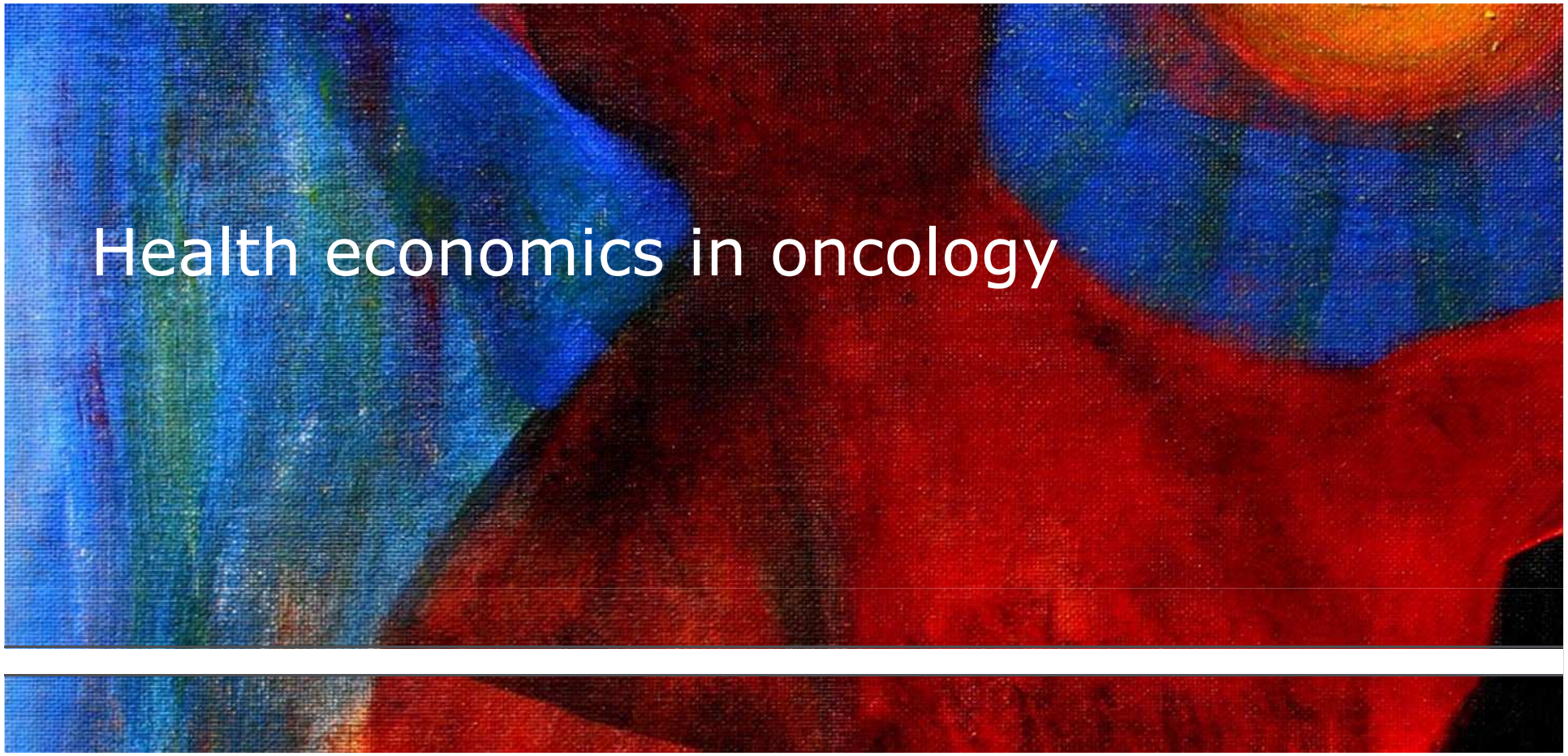


Health economics in oncology

Dr. Michel van Agthoven

Janssen, Pharmaceutical Companies of Johnson & Johnson, Tilburg, The Netherlands

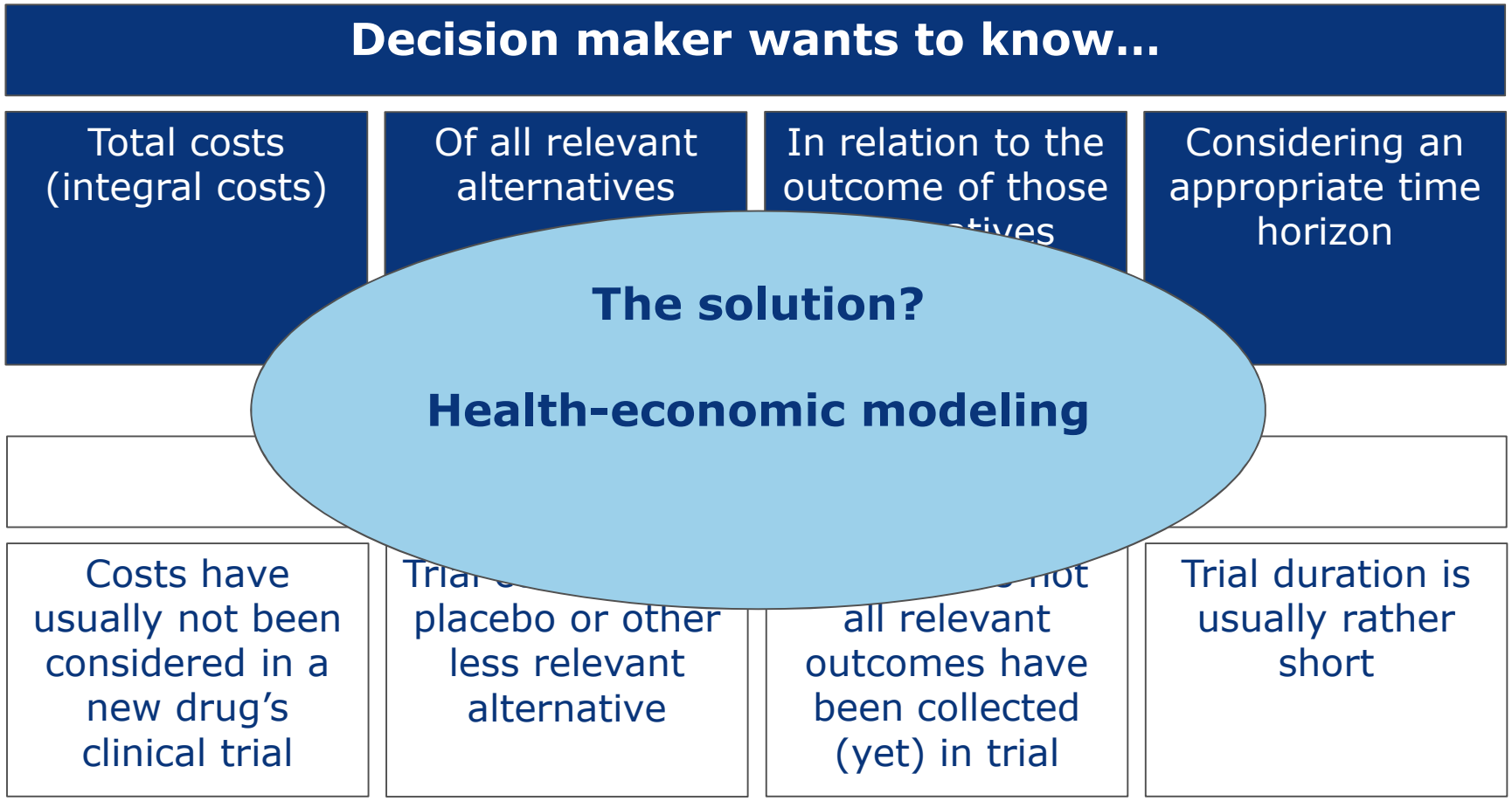
International Congress of Breast Disease Centers, Paris, February 9, 2012

