

2006 MMA e-Prescribing Pilots: A Watershed Event

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Outline

- MMA and eRx
- MMA eRx Pilots
- Recommendations & Findings
 - Standards
 - Outcomes



MMA & ePrescribing



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MMA (Medicare Part D) & ePrescribing

- ▶ MMA establishes a real-time ePrescribing program to be used by prescribers, plans, pharmacies and pharmacists who serve Medicare patients
 - ▶ No mandate for physicians
 - ▶ Plans participating in the new Medicare prescription drug plan (Part D) must support an electronic prescription program

- ▶ NCVHS tasked with identifying foundation standards

- ▶ Other components:
 - ▶ Discretionary grants to be made available to prescribers
 - ▶ Plans, hospitals, groups may purchase hardware for MDs
 - ▶ Plans may pay additional fees for reduced medication errors, improved formulary compliance & fewer adverse drug events

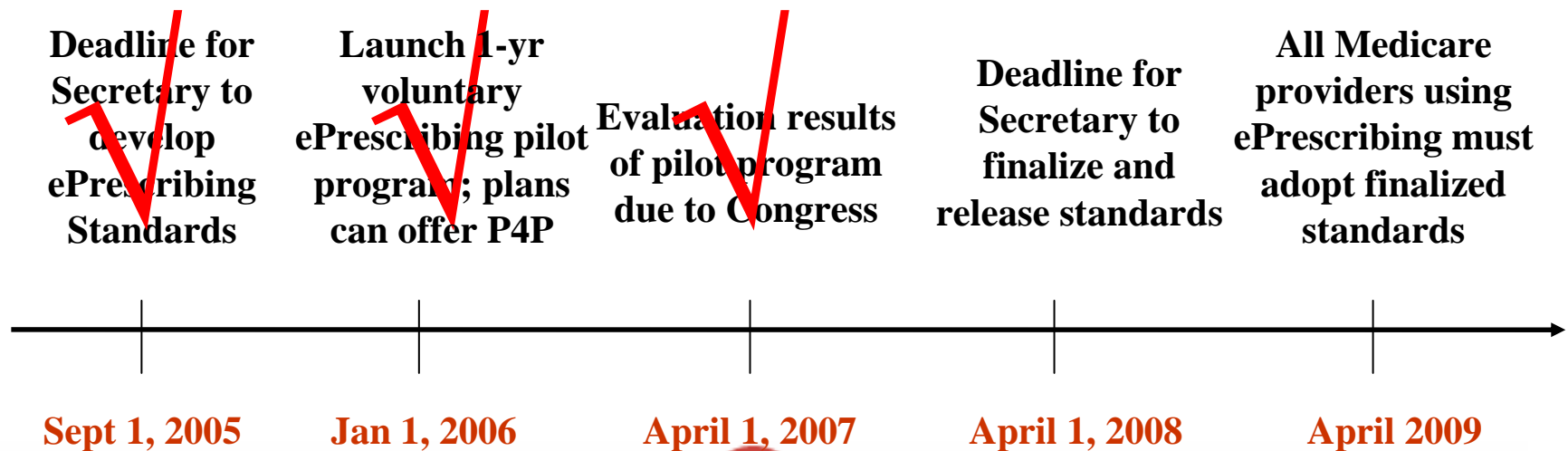
- ▶ Directs HHS to conduct an eRx pilot project in 2006, for areas where industry experience is insufficient



Impact of MMA (Medicare Part D)

➔ Progress-to-date

- ➔ NCVHS hearings on ePrescribing (2004)
- ➔ Issued final rule naming foundation standards (11/05)
- ➔ Awarded 5 grants for ePrescribing pilots (12/05)
- ➔ New regulations excepting interoperable EHRs from safe harbor and Stark laws issued by HHS (08/06)
 - Clarification from IRS on not-for-profit entity subsidies expected soon (03/07)
- ➔ Results from pilots published (04/07)



Remaining MMA “To Dos”

