¿COMO HA EVOLUCIONADO LA EPOC EN LOS ÚLTIMOS CUATRO AÑOS?

Joan B Soriano
jbsoriano2@gmail.com

18:30-19:15 h
CONFERENCIA DE CLAUSURA
¿COMO HA EVOLUCIONADO LA EPOC EN LOS ÚLTIMOS CUATRO AÑOS?

Presentador:
Dr. Francisco Javier Cabrera Aguilar
Servicio de Medicina Interna
Hospital General Universitario Gregorio Marañón
Madrid

Ponente:
Dr. Joan B. Soriano Ortiz
IdISPa-FISIB. Unidad de Investigación Clínica
Hospital Universitario Son Espases. Palma de Mallorca
Illes Balears
Cada día es más frecuente que leemos y oigamos la expresión ‘estudio epidemiológico’. Los medios de comunicación la han usado ante problemas como la crisis de las ‘vacas locas’, el síndrome respiratorio agudo severo (SARS), la gripe aviar y otros. Pero también las asociaciones cedularias y los particulares argumentan apoyándose en estos estudios para solucionar otros problemas de nivel local, sobre todo problemas de tipo ambiental. He aquí una pequeña reflexión acerca de esta cuestión. Por Juan B. Bellido

**Convivir**

**Salud pública**

*Doctor, tengo una epidemia aquí*

La sociedadrica vive una mezcla de nuevos peligros y exigencia de seguridad que sacraliza la salud

Los estudios sobre problemas de tipo local generan muchas expectativas, pero los resultados son escasos

La epidemia engendra una pregunta: ¿Cómo se puede actuar cuando existen situaciones que exigen la intervención de profesionales sanitarios? En muchos casos, la respuesta no es única y depende de las circunstancias. Es importante que los profesionales sanitarios estén preparados para enfrentarse a estas situaciones y que se creen los mecanismos para que puedan ser atendidos de forma adecuada. En este sentido, la colaboración entre los diferentes niveles de gobierno es fundamental. Además, es necesario fomentar la investigación en este campo para que se puedan desarrollar medidas efectivas y eficientes. Finalmente, es necesario que la sociedad esté informada de las medidas que se están tomando para prevenir la propagación de la epidemia.
Carl Sagan y el calendario cósmico
13 de abril
New report says all cancer deaths could be eliminated by 2050

MEDICAL DAILY 17 JAN 2015

Overcoming Cancer in the 21st Century

*With increased cancer risk awareness and better access to more effective preventive and curative treatments, most cancer deaths before late old age could be eliminated by 2050*
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<table>
<thead>
<tr>
<th>Imperfecto de Indicativo</th>
<th>Perfecto de Indicativo</th>
<th>Futuro Imperfecto de Subjuntivo</th>
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</thead>
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<td>Habrán tosido</td>
<td>Respiraren</td>
</tr>
</tbody>
</table>
Tiempo Futuro de la EPOC…

Futuro Perfecto de Subjuntivo
Yo lo hubiere dejado a tiempo
Tú lo hubieres dejado a tiempo
Él lo hubiere dejado a tiempo
Nosotros lo hubiéremos dejado a tiempo
Vosotros lo hubiereis dejado a tiempo
Ellos lo hubieren dejado a tiempo
Futuro epidemiológico de la EPOC
La EPOC será la tercera causa de muerte en el Mundo en 2020

1990  2020

Isquemia cardíaca
E Cerebrovascular
Infec. Resp. Inferiores
Diarrea
Causas perinatales
EPOC
Tuberculosis
Sarampión
Accidentes de tráfico
Cáncer de pulmón
3ª
6ª

Cancer de estómago
VIH
Suicidio

Murray C & Lopez A. Lancet 1997
Cinco enfermedades respiratorias en el top-ten de la mortalidad global !!!!

**Figure 4:** Global death ranks with 95% UIs for the top 25 causes in 1990 and 2010, and the percentage change with 95% UIs between 1990 and 2010

UI=uncertainty interval. COPD=chronic obstructive pulmonary disease. *Includes birth asphyxia/trauma. An interactive version of this figure is available online at http://healthmetricsandevaluation.org/ghd/visualizations/regional.


Jose Luis López-Campos, Miguel Ruiz-Ramos, Joan B Soriano

Figure 1: Age-standardised COPD mortality trends in the European Union (1994–2010)
Solid lines are joinpoint regression lines. Dotted lines are age-standardised mortality.

**Figure 2: Age-standardised COPD mortality trends, by country (1994–2010)**

Solid lines are joinpoint regression lines. Dotted lines are age-standardised mortality.

