

QUALITY DIAGNOSTIC REFERRALS

STAKEHOLDER WORKSHOP OUTCOMES

29 April 2010

v1.1



Independent, not-for-profit and evidence based, NPS enables better decisions about medicines and medical tests. We are funded by the Australian Government Department of Health and Ageing.

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1. Introduction

In May 2009, the Federal Government announced it would fund NPS to help requestors improve their utilisation of diagnostic imaging and pathology testing.

The goals of the NPS Quality Diagnostic Referrals program are:

- More appropriate use of tests/investigations
- Improved knowledge among GPs consistent with program messages
- Improved awareness in the community that diagnostic testing has specific roles
- Savings to Medicare.

Strong engagement with pathology, diagnostic imaging and other healthcare stakeholders is essential to achieving the required changes. NPS sought to formally engage key stakeholders from the diagnostic imaging, pathology and broader health sector through a workshop held in Sydney 29 April 2010.

This report provides a summary of the outcomes from the NPS Quality Diagnostic Referrals stakeholder workshop.

2. Workshop summary

The NPS Quality Diagnostic Referrals stakeholder workshop on 29 April 2010 brought together 27 participants from key organisations across the sector to formally commence the collaboration process. The objectives of the workshop were to gain:

- An understanding of the existing issues and opportunities associated with pathology and diagnostic imaging
- Stakeholder input to the NPS Diagnostics program's outcomes and priorities
- The commitment of attendees to be actively involved with the NPS Diagnostics program.

The workshop was designed to provide participants with an overview NPS, understand the Quality Diagnostics Program and identify key opportunities which should be considered by the program through the following structured agenda:

1. Who are NPS and how do we work?
2. Quality Diagnostic Referrals – objectives & goals
3. Intervention strategies – where does the research point?
4. Group discussion on the priority areas
 - 4.1. Feedback to the wider group and identify priorities for the NPS Diagnostics program
5. Explore priority opportunities in small groups
6. Share and discuss key findings.

Workshop participants identified five priority opportunities which should be considered by the NPS Quality Diagnostics program:

Priority	Opportunity
1	Clinical / electronic decision support
2	Health professional education
3	Informed consumers
4	Preventative testing, audit and feedback
5	Prevention and pre-symptomatic testing; the implications of testing

These five opportunities will be used to shape future program activity.

3. Background

Improving the quality of pathology and diagnostic imaging has the potential to improve Australian health outcomes and reduce health system cost. Recognising these benefits, the Department of Health and Ageing (DoHA) has for some time funded a Quality Use of Pathology Program (QUPP) and a Quality Use of Diagnostic Imaging (QUDI) program. Both these programs have significantly advanced the quality use of diagnostics in each of their respective areas.

However, diagnostic referrals are growing at a high rate and 70% of all referrals originate from GPs. This is driven by a range of challenges which include:

- Complexity of modern medicine
- Diversity of practice
- Demand drivers
- e-Health
- Limitations in the technology.

To address this issue, the objectives of the NPS Quality Diagnostic Referrals program are to:

- Reduce the growth rate of orders for tests that are over-used
- Redistribution in the consumers receiving diagnostic tests to those most likely to benefit
- Increase the growth rate of orders for tests that are under-utilised.

This will be achieved through more appropriate use of tests and investigations, improving the knowledge of GPs and improving awareness in the community that diagnostic testing has specific roles, resulting in overall Medicare savings.

NPS has convened an expert advisory panel to assist with the design and implementation of its program. The advisory group is chaired by Prof Tim Usherwood and other members include:

- consumers
- general practitioners
- pathologists
- radiologists
- experts in public health and program evaluation
- a health economist.

However, we also recognise that improvements can only be achieved through collaborative working relationships across the sector. The objectives of the April workshop were to gain:

- An understanding of the existing issues and opportunities associated with pathology and diagnostic imaging
- Stakeholder input to the NPS Quality Diagnostics Referral program's outcomes and priorities
- The commitment of attendees to be actively involved with the NPS Quality Diagnostics Referral program.

This workshop is an important element in building support across the sector to achieve the required outcomes. Six members of the advisory group were also able to attend the workshop and contribute to discussions. The workshop report, along with feedback from the advisory group attendees, will inform strategic discussions in setting priorities and target interventions, and will be used to guide the Quality Diagnostic Referrals program of work over the next three years.

4. Opportunities to improve Quality Diagnostic Referrals

To identify potential initiatives for the Quality Diagnostic Referrals program, workshop participants were asked to consider the focus of the program as outlined in Figure 1 below.

The focus of NPS Quality Diagnostic Referrals (until 2013)

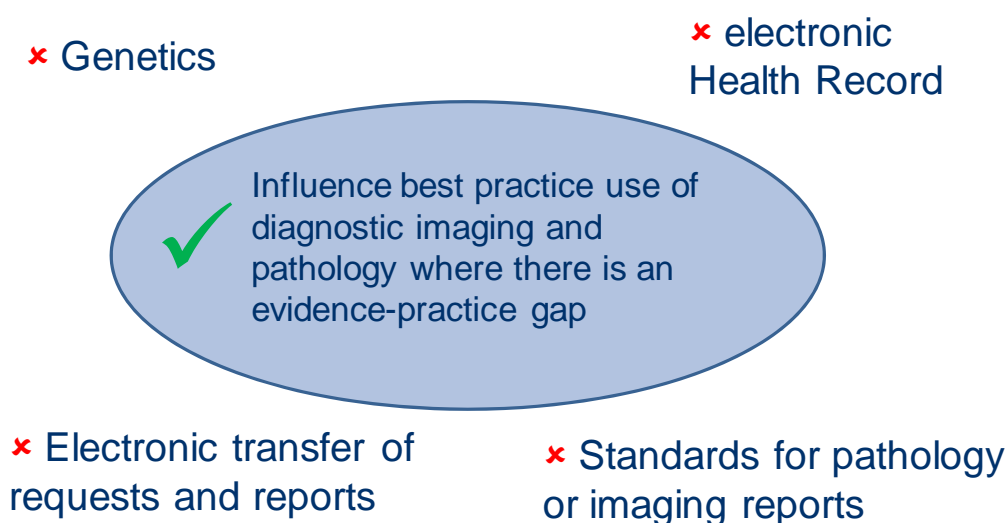


Figure 1: Focus of NPS Quality Diagnostic Referrals program

Ideas generated during the initial brainstorming session are listed in Appendix 3.

Each table of participants considered the ideas generated during the brainstorming process and identified up to three priority opportunities worthy of prioritisation by the broader group. Similar priorities were then grouped and the resulting ten priority opportunities are listed below.