- ▶ Pay-for-performance for ePrescribing
 - ▶ Lots of P4P demonstration projects
 - ▶ CMS announced a relationship with Bridges to Excellence
- ▶ Additional rules
 - ▶ New eRx rules will come out of the pilots
- ▶ Additional pilots?
 - ▶ Hinted at in Final Rule



MMA eRx Pilots



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ePrescribing Pilot Projects

Organization Name	Project Name
RAND Corporation	Test of Medicare's initial electronic prescribing standards in the New Jersey ePrescribing Action Coalition
Brigham & Women's Hospital	Electronic prescribing using a Community Utility: The ePrescribing Gateway
Achieve Healthcare Information Technologies	Long-term Care ePrescribing Standards Pilot Study
Ohio KePRO	A Practice-based Pilot test of Emerging ePrescribing Standards
Surescripts, LLC	Maximizing the Effectiveness of ePrescribing Between Physicians and Community Pharmacies



eRx Pilot Profiles

Lead	Award	Software Vendors	Switche(s)	Pharmacies	Other Organizations
RAND Corporation	\$1.8 M	Allscripts, iScribe	RxHub, SureScripts	Walgreens	Horizon, Caremark, UMDNJ, Point-of-Care Partners
Brigham & Women's	\$1.0M	B&W Hospital	RxHub, SureScripts	"Community of pharmacy chains"	CareGroup Health Sys (MA), MA-Share
Achieve	\$1.1M	Achieve Healthcare Information Technology	RxHub	Preferred Choice Pharmacy	Benedictine Health System, RNA Health, Prime Therapetuics, BCBSMN
Ohio KePro	\$896K	InstantDx, NDC Health	RxHub, SureScripts	CVS, Walgreens, Rite-Aid	NEO/Univeristy Hospitals System, Primary Care Physicians, Qual-choice, Aetna, Univ. of MN, MGMA
SureScripts	\$1.9M	Allscirpts, MedPlus/ Quest Diagnostics, DrFirst, GSM, Zix	SureScripts	Ahold, Brooks, Albertsons, CVS, Duane Reed, Rite Aid, Walgreens, Walmart, Kerr, Longs	Brown University, Midwestern University, Chain Pharmacy Advisory Council, Independent Pharmacy Advisory Counsel



eRx Pilot Objectives

1. Evaluate the readiness of foundation and initial standards, and their interoperability with each other (i.e. determine if standards should be mandated).
2. Evaluate other outcomes related to electronic prescribing, and their impact on key stakeholders (i.e. advance the body of knowledge on ePrescribing).



Standards

- ▶ A published specification that is designed to be used consistently as a rule, guideline or definition
- ▶ Types of standards:
 - ▶ *Message format standards* provide communication protocols and data content
 - ▶ *Terminology standards* ensure data compatibility and interoperability
 - ▶ *Identifiers* for all relevant entities within the ePrescribing process, allowing for clearer tracking and communication
- ▶ Why do they matter?
 - ▶ Some published data standards are not truly “standard,” resulting in the need for time-consuming “workarounds”
 - ▶ The Vision: integrated systems communicating clearly, securely and easily across key steps in the drug delivery chain
 - ▶ MMA requires compliance with standards for ePrescribing



MMA eRx Standards Criteria

- ➔ Approved by an ANSI-accredited standards development organization (SDO) to assure consideration of industry requirements
- ➔ Implementations among multiple partners to assure interoperability*
- ➔ Recognition by key stakeholders to assure the industry recognition of a single standard

* It's not enough for standards to work on their own; they must “interoperate” or work smoothly together



Foundation & Initial Standards

Foundation Standards

- ▶ SCRIPT (new Rx, renewal, change, cancel, admin functions)
- ▶ ASC X12N 270/271
- ▶ NCPDP Telecommunication