Mini Finland Health Survey (1978–1980)

Health Survey (2000–2001)
<table>
<thead>
<tr>
<th>Smoking status</th>
<th>Non-COPD (n=493)</th>
<th>COPD (n=95)</th>
<th>p value (non-COPD vs COPD)</th>
<th>Both sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men (n=246)</td>
<td>Women (247)</td>
<td>Men (n=45)</td>
<td>Women (50)</td>
</tr>
<tr>
<td>Current smoker</td>
<td>80 (32.5%)</td>
<td>18 (7.3%)</td>
<td>20 (44.4%)</td>
<td>4 (8.0%)</td>
</tr>
<tr>
<td>Former smoker</td>
<td>52 (21.1%)</td>
<td>15 (6.1%)</td>
<td>11 (24.4%)</td>
<td>9 (18.0%)</td>
</tr>
<tr>
<td>Never smoker</td>
<td>114 (46.3%)</td>
<td>214 (86.6%)</td>
<td>14 (31.1%)</td>
<td>37 (74.0%)</td>
</tr>
</tbody>
</table>

| Indoor biomass fuel    |                  |             |                          |            |
|                        | Participants exposed | Years exposed | Hours exposed per day | 0.578 | 0.370 | 0.335 |
|                        | 225 (91.5%)       | 235 (95.1%) | 40 (88.9%)               | 0.168 | 0.241 | 0.965 |
|                        | 26.1 (18.3%)     | 32.9 (17.9%)| 22.0 (18.2)              | 0.553 | 0.172 | 0.145 |

| Outdoor biomass fuel   |                  |             |                          |            |
|                        | Participants exposed | Years exposed | Hours exposed per day | 0.793 | 0.296 | 0.704 |
|                        | 221 (89.8%)       | 236 (95.5%) | 41 (91.1%)               | 0.989 | 0.464 | 0.502 |
|                        | 20.3 (17.0)      | 24.7 (17.5) | 20.4 (16.1)              | 0.380 | 0.939 | 0.143 |

| Cooking area           |                  |             |                          |            |
|                        | Same building    | Separate building | Village in tobacco-growing area | 0.117 | 0.297 | 0.711 |
|                        | 44 (17.9%)       | 202 (82.1%) | 106 (43.1%)               | 0.069 | 0.910 | 0.249 |

Data are n (%) or mean (SD). *Too few participants to calculate p value. COPD = chronic obstructive pulmonary disease.

Table 3: Risk factors for COPD

Translational COPD: Linking Physiology with Epidemiology

Figure 1: Prevalence of airflow obstruction (FEV₁/FVC < LLN) in BOLD sites. Redrawn from Burney et al. FEV₁ = forced expiratory volume in one second; FVC = forced vital capacity; LLN = lower limit of normal; BOLD = Burden of Lung Disease.

Figure 4: Prevalence of a low FVC (FVC<LLN) in BOLD sites by gross national income per capita, US$PPP. Redrawn from Burney et al. FVC = forced vital capacity; LLN = lower limit of normal; BOLD = Burden of Lung Disease.

B.3.1 Chronic obstructive pulmonary disease

Probability of death, Males, 50 to 74 years (25q50), 2013

GBD 2013. Lancet 2015 (recalculated from online appendix).
Ageing populations: the challenges ahead

Christensen K, Gabriele Dobишammer, Roland Rau, James W Vaupel

If the pace of increase in life expectancy in developed countries over the past two centuries continues through the 21st century, most babies born since 2000 in France, Germany, Italy, the UK, the USA, Canada, Japan, and other countries with long life expectancies will celebrate their 100th birthdays. Although trends differ between countries, populations of nearly all such countries are ageing as a result of low fertility, low immigration, and long lives. A key question is: are increases in life expectancy accompanied by a concurrent postponement of functional limitations and disability? The answer is still open, but research suggests that ageing processes are modifiable and that people are living longer without severe disability. This finding, together with technological and medical development and redistribution of work, will be important for our chances to meet the challenges of ageing populations.

La cara de los 7 billones

“…Zoom in on this graphic in which the world’s 7 billion population is depicted by 7,000 human figures, each representing a million people“.

Habitantes de España
47 129 783 hab. (Censo 2013)

http://ngm.nationalgeographic.com/2011/03
La EPOC mata cada año a 18 mil personas en España...
Infradiagnóstico por sexo, 1,27 veces más frecuente en Mujeres (86,0%) que en Hombres (67,6%) (p < 0,05).

Figura 1. Infradiagnóstico de la EPOC en EPI-SCAN, por sexo y área.

628.102 mujeres con EPOC, de las cuales aún están sin diagnosticar 540.168.