4.1. A: Prevention and pre-symptomatic testing the implications of testing

Intervention target	- Consumers: tests they need (segment your audience) - Medical professionals via primary care
Potential benefits	High: Improved outcomes and big 'bang for buck'
Difficulty	High: The intervention will be very complex to implement and must be informed by the need to redistribute testing to difficult groups who will benefit most

4.2. B: Identifying high-volume AND inappropriate tests

Intervention target	- Identifying high volume (by amount or by revenue) AND inappropriate tests - Broad range of therapeutic areas
Potential benefits	-
Difficulties	Criteria for defining 'inappropriate' Date limited

4.3. C: Preventative Testing, Audit and Feedback

Intervention target	- GPs, consumers, specialists - Inform referral and requesting practices for clinicians and consumers
Potential benefits	High: Reduced number of procedures, cost savings Streamlined order pathways, increased number of appropriate testing Linking to prescriptions
Difficulty	High: for complete system Low: for feedback between referrer and referee Changing established behaviours Measuring outcomes Delivering complex information appropriately Defensive medicine
Details	Requires infrastructure, reporting/measurement systems, and potential for changes to payment schedules to reward feedback, Informed consent

4.4. D: Influence regulatory improvements to highlight inefficiencies

Intervention target	- Government - Various craft groups
Potential benefits	-
Difficulty	-
Details	Leverage evidence-base to inform debate NPS' collaborative approach may provide 'Helicopter view' Bridge issues of different craft groups Regulatory barriers to best practice

4.5. E: 'Fill the gaps'

Address priority areas where guidance or evidence is lacking, e.g. health-checks, rheumatoid arthritis, etc.

Intervention target	- GPs - Consumers
Potential benefits	Improved patient outcomes
Difficulty	
Details	Identify common issues, build evidence-base, clinical pathways criteria (dissemination), dissemination strategy will be key (linked to ordering process)

4.6. F: Clinical Decision Support (Electronic Decision Support)

Intervention target	- Targeted EDS – top 5 priority areas - Linking in with guidelines, particularly diagnostic management - GPs and junior hospital doctors - Vendors - Colleges
Potential benefits	Low/medium: but broad. Improved efficiencies
Difficulty	High: takes time Technical difficulties
Details	Dissemination strategy must be at point of care, support decision making and be unobtrusive Understanding systems already in place.

4.7. G: Informed Consumers

Enhance consumers' health literacy. High quality consumer information on common tests and testing generally. Focuses on what consumer believe they need and how this fits in with evidence. What are consumer expectations?

Intervention target	- Government policy makers, GPs, patients - Target 'top 10' over utilised tests and 'top 10' under-utilised tests and provide simple messages to educate consumers about their purposes benefits - Consider CALD communities - Consumers are not a homogenous group – different needs, segmentation
Potential benefits	High: Patients learn about costs More efficient use of diagnostics, better quality healthcare, right interventions Better choices made, more accountable doctors, health literacy – better compliance
Difficulty	Low: Refer NPS' Common Colds campaign (reduced unnecessary use of antibiotics) Addressing all parts of testing experience Difficult to measure
Details	Media campaign involved

4.8. H: Investigation strategies – focus on use/interpretation of existing tests

Intervention target	Health professionals
Potential benefits	Improved diagnosis Better monitoring, better patient compliance
Difficulty	Low
Details	Application exists; GPs are open and hungry for this information

4.9. I: Health Professional Education

Intervention target	<ul style="list-style-type: none"> - Medical practitioners, practice nurses, nurse practitioners - Medical students - Junior doctors - Targeting doctors in hospital training - <i>Everybody</i>
Potential benefits	Fill the knowledge gaps – improve quality of requesting
Difficulty	Time, competing for curriculum, results slow Too many guidelines, many unclear, access to them is varied
Details	<p>Single website for guidelines</p> <p>Identify gaps in knowledge causing higher utilisation rates and target this via multiple interventions (NPS, divisions, colleges)</p> <p>Better feedback from radiologists to GPs</p> <p>Education to be broad – not necessarily disease-based</p> <p>Integrated in the curriculum - students</p> <p>Postgraduate medical council – embedding into curriculum</p> <p>Education linked to feedback on individual/group performance.</p>

4.10. J: Improve the diagnostics referral form / request form

Intervention target	<ul style="list-style-type: none"> - What are the critical questions? - Incorporating decision rules
Potential benefits	Structured requests mandate certain clinical information; this allows more appropriate tests
Difficulty	Low: Referral form has already been described for diagnostic imaging High: Difficult implementation

5. Opportunity prioritisation

The opportunities to improve quality diagnostic referrals were prioritised by participants through the voting process described in Figure 2 below.

Which items do **you** think are a priority for the NPS quality diagnostic referrals program?

Consider: Do any synergies exist with other NPS activities?
 How large are the benefits?
 How easy would they be to achieve?

Voting:

- Highest priority ● ● ●
- Second highest priority ● ●
- Third highest priority ●

Note: You can place UP TO THREE dots on any one idea
 (or six dots on six ideas)

Figure 2: Opportunity prioritisation process

Stakeholders prioritised the opportunities as follows:

Rank	Opportunity	Votes
1	<i>F. Clinical/electronic decision support</i>	39
2	<i>I. Health professional education</i>	36
3	<i>G. Informed consumers</i>	32
4	<i>C. Preventative testing, audit and feedback</i>	22
5	<i>A. Prevention and pre-symptomatic testing; the implications of testing</i>	16
6	B. Identifying high volume and inappropriate tests	15
7	D. Influence regulatory improvements to highlight inefficiencies	14
8	J. Improve the diagnostics referral / request form	13
9	E. Fill the gaps	10
10	H. Investigation strategies – focus on use/interpretation of existing tests	1

The top five priority opportunities were explored in further detail during the afternoon.

6. Priority opportunities

During the afternoon, participants explored the priority opportunities in groups to identify how the NPS could potentially improve the quality of pathology and diagnostic imaging referrals as follows:

- Discuss the opportunity - how could NPS improve the quality of diagnostic referrals?
- On the flip-chart, document:
 1. Idea summary
 2. Benefit (low, medium, high & why)
 3. Scope (particular tests, conditions or population groups?)
 4. Who should be involved
 5. The key activities (is the gap known? what style of intervention?)
 6. Difficulty (low, medium, high & why)
 7. Any other important details

Figure 3: Guidelines for exploring priority opportunities

The outcomes from each group, together with feedback arising from discussion of the opportunity with all workshop participants is described below.

6.1. Clinical / Electronic Decision Support

Opportunity	Clinical / Electronic Decision Support
Summary	Access to the right information at the time of referral, integrated with clinical desktop and requesting process
Benefit	<ul style="list-style-type: none"> ▪ Patient outcome and experience improved ▪ Educational function to assist requestors ▪ Efficiency improvements – ‘bang for buck’.
Scope	<ul style="list-style-type: none"> ▪ Ask referrers what they want ▪ Website link to get information – reputable knowledge management.
Who	<ul style="list-style-type: none"> ▪ Radiologists ▪ Referrers ▪ Pathologists ▪ Vendors (Software industry) ▪ General Practice ▪ Peak bodies ▪ NEHTA ▪ DOHA ▪ Standards bodies ▪ Therapeutic Guidelines.
Activities	<ul style="list-style-type: none"> ▪ Identify existing frameworks/systems ▪ Identify alternative/additional funding sources ▪ Determine drivers for change ▪ Target government policy barriers for appropriate referrals – e.g. MRI vs. CT issue, GP MRI referral rights ▪ Improve referrer access to tools ▪ GP education/change management ▪ Development of effective delivery mechanism.
Difficulty	<ul style="list-style-type: none"> ▪ Potential copyright issues ▪ Knowledge maintenance a priority ▪ Consensus from guidelines required ▪ Integration between GP/referrer processes essential.
Other details	Decision to be made between looking at specific order sets (priority areas) and a generic, broad approach.