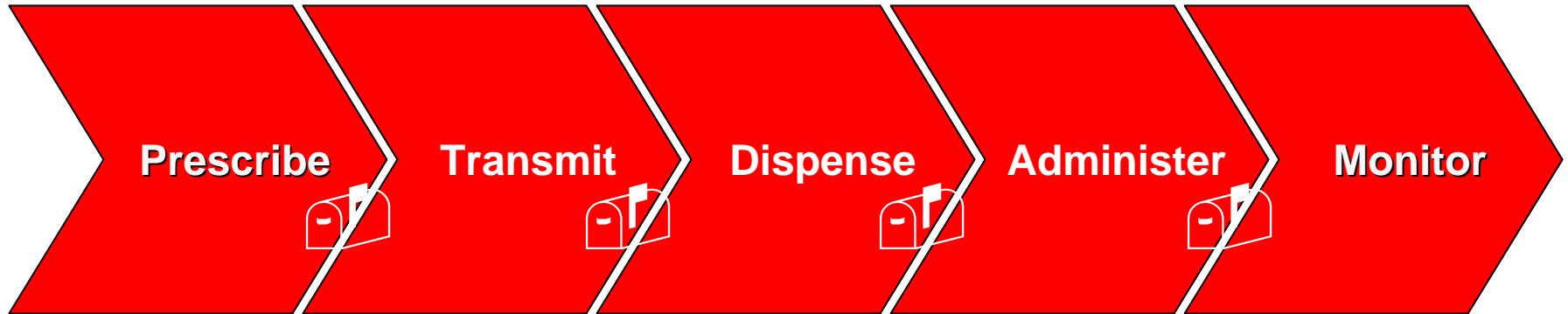
Initial Standards

- ▶ Medication History
- ▶ Formulary & Benefits
- ▶ Structured & Codified SIG
- ▶ Prior Authorization (X12N 278 and X12N 275 + HL7 PA Attachments)
- ▶ RxNorm (new Rx, renewal, cancel)
- ▶ SCRIPT (fill status)



Interaction of Foundation and Initial Standards

Adapted from Bell et al 2004



- | | | | | |
|---|---|--|---|--|
| <ul style="list-style-type: none"> ▶ Prior Auth (I) ▶ RxHistory (I) ▶ RxNorm (I) ▶ Formulary & Benefits (I) ▶ Rx Fill Status (I) | <ul style="list-style-type: none"> ▶ Prior Auth (I) ▶ Structured & Codified Sig (I) ▶ Formulary & Benefits (I) ▶ NCPDP Telecom (F) ▶ Eligibility (F) | <ul style="list-style-type: none"> ▶ Prior Auth (I) ▶ RxNorm (I) ▶ NCPDP SCRIPT (new, change, renew, cancel) (F) ▶ Refill Status (I) | <ul style="list-style-type: none"> ▶ NCPDP SCRIPT (new, change, renew, cancel) | <ul style="list-style-type: none"> ▶ NCPDP SCRIPT (F) (new, change, renew, cancel) ▶ RxFill Status (I) |
|---|---|--|---|--|



Focus of Initial Standards Testing

Standards	Description	Testing Requirements
Medication History (NCPDP SCRIPT)	Dispensed/Claims Hx fx of NCPDP SCRIPT	Determine readiness
Formulary & Benefit (NCPDP v.1.0)	Form status & alternative drugs, copay	Determine if should be adopted
Fill Status Notification (Fxn of NCPDP SCRIPT)	Informs when Rx filled, not filled or partially filled	Assess business value & clinical utility
Structured & Codified SIG	Patient instructions incl. dose, route, freq., etc.	Test standards develop- ment org formats
RxNorm Clinical Drug Terminology	Std drug nomenclature meant to be intralingua	Determine if RxNorm translates to NDC
Electronic Prior Authorization Messages	Provider request, payer response to PA criteria	Determine if standards are ready for adoption



eRx Standards Summary By Pilot Site

Standards	Achieve	B&W	OH KePro	RAND	SureScripts
Medication History (NCPDP SCRIPT)	No	Yes-live	Yes-live	Yes-live	Yes-live
Formulary & Benefit (NCPDP v.1.0)	Yes-live	Yes-live	No	Yes-live	Yes-live
Fill Status Notification (Fxn of SCRIPT)	Yes-live	Yes-eval only	Yes-using MedHx	Yes-live	Yes-using MedHx
Structured & Codified SIG	No	Yes-lab	Yes-lab	Yes-lab	Yes-lab
RxNorm Clinical Drug Terminology	No	Yes-lab v12/21/06	Yes-lab v12/21/06		Yes-lab v8/2/06
Electronic PA Messages	Yes-live	Yes-lab	Yes-live	Yes-live	No



