research

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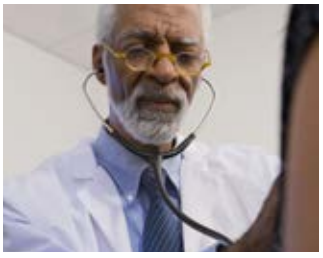

Patients of older physicians have higher mortality rates than patients of younger physicians
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ORIGINAL RESEARCH

Multigenerational, prospective analysis in the Framingham Heart Study

Heritability and risks associated with early onset hypertension

Niiranen TJ, McCabe EL, Larson MG, et al

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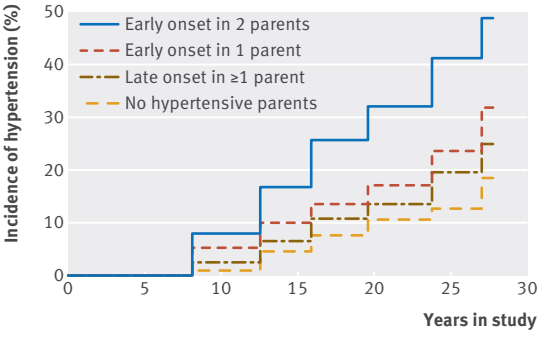
Find this at: http://dx.doi.org/10.1136/bmj.j1949

Study question What is the role of early onset versus late onset hypertension as a risk factor for hypertension in offspring and for cardiovascular death?

Methods The authors studied two generations of participants with serial blood pressure measurements: 3614 first generation participants with mortality data and 1635 initially non-hypertensive second generation participants with data available on blood pressure in parents. The researchers examined the relation of early onset hypertension in parents (age <55 years) with the incidence of hypertension in their offspring. They also studied the relation of age at onset of hypertension with cause specific mortality using a case (cardiovascular death) versus control (non-cardiovascular death) design.

Study answer and limitations Having one or both parents with late onset hypertension did not increase the risk of hypertension compared with having parents with no hypertension; by contrast, the hazard ratio of hypertension was 3.5 (95% confidence interval 1.9 to 6.1) in individuals whose both parents had early onset hypertension. Compared with those without hypertension, those with hypertension onset at age <45 years had an odds ratio of 2.2 (1.8 to 2.7) for cardiovascular death; hypertension onset at age ≥65 years conferred a lower magnitude odds ratio of 1.5 (1.2 to 1.9) for cardiovascular death. Study limitations include relatively fewer stroke outcomes, differences in follow-up intervals in parents and offspring, participants of predominantly European descent, and inability to assess the potential role of secondary hypertension.



Cumulative incidence of hypertension in relation to parental age at onset of hypertension

What this study adds Early age of hypertension onset is a trait that reflects a heritable predisposition for raised blood pressure and that offers important prognostic information about an individual's cardiovascular risk.

Funding, competing interests, data sharing This work was supported by the American Heart Association and the National Institutes of Health. The authors declare no competing interests. Participant level data are publicly available.

Abortion by telemedicine

ORIGINAL RESEARCH Population based study in the Republic of Ireland and Northern Ireland

Self reported outcomes and adverse events after medical abortion through online telemedicine

Aiken ARA, Digol I, Trussell J, Gomperts R

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Study question What are the self reported outcomes and adverse events after medical abortion provided outside the formal healthcare system through online telemedicine?

Methods A population based study among 1000 women in the Republic of Ireland and Northern Ireland who conducted medical abortion through online telemedicine organisation Women on Web (WoW). Outcome measures included rates of successful medical abortion (where "success" is defined as ending the pregnancy without surgical intervention); rates of adverse events (including blood transfusion, antibiotics, and death reported by family, friends, the authorities, or the media); and care seeking for the symptoms of potentially serious complications.