HE in oncology: today's challenges, our obligations

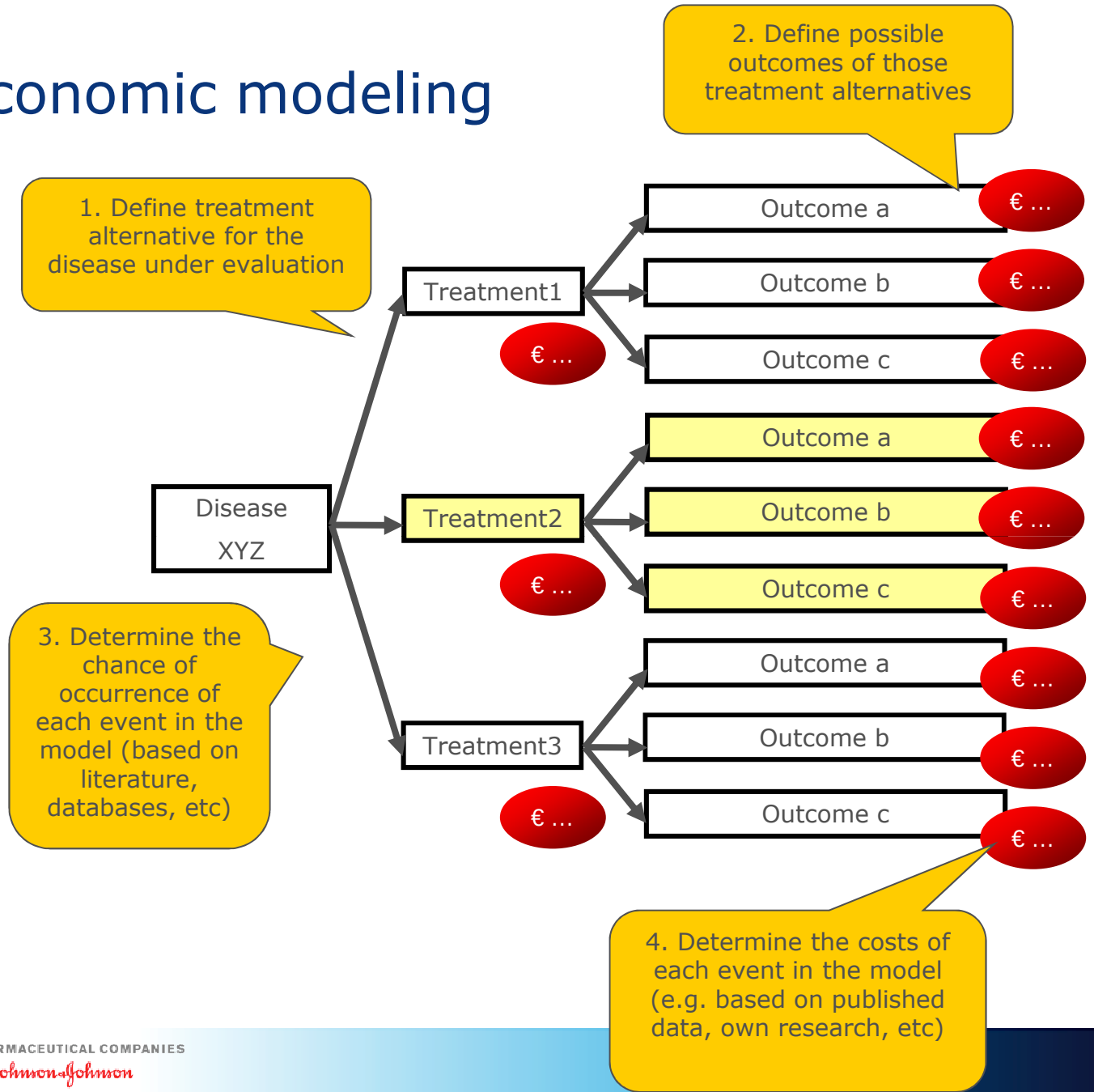
- Implement innovation despite the Incremental Cost-Effectiveness Ratio (ICER).
- Take a broad perspective in health technology assessment.
- Contribute to outcomes research / observational studies.