Evaluation Methods - Functionality

- Will standards facilitate the effective and unequivocal communication of the necessary information?
 - Are the right data being sent?
 - Are the data usable and accurate?
 - Are the data well understood at all points in the transaction
 - Can appropriate drugs and other therapies be ordered via ePrescribing?
 - Do the Initial standards work well with the foundation standards?
 - What workarounds were used, and how can the standards be improved to address them?
 - How long does it take to conduct each trans using the initial standards?



Evaluation Methods – Outcomes & Impacts

- ➔ Pilot tests studied a wide variety of outcomes, including
 - ➔ Does the eRx increase the use of on-formulary medications and generics?
 - ➔ Does eRx improve the rate of potential inappropriate prescribing?
 - ➔ Does eRx change rate of hospital and ER use?
 - ➔ Does eRx affect the number of medication errors and ADEs? Does it reduce the rate of hospitalizations and ER department visits associated with ADEs?
 - ➔ Does eRx improve workflow in prescriber offices (fewer interactions with pharmacies, freeing up support staff time for other functions, more time available for patient interactions)?
 - ➔ What are the uptake and dropout rates among prescribers?



Other Outcomes Tested By Pilots

Outcome	Achieve	B&W	OH KePro	RAND	SureScripts
Prescriber uptake and satisfaction	Completed	Completed	Completed	Completed	Completed
Prescriber workflow ▲s	Completed	Planned	Completed	Completed	Completed
Workflow changes related to verbal orders	Completed				Completed
Callbacks (pharm to MD)	Incomplete	Planned	Completed	Incomplete	Planned
Patient Satisfaction					Completed
Use of MedHx Functions			Completed	Completed	Completed
Changes in eRx Renewal Rates		Not Studied			Completed
Changes in new eRx Rates	Completed	Completed			Completed



Other Outcomes Tested By Pilots (cont)

Outcome	Achieve	B&W	OH KePro	RAND	SureScripts
Inappropriate prescribing rates	Completed	Planned	Planned	Completed	Completed
Medication Errors		Incomplete	Planned	Completed	Completed
Adverse Drug Events		Incomplete	Completed		Planned
Hospitalizations and ED visit rates			Planned	Completed	
Use of on-formulary/generics	Incomplete		Completed	Completed	Completed
Change in fill status rates				Completed	Completed
Improved security & reliability	Completed	Not Studied			



Observations

- ▶ Timeframe
 - ▶ Awards granted on December 25, 2007
 - ▶ Draft of summary of findings due to CMS on Jan 15
 - ▶ Pilot final reports due Jan 30
- ▶ Resources
 - ▶ Dollars not enough
 - ▶ Some stakeholders underestimated commitment
- ▶ Some standards not fully baked
- ▶ Combination of academic and real-world experience



Recommendations & Findings – *Standards*



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What's Public

(<http://healthit.ahrq.gov/erxpilots>)

- ➔ CMS Report to Congress
- ➔ AHRQ Evaluation Report (Summary of *Interim* Pilot Findings)
- ➔ Individual Pilot Project Reports
 - ➔ Achieve Healthcare Technologies
 - ➔ Brigham and Women's Hospital
 - ➔ Ohio KePro/UHMP
 - ➔ Rand Corporation
 - ➔ SureScripts



Standards Recommendations

Standards	Description	Pilot Recommendation
Medication History (NCPDP SCRIPT)	Dispensed/Claims Hx fx of NCPDP SCRIPT	Ready for Implementation
Formulary & Benefit (NCPDP v.1.0)	Form status & alternative drugs, copay	Ready for Implementation
Fill Status Notification (Fxn of NCPDP SCRIPT)	Informs when Rx filled, not filled or partially filled	Ready for Implementation
Structured & Codified SIG	Patient instructions incl. dose, route, freq., etc.	Needs More Work
RxNorm Clinical Drug Terminology	Std drug nomenclature meant to be intralingua	Needs More Work
Electronic Prior Authorization Messages	Provider request, payer response to PA criteria	Needs More Work