Outcomes, adverse events, and care seeking for potential complications among women conducting medical abortion through online telemedicine

Outcome measure	No of women	Percentage (95% CI)
Abortion outcome (n=1000):		
No longer pregnant and no surgical intervention	947	94.7 (93.1 to 96.0)
Adverse event (n=987*):		
Antibiotics	26	2.6 (1.7 to 3.8)
Blood transfusion	7	0.7 (0.3 to 1.5)
Death	0	0.0 (0.0 to 0.4)
Any adverse event	31	3.1 (2.1 to 4.4)
Reported symptoms (n=987*):		
Any symptom of a potentially serious complication	92	9.3 (7.6 to 11.3)
Care seeking for symptom of potentially serious complication (n=92):		
Sought medical care as advised	87	95.0 (87.8 to 98.2)

*13 women did not provide information on adverse events or symptoms of potentially serious complications.

Study answer and limitations In 2010-12, abortion medications (mifepristone and misoprostol) were sent to 1636 women and follow-up information was obtained for 1158 (71%). Among these, 1023 women confirmed using the abortion medications, and follow-up information was available for 1000. At the time women requested help from WoW, 781 (78%) were <7 weeks pregnant and 219 (22%) were 7-9 weeks pregnant. Overall, 94.7% (95% confidence interval 93.1% to 96.0%) reported successfully ending their pregnancy without surgical intervention. Seven women (0.7%, 0.3% to 1.5%) reported receiving a blood transfusion, and 26 (2.6%, 1.7% to 3.8%) reported receiving antibiotics (route of administration (IV or oral) could not be determined). No deaths were reported. Ninety two women (9.3%,

COMMENTARY Study supports calls for reform in Irish jurisdictions

Where abortion is restricted, women who are advantaged in education, income, and influence can access safe abortion through travel and other means. Yet the most vulnerable women, those with the poorest social determinants of health, are faced with limited options: unsafe abortion, suicide, or bearing an unwanted child; outcomes for which they are least resilient and that are most likely to compound their disadvantages. Early abortion through telemedicine could offer an alternative.

In a linked paper, Aiken and colleagues report outcomes among women from the Republic of Ireland and Northern Ireland who self sourced clinician assisted medical abortion.[3] Abortion laws in both jurisdictions are among the most restrictive in the world. The authors analysed self reported outcome data submitted to a telemedicine clinic by 1000 women four weeks after receipt and use of mifepristone and misoprostol to end an early pregnancy.[3] Almost 95% reported successfully ending their pregnancy, 0.7% required a blood transfusion, 2.6% required antibiotics, and overall 9.3% experienced symptoms potentially requiring medical attention. There were no deaths.[3]

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> Concerns have been raised in both Irish jurisdictions that abortion law is dysfunctional and unjust

We already know that medical abortion with mifepristone is one of the safest options and that it is highly effective.[5 6] We also know that clinician assessment of patient eligibility through telemedicine is effective.[7] What this study adds is an important exploration of whether women in jurisdictions with severe restrictions on abortion but with access to high quality healthcare will self assess and manage potential complications.[3] Importantly, 95% of women who were advised to seek local medical care did so.

Self reported outcomes

While findings from self reported data must always be treated with some degree of caution, common biases from self report are mitigated by the short interval between self medication and outcome reporting (four weeks). It is also likely that most complications were captured as this online telemedicine service was probably the only safe outlet for women needing to discuss symptoms of a suspected complication.

Missing data is a further limitation. This service must be commended for collecting outcome data from 1000 of the 1478 women who might have taken medications during the study period. That outcome data were missing from 478 (32%), however, represents important uncertainty.

As the sample size is too small to detect the true risk of the rare morbidity associated with this treatment, and as we do not know what happened to nearly a third of women, complication rates reported here could be an underestimate. Until legal restrictions in the Republic and Northern Ireland are relaxed or removed, uncertainty about the true risk of rare morbidity after self administered medical abortion will persist.

Uncertainty is aggravated by complexity in the law governing telemedicine.[9] Legal

7.6% to 11.3%) reported experiencing any symptom for which they were advised to seek medical advice, and, of these, 87 (95%, 87.8% to 98.2%) sought attention. None of the five women who did not seek medical attention reported experiencing an adverse outcome. As all abortions took place outside the formal healthcare setting, all outcomes were necessarily self reported by women.

What this study adds Medical abortion through online telemedicine can be highly effective and rates of adverse events are low. When women self identify symptoms of potentially serious complications, most seek recommended medical attention.