Implement innovation despite the Incremental Cost-Effectiveness Ratio

A decision problem



Health-economic modeling



Typical expression of the model outcome

- The cost-effectiveness of one treatment over another is expressed as the "incremental cost-effectiveness ratio".

$$\text{ICER} = \frac{\text{Costs (treatment 2)} - \text{Costs (treatment 1)}}{\text{Effects (treatment 2)} - \text{Effects (treatment 1)}}$$

Effects usually to be expressed in "QALYs"

Example from a Dutch economic analysis

Results of the cost-utility analysis, up to 3 years after randomisation (discounted values in parentheses)

	Intensive chemotherapy	Myeloablative treatment	Incremental results
Costs (up to 3 years):			
Total	€68802 (€67563)	€81643 (€80630)	€12841 (€13067)
Number of (up to 3 years):			
Life years	2.55 (2.46)	2.40 (2.32)	−0.15 (−0.14)
Quality-adjusted life years (QALY)	1.87 (1.81)	1.63 (1.57)	−0.24 (−0.24)
Results:			
Costs per life year	€26981 (€27465)	€34018 (€34754)	−€85607 (−€93336)
Costs per QALY	€36793 (€37328)	€50087 (€51357)	−€53504 (−€54446)

Source: Van Agthoven M et al. A cost-utility analysis comparing intensive chemotherapy alone to intensive chemotherapy followed by myeloablative chemotherapy with autologous stem-cell rescue in newly diagnosed patients with stage II/III multiple myeloma: a prospective randomised phase III study. Eur J Cancer 2004 (40): 1159-1169.

"QALY league table"

Table 5. Cost-utility ratios obtained in different context

Disease	Cost (€, 2007)
CER Knee arthroplasty (Min)	824.87
CER Knee arthroplasty (Av)	1,275.87
CER Knee arthroplasty (Max)	2,827.17
CER Hip arthroplasty (Min)	4,231.19
Higher recommended Spain (hepatitis treatment)[a]	6,783.07
CER hip arthroplasty (Av)	7,396.12
Critical care[b]	19,756.55
Congenital anomalies[b]	25,379.13
Genito-urinary diseases[b]	28,525.71
Spanish threshold	30,000.00
CER hip arthroplasty (Max)	48,186.64
International threshold	50,000.00
Injuries/exposures[b]	66,265.79
Digestive diseases[b]	89,348.43
Cardiovascular diseases[b]	92,629.31
Malignant neoplasms[b]	152,652.84
Anemias[b]	153,988.48
Allergy/immunology[b]	214,824.95
Infectious diseases[b]	649,038.17
Hematology-non cancer[b]	3,621,573.48

[a]Source: Sacristán et al[32].
[b]Cost-utility analyses published from 1976 to 2001, with ratios converted to 2002 US dollars.

Source: http://www.scielosp.org/scielo.php?pid=S0213-91112008000400006&script=sci_arttext, accessed Feb 4, 2012

But: does ICER really stimulate innovation?

- What about diseases or disease stages for which no or only cheap alternatives are available?

$$\text{ICER} = \frac{\text{Costs (treatment 2)} - \text{Costs (treatment 1)}}{\text{Effects (treatment 2)} - \text{Effects (treatment 1)}}$$

Lack of incentives: the antibiotics example

TIME Health

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The Desperate Need for New Antibiotics

By EBEN HARRELL / LONDON Thursday, Oct. 01, 2009

penicillin and its derivatives are becoming obsolete. New antibiotics are desperately needed, but the amount of money being spent on the research and development of these drugs is woefully inadequate. "The issue is quite dreadful," says Elias Mossialos, a professor of health policy at LSE and author of the report. "When you look down the pipeline, there are only a handful of new antibiotics in development, and all in the early stages."