6.2. Health Professional Education

Opportunity	Health Professional Education
Summary	<ul style="list-style-type: none"> ▪ Education included as part of larger approach (multi-faceted interventions), resulting in increased confidence in diagnostic referrers / requestors ▪ Different interventions implemented for different demographic groups (rural/urban, etc) and different health professionals (GPs, students, interns, overseas-trained doctors, GP registrars, specialist registrars, etc) – i.e. target at all levels of profession but tailor to audiences.
Benefit	<ul style="list-style-type: none"> ▪ High benefit but a slow, long-term process, with surrogate markers for short-term progress.
Scope	<ul style="list-style-type: none"> ▪ Identify gaps and problems, and then tailor education accordingly.
Who	<ul style="list-style-type: none"> ▪ Radiologist and pathologist groups ▪ Local opinion leaders ▪ Universities (for medical students) and specialist colleges ▪ Postgraduate medical councils – e.g. GPET, etc ▪ GP networks.
Activities	<ul style="list-style-type: none"> ▪ Audit and feedback ▪ Prospective generation of information ▪ Creation of relevant guidelines or key messages that build on existing well-accepted resources – e.g. Therapeutic Guidelines ▪ Specialist-led workshops ▪ Insertion of materials into training path and curriculum ▪ Development of a suite of materials that can be used at local levels ▪ Embedding of the program into standards and competencies.
Difficulty	<ul style="list-style-type: none"> ▪ High – especially to attract those who need the education the most.
Other details	<ul style="list-style-type: none"> ▪ Reports show that without follow-up work, educational visiting resulted in short-lived success – therefore it's crucial that audits and feedback are a part of a program ▪ Ionising radiation should be included as a specific topic of attention – it's a matter of not just appropriate imaging, but the risks thereof ▪ The program should take advantage of opinion leaders as they have great influence when attempting to change GP behaviour.

6.3. Informed Consumers

Opportunity	Informed Consumers
Summary	What do consumers want to know – surveys and research to be undertaken (including Medicare data) to tailor the information accordingly.
Benefit	<ul style="list-style-type: none"> ▪ High benefit of informed consumers – awareness of risks, and a better doctor/patient relationship ▪ Medium level benefit of more appropriate testing taking place, and potentially less testing.
Scope	<ul style="list-style-type: none"> ▪ All demographics, extra focus on middle class, lower socio-economic classes, aged care and remote access/indigenous population ▪ Aimed at all levels of educational life.
Who	<ul style="list-style-type: none"> ▪ Essentially everyone ▪ Consumer groups with interest in specific diseases/conditions preferred, as broader issues would be more difficult to cover ▪ Target top 10 tests ▪ Medical colleges.
Activities	<ul style="list-style-type: none"> ▪ Identify top 10 tests ▪ Ascertain what consumers need to know ▪ Target indigenous population and other similar groups ▪ Identify deficiencies in diagnosis for specific diseases and target program activity accordingly ▪ Focus on patients with major chronic diseases ▪ Style activities on existing NPS medical program ▪ Improve consumer knowledge of broad purpose of diagnostic tests.
Difficulty	Medium – draw on experience in other areas already in place (NPS QUM).
Other details	

6.4. Preventative Testing, Audit and Feedback

Opportunity	Preventative Testing, Audit and Feedback
Summary	Improve quality of practice by comparing actual behaviour against current 'best practice', and then feedback data to clinicians.
Benefit	Reduce unnecessary tests and increase appropriate test utilisation resulting in improved collaboration between referrers and referees.
Scope	<ul style="list-style-type: none"> ▪ Most highly utilised tests – likely Lipids, CTs, tumour markers, diabetes, thyroid monitoring ▪ Drawn from and incorporated with Medicare data, desktop data and lab data – not league tables.
Who	<ul style="list-style-type: none"> ▪ Medicare ▪ NPS ▪ Pathologists ▪ Radiologists ▪ ACSQHC ▪ NCOPP ▪ AAPP ▪ Health insurers (potentially as a preventative aspect data source) ▪ DOHA ▪ NCRIS.
Activities	<ul style="list-style-type: none"> ▪ Define intervals – set targets for diagnostic interventions ▪ Individualised audit and feedback ▪ Data analysis ▪ Data development ▪ Communication strategies to improve GP/specialist communication ▪ Initial trial focussed solely on commonly utilised tests.
Difficulty	<ul style="list-style-type: none"> ▪ There are multiple data sources and a lack of 'best practice' evidence ▪ Coning of tests ▪ Expected resistance (change, set behaviour, provider).
Other details	

6.5. Prevention and pre-symptomatic testing; the implications of testing

Opportunity	Prevention and pre-symptomatic testing; the implications of testing
Summary	What is the most effective use of pathology and imaging in the prevention/pre-symptomatic setting – e.g. Health clinics → Targeted health checks for individuals and groups
Benefit	<ul style="list-style-type: none"> ▪ Health benefits, outcome, quality of life ▪ Cost benefits ▪ Equality in level of care ▪ Prevention of complications
Scope	<ul style="list-style-type: none"> ▪ Protocol for testing for health check i.e. guidance ▪ Cost / benefit analysis crucial ▪ Guidance on list of what to order, when and in what groups <p>Objective modelling needed</p>
Who	NPS greatly involved in modelling and developing the evidence base All stakeholders – GPs, pathologists, specialists, health professional and consumer specialty groups
Activities	<ul style="list-style-type: none"> ▪ Research ▪ Modelling ▪ Education modules ▪ Guidelines ▪ Targeted consumer information and educational process ▪ Measuring outcomes (evaluation).
Difficulty	<p>High: The design and implementation would be a large piece of work and the impact may be seen as long-term, making it a ‘harder sell’</p> <p>Pick quick-win items – i.e. diabetes which is generally an uncontroversial, low emotion area.</p>
Other details	Refer to the Work Health Victoria screening program which already takes place – this may be rolled out nationally, possibly tying into the Health Taskforce Note that screening is not that wide in terms of an evidence base

7. Next steps

NPS is grateful to the key stakeholders who attended the April workshop and generously shared their insights, information and advice to help identify opportunities for NPS and inform the development of our program. A key outcome of this workshop was the prioritisation of opportunities for NPS, and we will use this to guide our future priority setting.