Funding, competing interests, data sharing
The study was supported by the Society of Family Planning and the National Institute of Child Health and Human Development. The authors declare no financial relationships with organisations that might have an interest in the submitted work in the previous three years. RG is Founder and Director of WoW, ID is a prescribing physician for WoW, JT serves on the Board of the WoW Foundation, and ARAA declares no competing interests. No additional data are available.

systems differ, for instance, on whether, like the Republic and Northern Ireland, criminal law applies only to acts within their territory, or, as in continental Europe, it applies to their nationals wherever they act, even lawfully, elsewhere. Concerns have been raised in both Irish jurisdictions that abortion law is dysfunctional and unjust and calls for reform continue to grow.[10-15]

Aiken and colleagues report the best safety evidence to date for self sourced medical abortion through telemedicine for women living where high quality healthcare is accessible but legal abortion is not.[3] Repeal of legal restrictions would support the safest and most equitable abortion care for women in Irish jurisdictions. Until then, for the first time in history, women of all social classes in a legally restricted yet high resource setting have equitable access to a reasonable alternative: medical abortion guided by physicians through telemedicine.

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BMJ OPINION Leah Desmond

Irish women and access to abortion

Recently The Citizen's Assembly voted in favour of all women in the Republic of Ireland being able to access a legal abortion. This was monumental and an outcome that was unexpected.

The Citizen's Assembly is a public forum made up of 99 members of the public who are chosen at random, and intended to be a broad representation of the Irish public. It was set up by the Irish government to help advise it on constitutional issues. The Citizen's Assembly voted 64% to 36% in favour of introducing access to termination without restriction as to circumstance.

The members of the assembly were tasked with making recommendations to the government on what changes, if any, should be made to the current constitutional laws on abortion. It was chaired by Supreme Court Judge Mary Laffoy. Over six months, the citizens met and listened to hours of presentations by doctors, scientists, lawyers, theologians, and activists on the issues that surround reproductive rights and the rights of the foetus, in Ireland and worldwide. On one afternoon, they heard the accounts of women who have been directly affected by restricted access to abortion. Following this vote Justice Laffoy will now write a report to an Oireachtas committee. The committee will then make recommendations to the government, likely calling for a referendum.

The people of Ireland have become increasingly frustrated by restrictions on access to abortion, and momentum in support of legalising abortion has been gathering for some time, with groups demanding change, equality, and basic human rights. March for Repeal closed down central Dublin in March this year, whilst The Coalition to Repeal the Eighth amendment is a growing alliance of over 80 organisations, with Global Repeal projects popping up in cities all over the world.

More than 100 000 Irish women have travelled abroad to seek abortions since 1983. 1983 was the year that the Irish constitution was changed in an unprecedented way to enshrine some of the strictest laws against abortion in the world. The law allows abortion only if there is a "real and substantial risk to the mother's life, as distinct from the health of the mother." Procuring an abortion is punishable by up to life in prison. In 1983 many people attempted to forewarn of the dangers in this political move. Attorney General Peter Sutherland argued that this amendment could create confusion for doctors in ambiguous situations where it is hard to judge whether there is a "real and substantial risk to the mother's life." However, political instability in the Republic at the time saw politicians on all sides grappling for the conservative vote. The issue was put to the public and the amendment was passed with a 67% majority. Enshrining women's health (or the barrier to it) in a country's constitution like this was unparalleled. More than 30 years later, the suffering and indignity caused by these laws are still being brought to bear.

Leah Desmond is a GP trainee in Brighton, originally from Cork. She is a member of Doctors for Choice Ireland which is involved in advocacy, education, research, and activism with regards to women's reproductive rights.

Physician age and patient outcomes

ORIGINAL RESEARCH Observational study

Physician age and outcomes in elderly patients in US hospitals

Tsugawa T, Newhouse J P, Zaslavsky A M, et al

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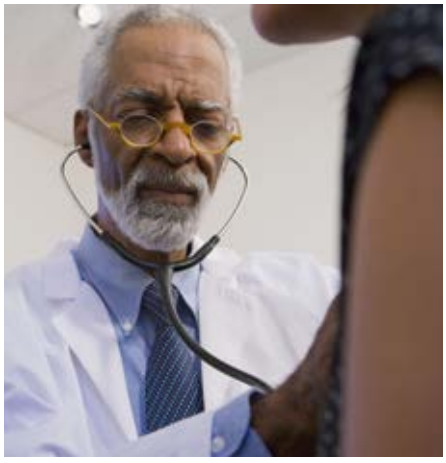
Find this at: http://dx.doi.org/10.1136/bmj.j1797

Study question How does physician age relate to outcomes in patients admitted to hospital?