David Payne, head of GlaxoSmithKline's Antibacterial Discovery Performance Unit, says incentives would certainly help his research team, which is one of the few left in major pharmaceutical firms that continue to develop new classes of antibiotics. "A lot of people don't appreciate that in big companies it's a pretty competitive environment for funding for each of the therapeutic areas. Incentives would offer a way for us to accelerate our program and increase our probability of success."

To Cars, the scientific challenges are more worrying than the financial obstacles. "Even if we got the incentives right, there's a knowledge gap that needs to be filled," he says. "The pharmaceutical companies have already picked the low-hanging fruit and developed drugs for the 'easy' bacteria. We are facing a rapidly spreading pandemic. And we are running out of ammunition. We need to do something now."

Take a broad perspective in health technology assessment

A hierarchy of cost-benefit analyses

Taking the broader perspective

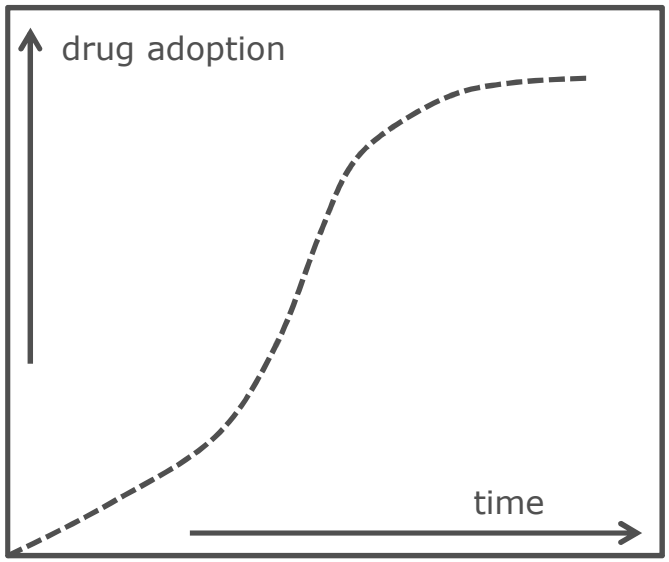
- Economic evaluation is (only) one part of a full HTA.
- What about ethics, legal considerations, societal impact, organisation of care, peace of mind, etc?
- New trend – outcomes research.

Contribute to outcomes research / observational studies

A misunderstanding?

The aim of observational research is not to duplicate treatment results as seen in randomised controlled trials (RCT)

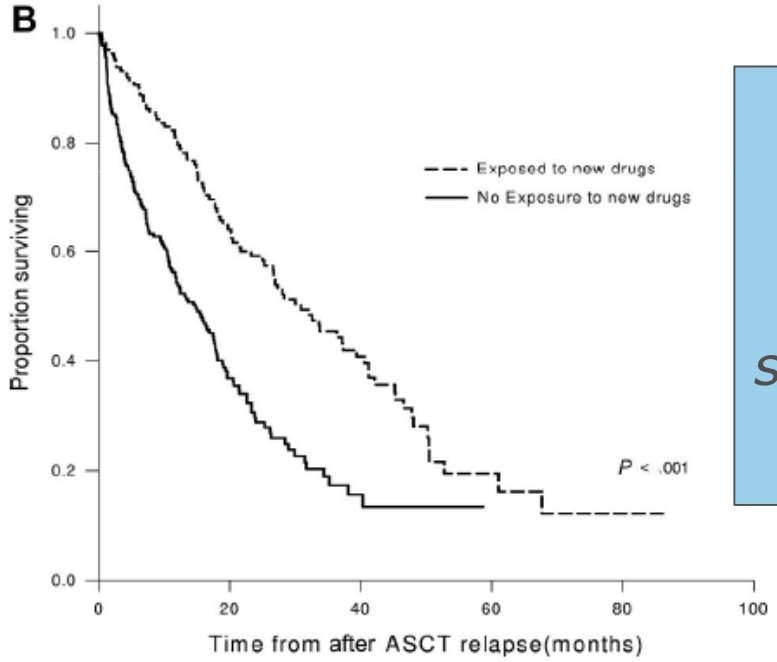
Daily practice is not a RCT



- Early adopters vs. late adopters.
- Channelling effect for new drugs.
- No selective populations.
- Co-morbidity + treatment.
- Therapy adherence?
- Treatment choice is not based on randomisation:
  - Patient preferences,
  - Doctor's preferences,
  - Guidelines,
  - Reimbursement limitations.