Continued open communication is critical to the success of our work. We will actively seek to engage with other groups in this space and create links where common areas of interest exist, for example the quality use of pathology and quality use of radiology programs, and the work of organisations like Therapeutic Guidelines.

As outlined previously, the NPS Expert Advisory Group will support the design and implementation of the Quality Diagnostic Referrals Program. As part of this governance structure, we envisage the need to establish specialist subgroups and panels on occasion to provide specific input to priority areas. We will seek to involve our stakeholders wherever appropriate in support of this approach.

NPS will hold regular formal stakeholder consultations, most likely on an annual basis, to track progress and inform the future development of the program. In addition to this, we will communicate openly and regularly through formal and informal channels to keep stakeholders up to date. We invite interested organisations to keep in contact with us and get involved as work progresses.

Thank you again for your input. NPS looks forward to working collaboratively to improve the utilisation of diagnostic imaging and pathology testing.

Appendix 1. Workshop agenda

NPS Quality Diagnostic Referrals Stakeholder

Workshop Agenda

Date: Thursday 29 April 2010

Time: 10:00am – 4:00pm

Venue: Mercure Sydney Hotel, George Street, Sydney 2000

- Objectives**
- To gain an understanding of the existing issues and opportunities associated with pathology and diagnostic imaging
 - To gain stakeholder input to the NPS Diagnostics program's outcomes and priorities
 - To gain the commitment of attendees to be actively involved with the NPS Diagnostics program

NPS Expert Prof Tim Usherwood Dr Christine Walker
Advisory Prof Richard Mendelson Dr Megan Keaney
Panel Ms Kate Moore Dr Tamsin Waterhouse
Dr Michael Harrison

NPS staff: Dean Meston *Quality Diagnostic Referrals*
Michelle Koo *Curriculum and Training*
Jemma Edwards *Healthy Communities*
Kerren Hosking *Strategy and Communications*
Roshmeen Azam *Primary Care Practice*
Kim Barry *Practice Systems*
Jonathan Dartnell *Innovation and Learning*
Michele Adair *Healthy Communities*
Margaret Williamson *Research & Development*

Speakers Ms Karen Kaye *Deputy CEO, National Prescribing Service*
Ms Aine Heaney *Manager, Quality Diagnostic Referrals Program*
Rita Horvath *Clinical Director, Department of Clinical Chemistry*
Prince of Wales Hospital

Facilitator Marcus Harvey *Senior Consultant - The Nous Group*

Thinking Diagnostics

10.00	Welcome and overview of the day	Marcus Harvey
10.15	Who are NPS and how do we work?	Karen Kaye
10.30	Quality Diagnostic Referrals – objectives & goals	Aine Heaney
10.45	Intervention strategies – where does the research point?	Rita Horvath
11.15	Morning tea	
11.30	Small group discussion on the priority areas <i>(facilitated at each table by NPS staff)</i>	All
12.15	Feedback to the wider group and identify priorities for the NPS Diagnostics program <i>Top five priority opportunities identified – to be workshopped in the afternoon with NPS staff</i>	Marcus Harvey
1.00	Lunch	
1.45	Explore priority opportunities in small groups	Tim Usherwood All
2.45	Afternoon tea	
3.00	Time to share - key findings	Marcus Harvey
3.55	Wrap up	Marcus Harvey
4.00	Close	

Appendix 2. Workshop attendees

Organisation	Attendees
Royal College of Pathologists of Australasia (RCPA)	Dr Tamsin Waterhouse Dr Debra Graves
Australasian Association of Clinical Biochemists (AACB)	Dr Andrew St John
Australian Institute of Medical Scientists (AIMS)	Neil Horton
Australian Association of Pathology Practices (AAPP)	Dr Beverly Rowbotham
National Coalition of Public Pathology (NCOPP)	Associate Professor Hans Schneider
Royal Australian and New Zealand College of Radiologists	Don Swinbourne Ms Jane Grimm
Australian Diagnostic Imaging Association	Pattie Beerens Dr Chris Wriedt Peter Middleton Catherine Bergin
Australian Sonographers Association	Elaine Trevaskis
Australian Radiation Protection And Nuclear Safety Agency (ARPANSA)	Anthony Wallace
Royal Australian College of General Practitioners	Jo Raw
Royal Australasian College Of Physicians	Mary Osborn
Australian Medical Association	Dr Brian Morton
Australian General Practice Network	Carolyn Stapleton Dr Michael Nolan
Australian Commission on Safety and Quality in Healthcare	Elizabeth Hanley
National eHealth Transition Authority (NeHTA)	Andrew Howard
Medical Software Industry Association	Vincent McCauley
Therapeutic Guidelines Limited	Mary Hemming
Sonic Healthcare Limited	Dr John Fraser
Healthscope Limited	Neville Watson
I-Med	Bruce Potts
Consumers Health Forum	Anna Wise
Victorian Medical Postgraduate Foundation	Rob Moulds

Appendix 3. Ideas from the brainstorming process

The following ideas resulted during the brainstorming session in the morning

Table A

- Electronic guidelines linked to MBS schedule
- Link diagnostic tests with therapeutic guidelines
- Clinical decision support
- Comprehensive (as much as possible)
- Electronic decision support tools to assist references i.e. identifies tests
- Identify high-volume tests where lack of evidence is apparent
- Pathology – Point of care testing (particularly in relation to INR testing growth, but higher cost than lab-based testing)
- Focus on education – much test ordering is lack of confidence in clinical skills – need reassurance
- Educating GPs to cost of pathology – adding MBS cost of each test in electronic ordering
- Co-operation with NEHTA
- Allow request to be changed by specialist to best practice and allow under MBS schedule rules
- Ionising radiation training module as pre-requisite of medical registration

Table B

- Include order guidelines as part of clinical software
- Whatever the intervention, it needs to fit with GP workflow
- Gaps in guidelines identified – where do GPs get their information from? Involve specialists in intervention
- Change government policy on GP referrals for MRI
- Introduce digital x-ray machines – sometimes onsite diagnosis and testing can reduce result/re-requesting pathways
- Enhance some clinical restrictions on certain tests, e.g. Lumbar spine, CT
- Lower-back pain and imaging – LBP is the most common reason for ordering DI
- Concentrated effort on low key clinical problems where practices are out of step with evidence (vs. broad appeal)
- Improve health literacy – consumers to be better informed about role of diagnostics versus health history/clinical examination
- Establish accessible repository of ‘patient journeys’ so we can improve ordering/requesting
- Home testing and reporting can improve trend reporting – refer to case studies on warfarin
- Don’t bring this down to cost at GP level as GPs will not react well
- Note that it is not always the best clinical test sequence that is the best pathway – pathologists and clinicians and accountants need to work on requesting
- Prohibit some multiple scan combinations – e.g. CT brain scan with skull x-ray
- GPs priority opportunities – education of GPs, clearer and accessible protocols for specific diseases and feedback about GP generated costs
- Create collaboration areas for clinicians to review requests and results together
- Integrated education – GPs, GP registrars, overseas-trained doctors, hospitals
- Better independent education about use of imaging and pathology – e.g. role of colleges beyond their members, better use of divisions
- Multifaceted approach to issue.