Methods The study used a 20% random sample of US Medicare fee-for-service beneficiaries aged 65 or older admitted to US hospitals in 2011-14 with a medical condition who were treated by a general internist. This study examined the association between physician age and patient outcomes, adjusted for patient and physician characteristics and hospital fixed effects. To deal with possible unmeasured confounders, the authors focused on hospitalist physicians, whose patients could plausibly be quasi-randomised within the same hospital.



Study answer and limitations Within the same hospital, mortality was higher among patients treated by older compared with younger physicians. Adjusted 30 day mortality rates were 10.8% for physicians aged <40 (95% CI 10.7% to 10.9%), 11.1% for those aged 40-49 (11.0% to 11.3%), 11.3% for those aged 50-59 (11.1% to 11.5%), and 12.1% for those aged ≥60 (11.6% to 12.5%). Findings varied by patient volume. For example, each 10 year increase in physician age was associated with adjusted odds ratios of 30 day mortality of 1.19 (95% CI 1.14 to 1.23; P<0.001) and 1.06 (1.03 to 1.09; P<0.001) among physicians with low (<90 admissions a year) and medium (91-200 admissions a year) patient volumes. Among physicians with a high patient volume (>200 admissions a year), however, there was no association between age and patient mortality. Readmissions did not vary with physician age whereas costs of care were slightly higher among older physicians. This was an observational study, therefore findings might not reflect a causal association.

What this study adds Within the same hospital, patients of older physicians have higher mortality rates than patients of younger physicians, except those physicians treating high volumes of patients.

Funding, competing interests, data sharing See bmj.com.

COMMENTARY New research reports a link, but the underlying mechanism remains unclear

In a linked paper, Tsugawa and colleagues take a fresh look at the association between physician age and patient outcomes relating to 30 day hospital mortality, readmissions, and costs.[1]

Their focus was older patients with serious medical illnesses who required admission and whose care was provided by a general internist who filed at least 90% of total "evaluation and management" billings in a hospital. Within any given hospital, patients treated by a specific hospitalist, the authors argue, are "plausibly quasi-randomised" by time of admission and hospitalists' work hours. Additionally, confounding factors were controlled either analytically or by design.

Patients of older hospitalists had higher odds of 30 day in-hospital mortality than patients of younger hospitalists, except for hospitalists with high volumes of patients, where no association of physician age and mortality was found.[1] They found no association between hospitalist age and patient readmission. Older hospitalists had slightly higher billings.

The findings lead inevitably to a re-evaluation of requirements for continuing education for physicians

The within hospital design of this study helps control for hospital level differences that might confound the association between mortality and physician age. But in practice, modifiable organisational factors could moderate age related differences in performance of clinical care across providers. While this study suggests a performance advantage for younger physicians when mortality is measured, more experienced physicians might do better on other performance measures, particularly communication with patients and decisions informed by experience, leading perhaps to fewer invasive medical procedures at the end of life.

The findings of Tsugawa and colleagues lead inevitably to a re-evaluation of requirements for continuing education for physicians. Besides this study, 74% of studies evaluated in a systematic review found a partially or consistently negative association between physician age and adherence to recommended treatment, leading to a conclusion that quality improvement interventions in the form of continuing education should be explored.[4]

But missing from the discussion on physician age and quality of care is consideration of the importance of the organisational context of clinical care. Large multihospital studies have shown that the association between high volume and better outcomes found in the study by Tsugawa and colleagues is contingent on good hospital nurse staffing.[10]

Patient outcomes research is providing much needed evidence to inform clinical practice, educational innovation, organisational redesign, and healthcare policy. The challenge is to integrate findings across multiple studies within an overarching framework of health system responsibility which holds promise of safe care and good patient outcomes despite diversity of performance by individuals.

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Find the full version with references at http://dx.doi.org/10.1136/bmj.j2286