Relative efficacy claims: based on RCT only

- Relative efficacy can only be based on RCT evidence.
- Observational studies do however allow for trendwachting.



"Patients treated with one or more of the newer drugs (thalidomide, lenalidomide, bortezomib) had longer survival from relapse (30.9 vs 14.8 months; P < .001)"

Source: Kumar SK, et al. Improved survival in multiple myeloma and the impact of novel treatments. Blood 2008; 111: 2516-2520.

A health care specific problem? Not at all!

nd

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11:47

BINNENLAND SNEL SERVICE ADVERTE

Diesel 'schoner' dan hybride auto

6 reacties

DEN HAAG - Hybride auto's zijn minder milieuvriendelijk dan wordt aangenomen. De Toyota Prius of de Honda Civic of Insight stoot meer CO2 uit dan de zuinigste en schoonste dieselauto van dezelfde klasse.

Source: Nederlands Dagblad 20-10-2009.

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U.S. has third-least snowy January on record

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Honda sued over Civic hybrid mileage claims

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Japan's auto giant Honda Motor president Takeo Fukui introduces the new 2006 model of Civic Hybrid. (OSHIKAZU TSUNO/AFP/Getty Images)

(AP) TORRANCE, Calif. - A woman who expected her 2006 Honda Civic Hybrid to be her dream car wants Honda to pay for not delivering the high mileage it promised. But rather than joining other owners in a class-action lawsuit, she is going solo in small claims court, an unusual move that could offer a bigger payout if it doesn't backfire.

A trial is set for Tuesday afternoon in Torrance, where American Honda Motor Co. has its West Coast headquarters.

Heather Peters says her car never came close to getting the promised 50 miles per gallon, and as its battery deteriorated, it was getting only 30 mpg. She wants Honda to pay for her trouble and the extra money she spent on gas.

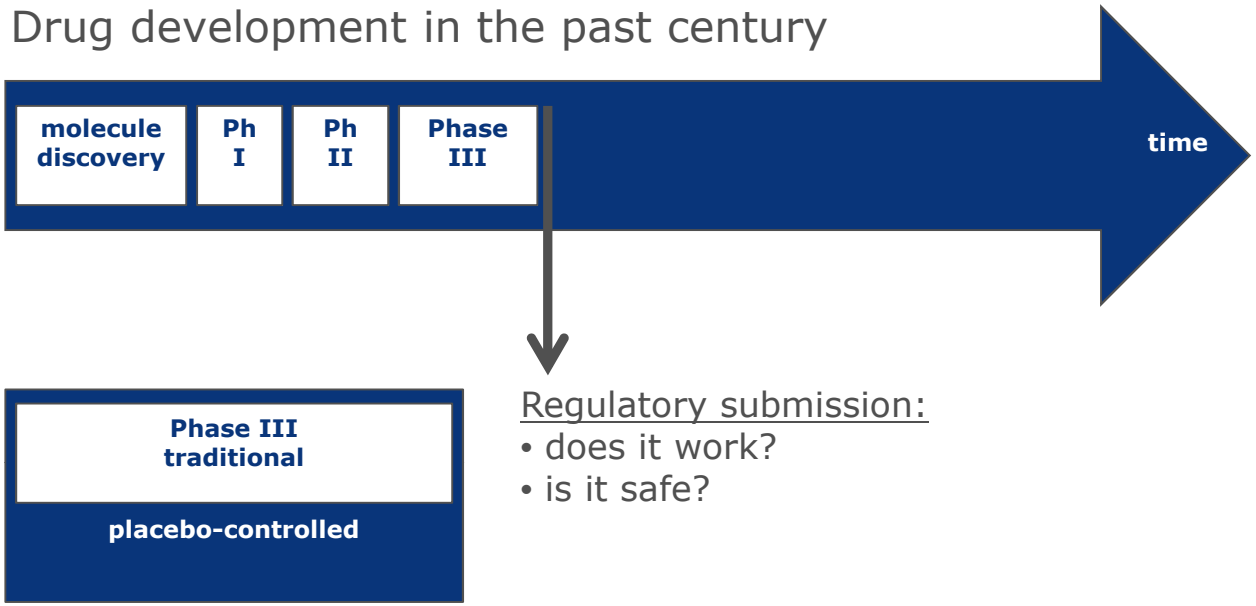
Source: http://www.cbsnews.com/8301-201_162-57351325/honda-sued-over-civic-hybrid-mileage-claims/

