ARE DIAGNOSTICS AND PERSONALIZED MEDICINE IN FLUX? IMPLICATIONS OF GLOBAL POLICY CHANGES FOR HEALTH ECONOMICS AND OUTCOMES RESEARCH

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Overview of Key Policy Domains & Issues Related to Diagnostics and Personalized Medicine Scenarios

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What is Personalized Medicine?

- Use of genetic or other molecular biomarker information to improve the safety, effectiveness and health outcomes of patients via more efficiently targeted risk stratification, prevention and tailored treatment management approaches

Pharmacogenomics:
- Use of genomic tests to inform patient treatment selection and dosing by predicting drug response

Several examples thus far...
- HER2/neu: Herceptin/Tykerb
- KRAS/PTEN/BRAF: Vectibix/Erbitux
- EGFR: Tarceva/Iressa
- Oncotype DX: breast cancer chemo

Source: Scientific American 2000 and 2006

Are Diagnostics & Personalized Medicine in Flux?

- What is different versus current requirements for drug development? Should diagnostics be handled any differently than drugs?
- How have decision makers handled early cases of co-development and what problems have they encountered?
- What system incentives and disincentives effect HEOR, HTA and reimbursement? What solutions are practical and relevant?

- Are new HEOR approaches necessary, or can we make due with what we have?

Key Policy Domains for Personalized Medicine

- Evidence Standards & Reimbursement Decision Criteria
- Regulatory & Reimbursement Processes
- Diagnostics & Drug/Diagnostic Combinations
- Coding/Tariff & Payment Systems
- Clinical Delivery Infrastructure

Are Existing Evidence & HTA Standards Sufficient for Dx & Personalized Medicine?

- What is unique? Are we reinventing the wheel or are new approaches applicable?
- Initial evidence requirements emerging; little harmonization to date
  - Canada: CADTH developing HTA criteria & base case models for Dx value assessment (e.g., EGFR testing)
  - UK: NICE Diagnostics Assessment Programme methods and process statements - building from a similar base as drug assessment, but taking some unique attributes into account
  - US: CMS taking more active interest – no guidance yet; BCBS TEC has evaluated multiple tests; focus is clinical
  - How to address codevelopment scenarios vs. stand alone diagnostics?
  - How to handle from a policy perspective?
  - What ripple effect on other Dx applications?
Are Existing Evidence & HTA Standards Sufficient for Dx & Personalized Medicine?

- Most frequently cited challenges from recent oncology HTAs in Canada, UK & US:
  - Variable sensitivity, specificity, and predictive value in published studies
  - Insufficient integration of positive and negative predictive value (i.e., extent to which the test over-identifies or misses responders)
  - Improved stratification or comparator design using the biomarker
  - Insufficient powering to correlate marker with treatment & outcomes (i.e., to demonstrate clinical utility)
  - Crossover design/approach confounded interpretation/modeling
  - Relationship between size of responder population and cost-effectiveness
  - Concerns regarding infrastructure to support testing

- Despite challenges, examples have achieved reimbursement in global markets...though denials have occurred as well

Do Payment Systems Need to Evolve to Best Recognize Value of Personalized Medicine?

- What are we paying for?: In some markets test payments are not specific to certain tests
  - Descriptions may emphasize steps in conducting the test (e.g., PCR, DNA extraction) and NOT the whole test
  - US: coding slowly moving towards more specific codes
  - Payment for diagnostics and drugs may come from different funds in centralized payer markets

- How do we recognize value?: Lack of value-based payment for tests is a key challenge
  - Evidence requirements are emerging that are disconnected from payment paradigms; historical payment of tests as commodity
  - Creates obstacles to evidence development and value demonstration
  - Limits the HEOR approaches that are feasible

- Who pays for the test?:
  - Manufacturer pays for partial cost of KRAS testing in Spain
  - How should patient access schemes be considered?
  - How does this recognize value of the test?

Do Existing Processes Need to Change to Support Personalized Medicine?

- Do regulator & payer activities need to change to support personalized medicines? What implications for HEOR?
  - Proposed FDA/CMS parallel review process for drugs, biologics and devices
  - Initial activities may not address issues specific to drug/diagnostic combinations

- Do HTA bodies and payer decisions need to be better coordinated? What implications for HEOR?
  - HTA & reimbursement for diagnostics and drugs often flow through different decision channels with different evidence requirements
  - How do we reconcile evidence requirements & communications without sacrificing market access?
  - Australia: PBAC/MISAC parallel review of codependent technologies

Can We Accommodate Emerging Dx & Personalized Medicine Scenarios?

- Even if reimbursement is achieved, can we accommodate testing in the existing clinical delivery infrastructure?
  - What are the implications for patient access?

- Infrastructure concerns have been cited in multiple HTAs of personalized medicines
  - OECD, 2009 House of Lords report on Genomic Medicine
  - Centralization of testing approaches
  - Evaluation of infrastructure requirements & capacity
  - Consideration of who is responsible for testing

- What educational considerations relevant to appropriate physician adoption?

Cross-cutting Policies & Increasing Emphasis

Emerging Initiatives Suggest Unique Considerations…

- US Proposed Legislation:
  - H.R.1321/S.2404 (Medicare Advanced Laboratory Diagnostics Act)
  - S.734 (Laboratory Test Improvement Act)
  - S.976 (Genomics and Personalized Medicine Act)

- UK House of Lords Report on Genomic Medicine

- Alliances involving personalized medicine industry stakeholders
  - Personalized Medicine Coalition (PMC)
  - European Device Manufacturers Association (EDMA)
  - British In Vitro Diagnostics Association (BIVDA)
  - Association of the British Pharmaceutical Industry (ABPI)
  - European Personalized Medicine Diagnostics Association (EPEMED)

Tying it Back to ISPOR and HEOR

- What new HEOR approaches are necessary AND acceptable?
  - Diagnostics
  - Drug/diagnostic combinations

- Is a different standard for value demonstration a lower standard?
  - Where do we go from the traditional pharmaceutical model?
  - What is reasonable in the absence of value-based payment for diagnostics?
  - Should the approach vary depending on budget impact and unit cost?

- What are the challenges and implications for economic modeling and assessment?
  - How do we address uncertainty? How much will decision makers accept?

- How do we address comparative effectiveness requirements for diagnostics & drug/diagnostic combinations?
Thank You!

For more information, please contact:

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Goal:

To develop good research practices in personalized medicine and inform appropriate health care decision and policy making using personalized medicine information

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