General Observations about Standards

- Standards testing was *primary* objective of pilots
- Next Step: Notice of Proposed Rule-Making (NPRM)
 - Justify recommendations
 - Stakeholder Economic Impact Analysis
- Structure of standard tended to be adequate
- Issue was with content supplied by standard
 - Transaction only as good as its source
 - While structurally able to interoperate, shortcomings relative to implementation of standards
- What about compliance?
 - CMS said this would fall under HIPAA



Recommendations & Findings – *Outcomes*



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Outcomes: Big Takeaways

- ➔ Generally consistent w/historical ePrescribing studies
 - ➔ Studies more rigorous and scientific
 - ➔ Tended to have larger sample sizes
 - ➔ Objective to inform public policy (not market product)
 - ➔ Also involved ePrescribing experts
- ➔ Role of non-physicians underappreciated
 - ➔ No surprise to experts
 - ➔ Remember, objective is to inform public policy
- ➔ eRx did not replace the need for paper
 - ➔ Inability to submit Schedule II Controlled Substances
 - ➔ Inability to manage future orders



Prescriber Uptake and Satisfaction

- ▶ Adoption and Retention of eRx was generally good
 - ▶ Adoption was increasing at the end of the pilot
 - ▶ OhioKePro found that high-adopting clinics have high levels of *organizational trust*, are more *adaptive* and have a culture that *emphasizes group* over individual physician
 - ▶ RAND found some disenrollment -- 9% for one vendor, 25% for another
- ▶ MD satisfaction high (SureScripts)
 - ▶ SureScripts found that:
 - 90% of physicians perceived that efficiency of care was improved
 - 75% of physicians believed that patient safety, quality of care improved
 - 50% of physicians perceived that communications with patients improved
- ▶ Nursing satisfaction neutral (Achieve)
 - ▶ Training appeared to improve user perceptions
- ▶ Pharmacy satisfaction high to moderate (Achieve, RAND, SureScripts)



Prescriber Workflow Changes

- ➔ Role of “Surrogates” Will Facilitate Adoption
 - ➔ In LTC, nurses entered 95% of all eRx orders
 - ➔ OhioKePro found that 77% of their eRxs were entered by non-MDs
 - ➔ eRxs are “queued” for the MD to complete
 - ➔ Patient safety alerts are largely ignored by non-physicians
 - ➔ Data errors can still happen
- ➔ Physicians (when did use) was inconsistent
 - ➔ Factors include
 - Time
 - Expediency (often easier to call the pharmacy than find a computer)
 - Environmental (not all exam rooms have a computer)



Callbacks (Pharmacy to Prescriber)

- ▶ Among ePrescribing adopters, obtaining PA, responding to refill requests and resolving pharmacy callbacks were all done more efficiently
 - ▶ Greater than 50% reduction in time to manage refill requests and pharmacy callbacks (SureScripts)
 - ▶ 80% decrease in callbacks around coverage issues (RAND)
 - ▶ Physicians did not always perceive that eRx reduced pharmacy callbacks (RAND), highlighting their distance from the benefit to the practice
 - ▶ A challenge was getting IRB approval to monitor



Patient Satisfaction

- Important to ePrescribing adoption
 - If Rx not there when they pick-up, prescriber adoption may be limited
- Just one site conducted patient satisfaction survey
 - Patients either very satisfied (54%) or moderately satisfied (29%) with ePrescribing
 - Adults under 65 were 1.7 times more likely to prefer eRx
 - Results were vendor-specific, with 80% of one vendor's patient's preferring paper prescriptions
 - Source of dissatisfaction unclear
 - PDA, routing, order fulfillment possibilities