Table C

- Referrer education – the ‘value’ vs. the ‘cost’ equation for each test
- Medical education – building diagnostic expertise is the basis of appropriate diagnostic test requesting

- Define patient pathway for testing
- Consumer education – GP/referrer assistance in patient preparation
- Decrease in number of requests is not always a sign of a better clinical outcome – in fact the reverse may be true
- The role of all members of the DI team – referrer education
- Enforcing of certain intervals or prohibition of repeat ordering
- Health record links between public and private sector
- Primary care – does this include Allied Health?
- Provide input into the MBS – DIST review (rules for imaging)
- Information to support GP/consumer decision support
- Education should include an approach to best selection as well as responding to results
- Understanding consumer expectations of diagnostic imaging's role in diagnosis
- Do people think there is an over-reliance on diagnostic tests at the expense of 'clinical judgement'.

Table D

- Work with other NPS programs addressing QUM
- Understand and address consumer 'drivers'
- Consumer resource with information on referrals – i.e. Why this test, what do I need to do, risks/benefits, timelines, alternatives
- Lack of consumer information regarding risks vs. benefits of diagnostic imaging
- Requesting doctors should be willing and able to address consumer questions
- Clear explanation of results and implications (also in relation to false positives and false negatives)
- Wellness checks – what is reasonable for what group? MBS health-check items, integrate health-check with desktops
- Lack of radiologists – review of higher dose imaging procedures
- Monitoring frequency of tests
- Link diabetes testing to quality of diabetes control and appropriate management of complications
- Use interval determination to feed back times between testing.

Table E

- Physicians and not just GPs
- Electronic Decision Support (via World Wide Web) is critical
- Electronic requesting shows cost of tests requested (either MBS fee only or fees from lab)
- Remove barriers to ordering best test first – i.e. MRI after CT
- Allow pathology companies to keep a percentage of savings on a per patient basis
- Communication barriers to getting timely reports – e.g. send another culture sample as nothing grown
- Clarify system for radiology reports when the reporter does not know
- Feedback to GPs and specialists what diagnostics have already been done
- Feedback to include peer comparison
- Clarify plan of action for an abnormal test result
- Include targets for use of tests requested in PIP GP program and/or have extra incentive programs
- Training program in medical schools
- Evaluate behaviour comparing paper requesting to electronic requesting in small trial group, then introduce EDS
- Use MBS to show clinicians previous testing (with patient consent)
- Clinical desktop electronic decision support for diagnostic requesting
- Development of national multi-disciplinary guidelines for key diseases – adopt as standard
- Feedback letter to patients regarding ordering compliance and guidelines
- Further development of case-based discussions for medical students (RCPD/UNSW initiative)
- Development of case-based education as per speaker Rita's international examples
- Headache imaging

- Measure 'true' level of ordering prior to MBS
- Testing feedback – number overall, number of abnormal tests, number of useful tests
- Consider when 'cookbook medicine' is right/wrong
- Identify top 5 – 10 tests where there is a gap between evidence and practice
- For priority tests, set target, change evaluation process, conduct targeted education program, provide financial incentives and disincentives
- Identify if some people are the only ones permitted to order certain tests
- Based on feedback from MBS and RACGP, produce evaluation program comparing GPs to peers in terms of requesting behaviour
- Traffic light system for requests
- Ensure implementation of new tests appropriate
- Perform cost/benefit analysis of allowing GP ordering of MRIs.

Table F

- Focus on where there is good evidence for useless tests
- Online modules for physicians – QUM ones are great
- Focus on better use/interpretation of existing tests where there is good evidence
- Find ways to put evidence/information to interpret tests in easily accessible format
- Focus on educational interventions (audit/surveys and feedback/benchmarking) and measure impact of such interventions
- Identify drivers of test requesting behaviour
- Identify doctors' needs – where do they have diagnostic gaps, problems
- Ask consumers – where are their gaps
- Consumer consent – driver is pull factor
- Ethics – quackery and useless testing
- Prevention/pre-symptomatic diagnostic tests
- Monitoring of diagnosed conditions to prevent complications
- Implications of not testing – need to have better information and understanding
- Consider physicians – e-solutions won't work now
- Collect GP questions related to test ordering and test utilisation.

Table G

- Guidelines where there is an Australian consensus
- Standardised simple guidelines to provide advice – must be easy to access and retain
- Develop guidance on which tests should be requested for diagnosis of which diseases, arranged by disease/symptom
- Hyperlipidemia monitoring guidelines
- Some services should be discouraged in favour of better services
- Integrate diagnostic guidance into or with therapeutic guidelines
- Promulgate guidelines on pathology use in health checks
- Vitamin D testing guidelines
- Weakness and tiredness investigations
- Diabetes monitoring – testing schedule and interpretation
- Medicare savings re-invested in QUM
- Pay an adequate fee for quality services
- Remove perverse 'incentives'
- GP referral rights for appropriate MRI services
- Review request slips
- Provide costs of tests to clinicians
- Simple feedback on result of tests
- Radiologist request substitution

- Fees for specialist consultation, fees for radiologists
- Expansion of referral information to include adequate clinical notes to determine purpose of the request
- Inclusion of clinical information as prompt on request forms
- Pay clinical software provider to incorporate in desktop software
- Electronic decision support with feedback supported by electronic referrals.

Appendix 4. Presentation from Rita Horvath

Introduction

Developing successful interventions targeting clinical practice around the use diagnostic testing is not straightforward. Faced with the multitude of new diagnostic and therapeutic interventions, busy physicians need clear guidance on the best approaches to follow for their patients.

Professor Rita Horvath was invited to speak to the attendees of the Stakeholder workshop to provide an overview of her research into developing interventions in association with diagnostic testing.

Her presentation began with some background into the challenges faced by clinicians due to the plethora of information that is now made available. This coupled with an ever increasing array of new diagnostic tests means that clinicians are almost at the point of saturation of their ability to ensure that they have selected the right test for the right patient at the right time.

It was noted that faced with the challenge of a finite pool of government funding for diagnostic testing, there is now a real need to ensure that by testing, patient outcomes as well as wider-economic outcomes are justified; i.e. they provide benefit to the patient at an acceptable cost via a high-quality diagnostic service.

Professor Horvath then described some simple and not so simple strategies for changing test ordering behaviour. Something as simple as moving a test from the front of a pathology request form to the back demonstrated enormous effect in the rate in which the test was requested. Other more complex strategies were outlined (and examples provided). These included:

- Changes to requesting policy/ies;
- Using case-based education and discussions as a way to inform, educate and collaborate amongst clinical peers;
- Making use of feedback and reminder systems to assist busy clinicians in their practice;
- The development and use of clinical guidelines;
- Establishing and measuring performance indicators and benchmarks;
- Continuous training;
- Computer-based expert decision support systems;
- Provision of the cost of tests; and
- The provision of financial incentives.

