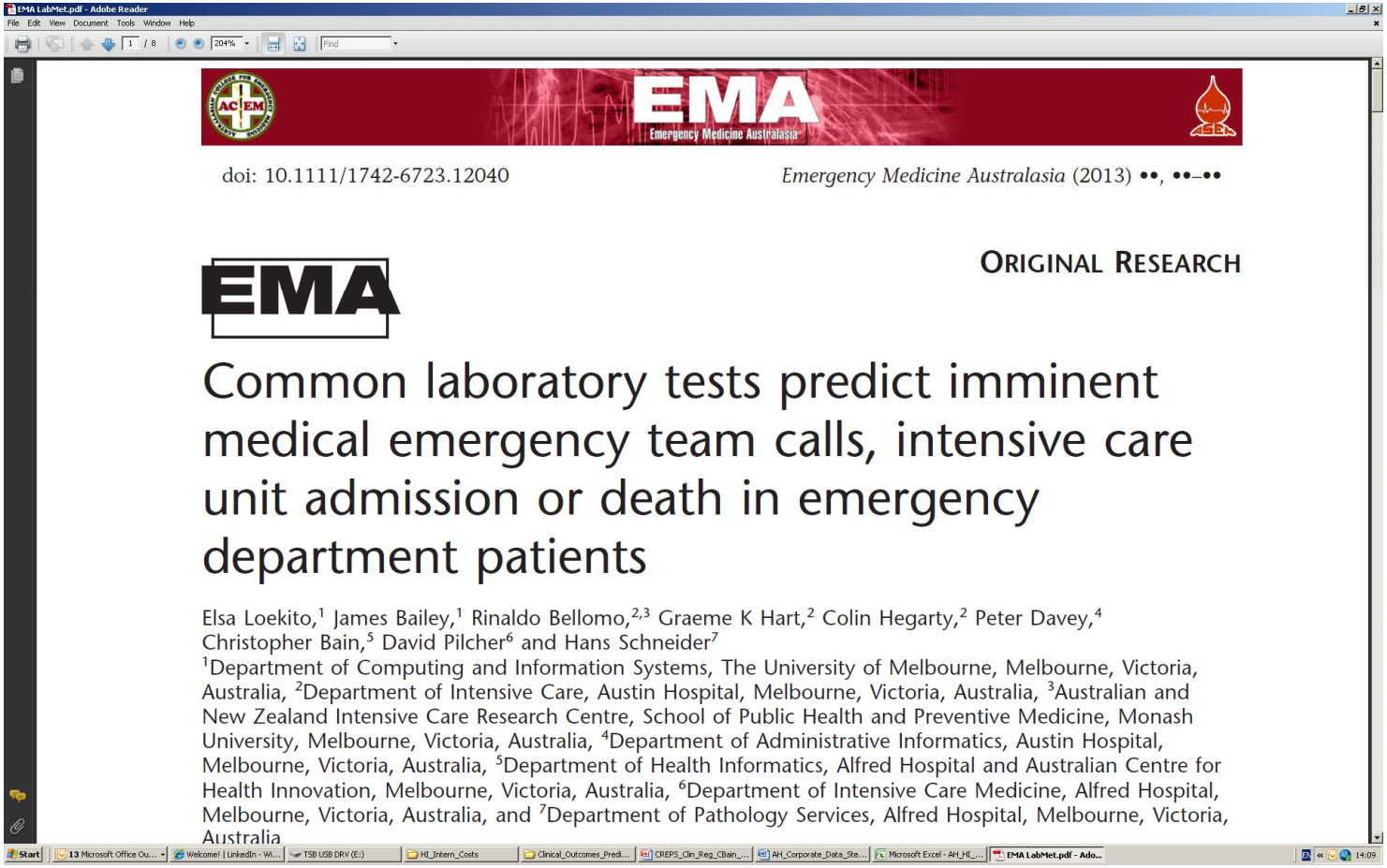

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EMA Emergency Medicine Australasia

doi: 10.1111/1742-6723.12040 *Emergency Medicine Australasia* (2013) ••, ••–••

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ORIGINAL RESEARCH

Common laboratory tests predict imminent medical emergency team calls, intensive care unit admission or death in emergency department patients

Elsa Loekito,[1] James Bailey,[1] Rinaldo Bellomo,[2,3] Graeme K Hart,[2] Colin Hegarty,[2] Peter Davey,[4] Christopher Bain,[5] David Pilcher[6] and Hans Schneider[7]

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Summary

- I firmly believe this (meshing) is a good direction - sustainability
- It is not an easy road
- Highly dubious any one individual or organization can make this happen (short of a home grown system)
- Collaboration and the “mass effect” are critical success factors
- Role of federal healthcare governance could become critical
  - Light at the end of the tunnel….

The Future ??

We should all be interested in good data and the effort it takes to produce it.

Collect all relevant data once, do it well, handle it properly and reuse it as many times as necessary.

Questions?

Thank you