Does use of emergency contraception prevent unintended pregnancy?

Anna Glasier
There has never been a placebo controlled trial of emergency contraception
So to assess whether EC works we have to look to trials comparing two methods and calculate the number of pregnancies expected and the number that actually occur.
Ulipristal acetate versus levonorgestrel for emergency contraception: a randomised non-inferiority trial and meta-analysis.

Ulipristal acetate versus levonorgestrel for emergency contraception: a randomised non-inferiority trial and meta-analysis.

(Glasier et al Lancet 2010)

- 2221 women presenting for EC in USA and UK
- Randomised to LNG (levonelle) or UPA (ellaOne)
- 1696 took EC within 72 hours
- When they took EC the date of their LMP was documented, also their normal menstrual cycle length
Ulipristal acetate versus levonorgestrel for emergency contraception: a randomised non-inferiority trial and meta-analysis.

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<th>Actual pregnancies N (%)</th>
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<tr>
<td>UPA 844</td>
<td>46 (5.5%)</td>
<td>15 (1.8%)</td>
</tr>
<tr>
<td>LNG 852</td>
<td>47 (5.4%)</td>
<td>22 (2.6%)</td>
</tr>
</tbody>
</table>
So in clinical trials comparing two EC methods (LNG and UPA), emergency contraception prevents half to two thirds of expected pregnancies.
Is there any evidence that EC prevents unintended pregnancy at a population level?
Emergency contraception: why the absent effect on abortion rates?
(Pederson W. Acta Obstet Gynecol Scand)

- EC licensed in Norway in 1995
- 1997 < 5000 courses sold
- 2000 EC deregulated
- 2001 almost 70,000 courses sold
- 2007 >150,000 courses sold
- A 30 fold increase in EC sales but no change in abortion rates
No reduced number of abortions despite easily available emergency contraceptive pills. Studies of women's knowledge, attitudes and experience of the method.

(Tyden et al Lakartidningen 2002)
# EC use with time among UK women choosing abortion

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>Scotland (Dundee)</td>
<td>1%</td>
</tr>
<tr>
<td>1995</td>
<td>Scotland (Dundee)</td>
<td>6%</td>
</tr>
<tr>
<td>1998</td>
<td>England (Newcastle)</td>
<td>11%</td>
</tr>
<tr>
<td>2001</td>
<td>Scotland (Edinburgh)</td>
<td>12%</td>
</tr>
<tr>
<td>2005/11</td>
<td>Scotland (Edinburgh)</td>
<td>12%</td>
</tr>
</tbody>
</table>
Abortions performed in Scotland, 1968-2006

1 Refers to therapeutic abortions notified in accordance with the Abortion Act 1967.

p Provisional.

Source: Notifications (to the Chief Medical Officer for Scotland) of abortions performed under the Abortion Act 1967

ISD Scotland
But these sorts of studies/observations are very indirect, many factors are involved in changes abortion rates. 

Is there any more direct evidence?
Studies of advanced provision

• EC must be used within 72 hours of unprotected sex
• Much unprotected sex occurs at weekends
• Until deregulation EC was only available from a doctor
• GP and FPC often closed at weekends
• If women had a supply of EC to hand they would be more likely to use it
• If they used it more often it would reduce abortion
Advanced provision of mifepristone to women after childbirth in Shanghai (Hu et al 2005)

- 2000 women recruited from hospital
- Randomised - mifepristone 3 courses at home
- Four monthly phone follow-up
- Followed up for one year
- EC use and use of other methods
- Pregnancies
### EC use at one year

<table>
<thead>
<tr>
<th>Times used</th>
<th>Subjects</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>135</td>
<td>69</td>
</tr>
<tr>
<td>2</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total episodes</td>
<td>268</td>
<td>119</td>
</tr>
</tbody>
</table>
Results

Pregnancies

Subjects  38 (3.8%)

Controls  32 (3.2%)
Advance provision of emergency contraception for pregnancy prevention
(Polis CB et al Cochrane Database of Systematic Reviews 2007)

• 11 RCTs
• 7695 patients in the US, China, India, Sweden.
• Use of EC increased (single use: doubled; multiple use: quadrupled)
• EC was used sooner after sex (mean difference -12.98 hours)
Advance provision of emergency contraception for pregnancy prevention
(Polis CB et al Cochrane Database of Systematic Reviews 2007)

• But advance provision did not decrease pregnancy rates (odds ratio (OR) 0.98, 95% confidence interval (CI) 0.76 to 1.25
Why not?