Professor Horvath ended her presentation by stating that there is no silver bullet available as a means to effect change in this area and that multiple interventions will be required to rationalise test ordering and thereby improving test utilisation.

Professor Horvath's slides are provided to you.

Intervention strategies – where does the research point?

Andrea Rita Horvath
SEALS Department of Clinical Chemistry,
Prince of Wales Hospital, Sydney
School of Public Health, University of Sydney
President of EFCC



...and new tests...



...and public and professional pressure for more tests...

Outline

- **Challenges for laboratory testing**
- **Strategies for changing test ordering and interpretation**



The Public Health Challenge

Table 1.1: Sample of Priority Health Conditions, Associated Laboratory Tests, Prevalence, and Cost to the Health System

Health condition	Examples of laboratory tests used in diagnosis and/or patient management	Number of Americans affected	Spending on Condition
Heart disease	Lipid panel, troponin	79.4 million (2004) ^a	\$403 billion (2004) ^b
Respiratory disease ^c	Blood gas test, bacterial culture, viral culture	15.7 million ^d (asthma); 1.3 million ^e (pneumonia)	\$144.2 billion (2004) ^b
Cervical cancer	Pap smear, human papillomavirus DNA testing	11,150 cervical cancer diagnoses (2007) ^f	\$1.7 billion (2004)
Colorectal cancer	Fecal occult blood test	112,340 colon cancer diagnoses (2007) ^f	\$8.4 billion (2004) ^b
Diabetes	Glucose, HbA1c	20.8 million (2005) ^g	\$122 billion (2002) ^b
End-stage renal disease	Creatinine, BUN	472,000 (2004) ^h	\$32.5 billion (2004) ^b
HEV/AIDS	Antibody testing, CD4 testing, RNA	1.2 million (2006) ⁱ	\$21.1 billion (2006) ^b
Maternal health (prenatal care)	Blood and Rh type with antibody screen	83.9% pregnant women began prenatal care in first trimester; 3.4% began prenatal care in third trimester or not at all (2004) ^j	\$26.2 billion (2005) ^b
Mental health/ substance abuse	Drug tests, liver function	24.6 million adults ^k (classified with serious psychological distress (2003); 22.2 million people ^l (classified with substance dependence or abuse) (2005))	\$104 billion (2001) ^m
Influenza	Viral culture, serology, rapid antigen testing	5-20% of the U.S. population is infected with the influenza virus each year ⁿ	\$200 on treatment per infected person (2003) ^b
Health care-associated infections	Viral culture, molecular typing of microbial pathogens	1.7 million (2006) ^o	\$10,500-\$111,000 per case (2004) ^b

Based on review of the National Guideline Clearinghouse, Agency for Healthcare Research and Quality, and Medline, National Library of Medicine. Tests identified from Lab Tests Online.
The Lewin Group Report, 2008

We are bombarded by unmanageable wealth of information...



The Demand Challenge

Reasons for over-utilization of tests

- increasing demand for care (due to ageing and chronic conditions)
- increasing demand from informed patients
- defensive medicine
- fear of litigation
- uncertainties related to diagnosis (repeat and follow-up testing)
- curiosity and eagerness for screening while patient is in hospital
- reassurance for patients
- winning time
- accessibility of tests
- "routine" clinical practice
- test panels, collective ordering (eMR)
- ignorance of diagnostic significance of tests
- lack of experience
- inadequate educational feedback
- unawareness or ignorance of costs
- lack of appropriate/or lack of the use of protocols and guidelines



Bubner T, Laurence C, 2009

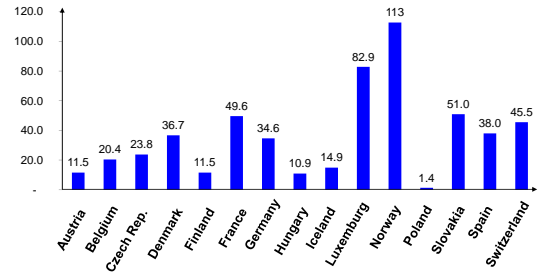
The Economic Challenge

- Laboratory costs represent 2%–3% of the total healthcare expenditure in Europe.
- In 1998-99 and 2000-01 over one billion dollars per year were spent on pathology services in Australia.
- In 2007-2008 70% of all pathology tests were requested by GPs and generated 67% of the pathology costs to Medicare.
- 30% of laboratory tests that have been performed were repeated within 30 days.



Bayram C et al., 2009
Bubner T, Laurence C, 2009
Alonso-Cerezo MC et al. CCLM 2009; 47(12):1461–1465

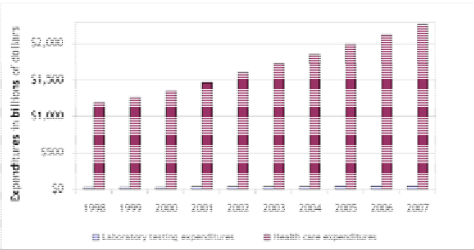
Costs per head for clinical laboratory tests in Europe (in €)



€ / \$ Exchange rate: 1.00 € = 1.47 US \$
Reource: OECD Health Data 2009

The Economic Challenge

In 2007 6.8 billion laboratory tests were performed in the U.S.
This accounted for 2.3% of health care expenditures and 2% of Medicare expenditures.



Source: Terry H. Lab Industry strategic outlook: market trends and analysis 2007. New York, NY: Washington C 2 Reports, 2007.
The Lewin Group Report, 2008

The Value Challenge

„Diagnostic companies have seen a niche in the market, now worth \$8bn worldwide, but there is no regulation - anyone can set up a shop.”

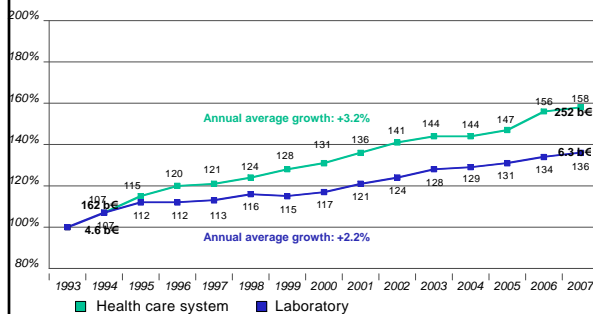
D. Freedman, RCPATH, UK

„In the UK, around 1 bn lab tests are performed each year. Laboratories have sophisticated systems to ensure analytical accuracy...but no systems to ensure that ...tests are clinically effective and useful.”

R Zimmern, PHG Foundation



Comparison of total cost of the German health care system vs. laboratory cost (1993 = 100%)



Clinical value of testing

Laboratory tests have clinical value only if they are clinically effective and improve patient-centred, or organizational or economic outcomes;
i.e., if they provide benefit to patients at acceptable costs.



How can we prove this and where do you get the related information from...?