Use of MedHx Functions

- Overall, pilots found poor adoption of this functionality
 - One of challenges was poor integration of this functionality within the ePrescribing workflow
 - Insufficient training: OhioKePro found just 1% of MedHx were viewed, prior to an intervention (training)
 - SureScripts found that viewing varied by software system
- Users had strong, positive feelings about the feature
 - RAND physicians rated MedHx as very useful, worth the effort
 - Positive comments: augment memory, access meds from other MDs
 - RAND pilots, however, were neutral on time savings
 - Negative perceptions had to do with the source, not the standard
 - E.g. negative comments about claims-based Hx: completeness, accuracy
- Hindered by usability challenges such as drug identifiers



Changes in new Rx & Renewal Rates

- ➔ Achieve (LTC) Found that when prescribers have a unified view of all active Rxs, there is a ↓ in the overall number of prescribed medications
 - ➔ 1.5% decrease in orders per resident/month overall
 - ➔ 2.39% decrease for residents with 9+ orders
- ➔ Brigham and Women's saw transaction volume stay steady, as prescribers stayed steady, with the expected exception of the holidays.



Inappropriate Prescribing Rates

- Generally found that the study period was too brief to find a measurable difference
- In OhioKePro, however ...
 - DUR alerts per 1,000 prescription claims were higher among control group, lowest within the eRx group
- SureScripts found ...
 - Relatively low % of patients that were id'd as receiving potentially inappropriate medication
 - Exclusion of Schedule II controlled substances may be factor
 - Variations by vendor (which could be regional, case mix or other factors)



Med Errors & Adverse Drug Events

- ▶ Brigham & Women's constructed an ambulatory ADE monitor, based on their inpatient model
 - ▶ Findings are incomplete, additional analysis being done
 - ▶ Preliminarily found dispensing rate errors to less for intervention clinics that were ePrescribing than for traditional Rx's
- ▶ OhioKePro looked at their audit log and health plan data
 - ▶ Found a greater number of ADEs in the control group than with ePrescribing physicians
- ▶ SureScripts surveyed their physicians
 - ▶ 30-100% of ePrescribers said they "sometimes" overrode alerts
- ▶ RAND's analysis is incomplete



Use of On-Formulary/Generic Meds

- ▶ Concerns about the accuracy of the formulary information
 - ▶ Further studies will need to assess the perceived and actual quality of the information
- ▶ Prescribing that automatically allows for generic substitution may increase the rate of generic prescribing
- ▶ OhioKePro found that rate of formulary compliance is not higher among ePrescribing physicians (even though informed by eligibility-based formulary)
 - ▶ Most formulary switches occur at the pharmacy
 - ▶ Formulary changes may be getting pushed up-stream
 - ▶ Despite Ohio pharmacies requirement to substitute for generics, still saw higher generic prescribing rates
- ▶ RAND found a small but significant increase in generic ACE inhibitors tied to ePrescribing



Change in Fill Status Rates

- ▶ Fill status use was extremely limited due to the difficult implementation of this standard
- ▶ SureScripts studied fill status using dispensed MedHx, instead of the function of NCPDP SCRIPT
 - ▶ Found that 90% of physicians thought it would be useful to somewhat useful before implementation
 - ▶ More than 70% said they would call the patient if they learned about a no-fill event
 - ▶ More than 90% are very to somewhat concerned about liability
- ▶ OhioKePro found that ePrescribing physicians were significantly more interested than control physicians in being notified about a no-fill event
- ▶ RAND's expert panel observed that there is no marketplace demand for this function.
- ▶ RAND's focus groups indicated they are interested in adherence monitoring and would follow-up during the patient visit



Processing Benefits, Improved Security and Reliability

- ➔ Only one of the pilots (Achieve) studied this
- ➔ It was observed that an electronic system has the potential to eliminate uncertainties and insecurities with paper-based ePrescribing
- ➔ Though findings are limited, Achieve found that the security and privacy issues arising from ePrescribing could take LTC industry steps forward.



The “Watershed Event”

- ➔ More is coming ...
 - ➔ NPRM
 - ➔ Final Summary of Findings (possibly)
 - ➔ Peer Reviewed Journal Articles, Papers
 - ➔ Stakeholder published internal pieces
 - ➔ NCVHS, Other Hearings
 - ➔ Conference presentations
- ➔ Has already lead to additional studies
 - ➔ E.g. RxHub focus groups on MedHx



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