Aim of observational research in health care

- Contribute to guideline development.
- Discussions about off-label treatment.
- Setting of treatment (outpatient vs inpatient).
- Safety.
- Factors influencing treatment outcome.
- Explaning differences between RCT and daily practice.
- Quality of care.

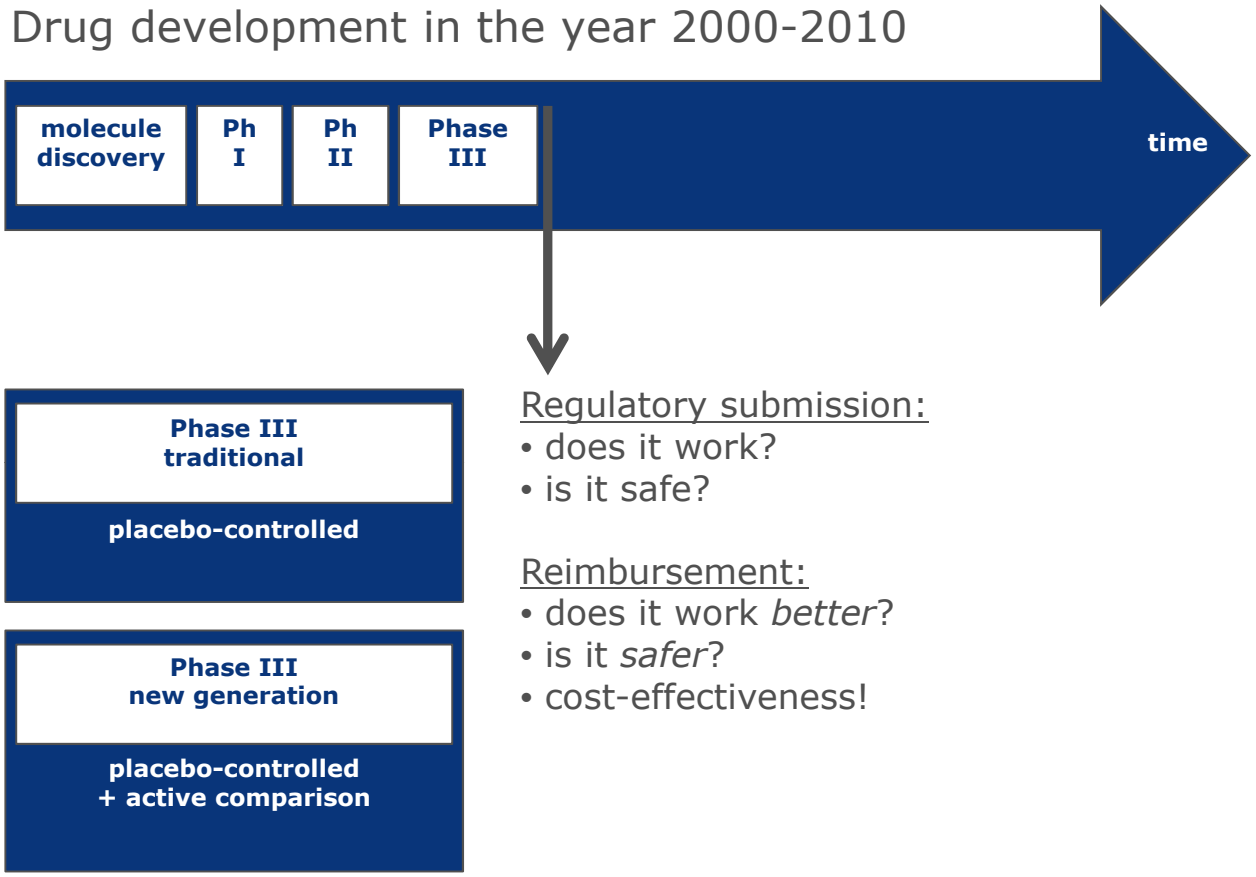
Observational studies, obvious evolutionary steps