EVALUATING DIAGNOSTIC TESTS



BMJ, 2008; 336:683

Tests shown not to improve outcomes

- **Clinical outcome:** Preoperative testing did not decrease the rate of postoperative complications (Schein, NEJM 2000)
- **Clinical outcome:** Early availability of cardiac marker tests (myoglobin, CKMB) did not decrease the use of thrombolytics (Gibler, JACC 2000)
- **Operational outcome:**
 - POCT had no effect on length of stay in emergency department (Parvin, Clin Chem 1996; Kendall, BMJ 1998)
 - POCT had no effect on waiting times in clinic. Waiting times decreased only after changes in clinic patient flow (Nichols, Clin Chem 2000)



By courtesy of David Bruns

Problems with measuring outcomes

- Remoteness of clinical outcome from laboratory testing
- Confounding
- Inconsistent response to result of testing
- Large sample size needed
- Ethics: reluctance to withhold accepted test
- No blinding of tested vs not-tested
- Concealment of allocation
- Rapid changes in technology
- Multiple methods for measuring the parameter
- Cost of study vs potential profit or perceived savings



Where do clinicians get the information from..

...on which test to order? ...on interpretation of test results?

Pathology Resources	All (N = 69)		Pathology Resources	All (N = 69)	
	N	%		N	%
Pathology service	49	71.0	Pathology service	52	75.4
Supervisor	48	69.6	Colleagues	46	66.7
Colleagues	48	69.6	Supervisor	45	65.2
Specialist	30	43.5	Specialist	29	42.0
Royal Colleges of Pathologist of Australasia (RCPA) manual	16	23.2	UpToDate website	12	17.4
UpToDate website	12	17.4	Royal Colleges of Pathologist of Australasia (RCPA) manual	11	15.9
Pathology provider website	12	17.4	Pathology provider website	10	14.5
Other (e.g. textbooks, common sense pathology, eMedical website)	10	14.5	Other (e.g. textbooks, eMedical website, common sense pathology)	8	11.6
RCPA website	7	10.1	RCPA website	5	7.2
Lab Tests Online website	5	7.2	Lab Tests Online website	5	7.2

By courtesy of T. Lawrence, C. 2002

Tests shown to improve outcomes

- **Clinical outcome:**
 - BNP-guided therapy of heart failure improved outcomes (Troughton, Lancet 2000)
 - Rapid HbA1c testing was associated with improved glycemic control. (Cagliero, Diabetes Care 1999)
 - Fecal occult blood screening decreased the incidence of colorectal cancer by 17 – 20%. (Mandel, N Engl J Med 2000)
- **Operational outcome:** Intraoperative measurement of PTH decreased operating room time, frozen section use, and hospital length of stay. (Sokol, Clin Chem 2004)
- **Economic outcome:** Use of D-dimer testing in protocol to “rule out” pulmonary embolism avoided costs of imaging studies (Perrier, Lancet 1999)



By courtesy of David Bruns

The Quality Challenge

- Most errors are pre- and post-analytical.
- Need for standardized indicators for pre- and post-analytic process-related performance measures.
- Poor communication and insufficient knowledge of tests during test selection/ordering and interpretation of results.
- TAT and notification of critical values are frequently below-average to poor in customer satisfaction surveys.
- Lack of uniformity and standardization of clinical pathology test values among manufacturers hinders implementation of laboratory-based guidelines.



The Lewin Group Report, 2008

The QUPP GP Project

DEPARTMENT OF HEALTH AND AGING: QUALITY USE OF PATHOLOGY PROGRAM REPORT
 T. Bubner and C. Laurence: Enhancing the quality use of pathology for GP Registrars and International Medical Graduates – assessing the need

Test ordering is most difficult:

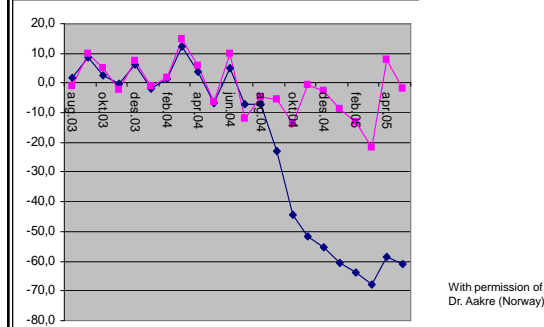
- rheumatology
- menopause and infertility
- vague symptoms such as tiredness

Tests interpretation is most difficult:

- rheumatology
- liver function (LFTs)
- lipids
- hormones
- PSA (most difficult)



Percentage change in the requesting of ASAT (SGOT) and ALAT (SGPT) compared with the same month the year before after moving ASAT to the back of the request form



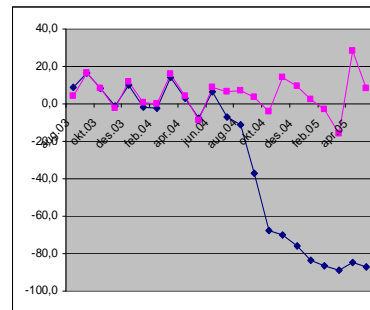
With permission of Dr. Aakre (Norway)

Outline

- Challenges for laboratory testing
- Strategies for changing test ordering and interpretation



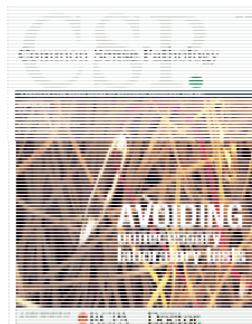
ASAT (SGOT) and ALAT (SGPT) requests in primary care



With permission of Dr. Aakre (Norway)

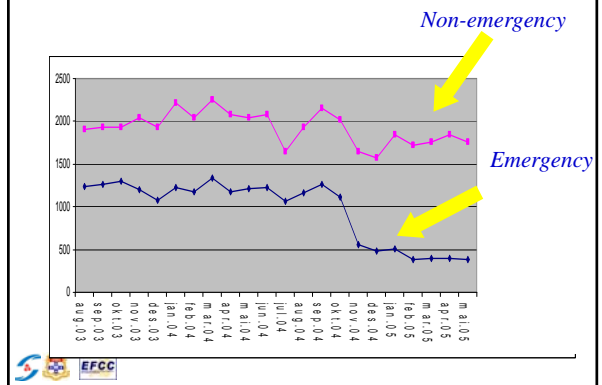
Strategies for changing test requesting and test interpretation

- changing requests forms
- requesting policies



Bubner T, Laurence C. 2009
 Alonso-Cerezo MC et al. CCLM 2009; 47(12):1461-1465

ASAT requests for inpatients



Interventions to influence test ordering

Effect of policy, guideline and test form changes on test ordering			
Clinical area	Intervention	Tests	Effect of Intervention
Haematology	Change in form plus guidelines	ESR	58% drop in requests (from 2000 to 500 per 100,000 persons)
Renal dysfunction	Policy changes, guidelines and change in form	Urinalysis ± microscopy	Increase in urinalysis without microscopy and decrease in urinalysis with microscopy
Iron stores	Policy and guidelines	Iron binding	80% decrease in iron tests
		Ferritin	Ferritin not significantly increased
Thyroid dysfunction	Guidelines, policy changes and change in form	Thyroxine and triiodothyronine resin uptake tests	Over about three years total thyroxine tests fell from about 1300 per 100,000 to virtually zero
		TSH	No significant increase in TSH tests

C van Walraven et al. Effect of population-based interventions on laboratory utilization. JAMA 1998; 280: 2028-33.

Letter to organizers Case History

Letter to participant

3 surveys involving 6390 GPs, in 10 EU countries and Australia

Strategies for changing test requesting and test interpretation

- changing requests forms
- requesting policies
- case-based education and discussions
- feedback and reminders

Bubner T, Laurence C. 2009
Aberno-Cerezo MC et al. CCLM 2009; 47(12):1461-1465

A web-based survey

User Name:
Password:
Log In

Welcome
Microalbuminuria and Diabetes in Primary Health Care
International Case History Investigation
This website is for participants in the investigation.
Please login above to continue.

EQAS on the ordering and interpretation of monitoring tests

Postanalytical External Quality Assessment of Blood Glucose and Hemoglobin A_{1c}: An International Survey
Shah S, Cameron P, Garcia R, et al.

Postanalytical External Quality Assessment of Warfarin Monitoring in Primary Healthcare
Ann-Helen Karimzadeh, Goh Teck, and Suresh Sundaresan

Feedback Clinical Update

INR survey results and feedback

	Your results	Mean (10-90 perc.)
Proportion of patients with INR measured (%)	16.8	14.6 (5,4-25,9)
Mean INR tests per year per patient	10.9	10.6 (5,9-16,2)
Percentage INR values within target limits	71.6	56.6 (45,8-67,8)



MAU case history to assess test interpretation practices

Albumin/creatinine ratio is measured today:
15 mg/mmol

A year later, what should the value be to indicate:

❖ deterioration in MAU, i.e. the value should have increased at least to: _____

❖ improvement in MAU, i.e. the value should have decreased at least to: _____



MAU case history to assess test ordering practices

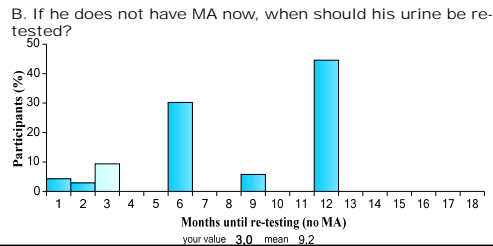
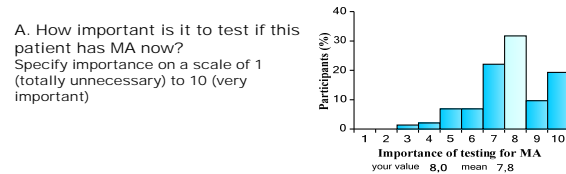
- ❖ 57 year old overweight male (BMI 29 kg/m²),
- ❖ with type 2 DM, diagnosed 2 years ago
- ❖ on oral antidiabetics, with no complications
- ❖ stopped smoking, has begun modest exercise
- ❖ blood pressure 145/90; HbA_{1c} 7.7%
- ❖ creatinine normal
- ❖ cholesterol 6.1 mmol/L, HDL-C 1.1 mmol/L, LDL-C 3.9 mmol/L, triglycerides 1.6 mmol/L
- ❖ no albuminuria testing so far



CD (%) stated by participants

Country (n higher/n lower)	Truly higher UA value (%)			Truly lower UA value (%)		
	10th percentile	50th percentile	90th percentile	10th percentile	50th percentile	90th percentile
Austria (33/23)	3	33	100	23	50	77
Denmark (56/55)	13	33	165	13	33	84
Estonia (57/57)	0	33	167	1	73	92
France (54/52)	10	20	50	10	30	50
Hungary (34/34)	25	35	167	30	35	82
Netherlands (54/51)	1	33	83	7	33	73
Norway (1022/930)	17	33	100	17	33	80
Spain (100/88)	15	87	107	7	60	81
Sweden (114/120)	1	33	100	2	34	81

Relatively large variation of responses amongst GPs



...but research evidence on CD values for MAU is also heterogeneous...

Report as	Critical difference (80% confidence)	Reference
albumin/creatinine ratio	26 %	[7]
Timed overnight urine	53 %	[7]
24 hours urine collection or morning urine	100 or 130 %	[8,9]

...and guidelines provide no clear recommendations



HbA_{1c} case history

- 45 year-old, overweight woman with 5 children
- with type 2DM, diagnosed 4 years ago, on oral antidiabetics.
- no diet, no exercise
- At consultation her HbA_{1c} is 9.1 % (DCCT value)

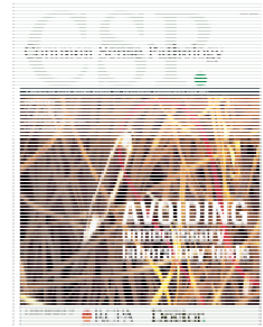
What should be her HbA_{1c} test-result at the next consultation for the value to indicate:

- Better diabetes control:**
HbA_{1c} value must have decreased to at least%
- Poorer diabetes control:**
HbA_{1c} value must have increased to at least%



Strategies for changing test requesting and test interpretation

- changing requests forms
- requesting policies
- case-based education and discussions
- feedback and reminders
- guidelines or guidance
- performance indicators and benchmarking



Bubner T, Laurence C, 2009
Alonso-Cerezo MC et al. CCLM 2009; 47(12):1461-1465



HbA_{1c}

'True' CD value at 80% probability to indicate poorer or better control corresponds to a change of $\pm 12\%$ in HbA_{1c}



Test ordering and guidelines

Participants had the greatest difficulty with test ordering and test interpretations for conditions/symptoms

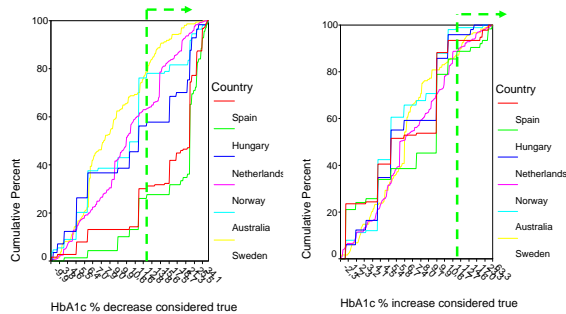
- that are vague, and/or
- where there were no guidelines or decision support systems available.

The least difficulty was reported for conditions such as diabetes, lipids, urinary tract infections where clear management guidelines are available.



Bubner T and Laurence C, 2009

HbA_{1c} survey results



Are guidelines guiding us?



The University of Sydney
School of Public Health

Family Medicine Research Centre

Evidence-practice gap in GP pathology test ordering

A comparison of BEACH pathology data and recommendations of guidelines

A project funded by the Pharmacy Use of Pathology Program and the Department of Health and Ageing

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