Drug development in the past century



Observational studies, obvious evolutionary steps

Drug development in the year 2000-2010

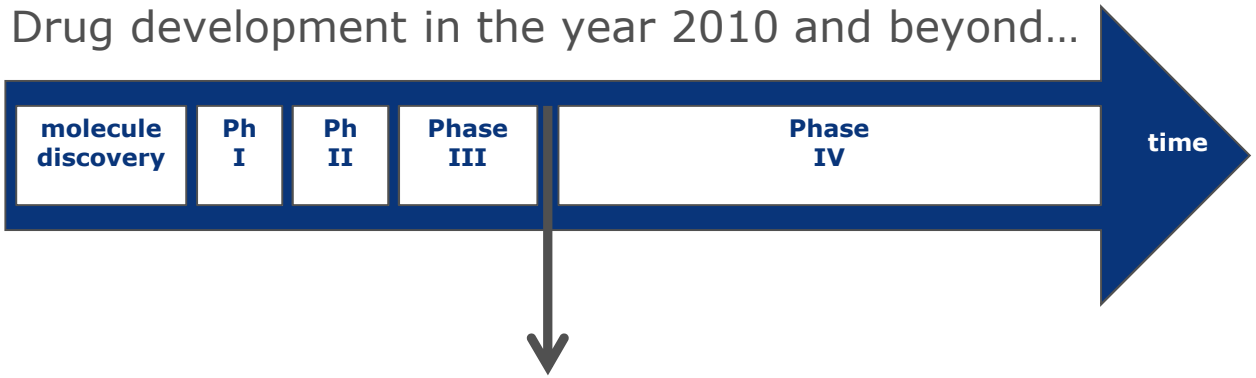


Regulatory submission:
- does it work?
- is it safe?

Reimbursement:
- does it work *better*?
- is it *safer*?
- cost-effectiveness!

Observational studies, obvious evolutionary steps

Drug development in the year 2010 and beyond…



Phase III traditional

placebo-controlled

Phase III new generation

placebo-controlled + active comparison

Regulatory submission:
- does it work?
- is it safe?

Reimbursement:
- does it work *better*?
- is it *safer*?
- cost-effectiveness!

Temporary reimbursement:
- daily practice?

Towards therapeutic and societal added value

Focus of observational research

- Focus is not on drugs only, but also on:
  - Mode of administration,
  - Patient selection,
  - Care that accompanies the drug treatment,
  - Conditions that are at stake (e.g. adherence).
- Observational research provides an image of the entire care process and not of the drug treatment only.

Shared responsibilities, shared chances

- Demonstrating added societal value:
  - Shared responsibility of all parties involved.
- A good drug only does not yet guarantee societal value:
  - It's also about the mode of administration.
- Support of all involved needed:
  - To contribute to access of new treatment options, by demonstrating the value through observational research.
- It offers great chances:
  - Improving patient and societal value!

Conclusions

Conclusions

- Implement innovation despite the Incremental Cost-Effectiveness Ratio (ICER).
- Take a broad perspective in health technology assessment.
- Contribute to outcomes research / observational studies.

Great collaboration = great chances.


Thank you for your attention