Consumo de recursos EPOC

<table>
<thead>
<tr>
<th>Servicio</th>
<th>2006</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atención Primaria</td>
<td>64.7</td>
<td>55.5</td>
</tr>
<tr>
<td>Hospitalizaciones</td>
<td>22.6</td>
<td>20.4</td>
</tr>
<tr>
<td>Urgencias</td>
<td>45.5</td>
<td>46.6</td>
</tr>
</tbody>
</table>

Mayores de 64 años por comunidades autónomas (%)
A 1 de enero de 2012

España 17,6
Menos de 14%
14 a 17%
17 a 20%
20% o más
<table>
<thead>
<tr>
<th>Edad (años)</th>
<th>Total</th>
<th>% mujeres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayor de 64</td>
<td>8.106.652</td>
<td>57,3</td>
</tr>
<tr>
<td>65-69</td>
<td>2.210.557</td>
<td>52,8</td>
</tr>
<tr>
<td>70-74</td>
<td>1.758.586</td>
<td>54,4</td>
</tr>
<tr>
<td>75-79</td>
<td>1.681.210</td>
<td>57,1</td>
</tr>
<tr>
<td>80-84</td>
<td>1.317.219</td>
<td>60,6</td>
</tr>
<tr>
<td>85-89</td>
<td>763.519</td>
<td>65,1</td>
</tr>
<tr>
<td>90-94</td>
<td>296.230</td>
<td>69,8</td>
</tr>
<tr>
<td>95-99</td>
<td>70.192</td>
<td>75,1</td>
</tr>
<tr>
<td>100 o más</td>
<td>9.139</td>
<td>73,1</td>
</tr>
</tbody>
</table>
Tendencias de tabaquismo en España

24,0% en ENS 2011-2012: 27,9% hombres y 20,2% en mujeres
24,0% en ENS 2011-2012: 27,9% hombres y 20,2% en mujeres

Población fumadora habitual.
Porcentaje de población de 15 y más años.

ENS 2011-12.
Tabla 1.014.- Problemas o enfermedades crónicas o de larga evolución en los últimos 12 meses en población adulta

BRONQUITIS CRÓNICA, ENFISEMA, EPOC

Distribución porcentual según SES y clase social.

“…Según la EPA, el número de parados en España en el Q3 2013 baja en 72.800 hasta los 5.904.700.”
Recent improvement in long-term survival after a COPD hospitalisation

Pere Almagro, M Salvadó, C Garcia-Vidal, M Rodriguez-Carballeira, M Delgado, B Barreiro, J L Heredia, Joan B Soriano

Cohort 1 (1996-1997)

- n=156
- n=10 No Spirometry
- n=3 Incomplete evaluation
- n=2 Refused to participate

- n=141
- n=6 Lost to follow-up before 3 years

- n=135

Cohort 2 (2003-2004)

- n=223
- n=26

- n=188
- n=7

- n=181


### Table 1  Demographic and clinical variables by cohort

<table>
<thead>
<tr>
<th></th>
<th>1996–7</th>
<th>2003–04</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ± SD</td>
<td>72.3±9.2</td>
<td>72.0±9.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Men (%)</td>
<td>124 (92%)</td>
<td>172 (95%)</td>
<td>0.5</td>
</tr>
<tr>
<td>Smoking (%)</td>
<td></td>
<td></td>
<td>0.02</td>
</tr>
<tr>
<td>Current</td>
<td>23 (17%)</td>
<td>41 (23%)</td>
<td></td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>96 (73%)</td>
<td>132 (75%)</td>
<td></td>
</tr>
<tr>
<td>Never-smoker</td>
<td>14 (10%)</td>
<td>3 (2%)</td>
<td></td>
</tr>
<tr>
<td>Married status (%)</td>
<td>102 (76%)</td>
<td>120 (70%)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4  Treatment at discharge, by cohort

<table>
<thead>
<tr>
<th></th>
<th>1996–7 %</th>
<th>2003–4 %</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-acting $\beta_2$ agonists</td>
<td>97.6</td>
<td>78.5</td>
<td>0.0001</td>
</tr>
<tr>
<td>Long-acting $\beta_2$ agonists</td>
<td>1.2</td>
<td>77.9</td>
<td>0.0001</td>
</tr>
<tr>
<td>Ipratropium bromide</td>
<td>89</td>
<td>58.1</td>
<td>0.0001</td>
</tr>
<tr>
<td>Tiotropium</td>
<td>0</td>
<td>33.1</td>
<td>0.0001</td>
</tr>
<tr>
<td>Inhaled corticosteroids</td>
<td>87.4</td>
<td>84.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Chronic systemic corticosteroids</td>
<td>2.4</td>
<td>2.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Statins</td>
<td>1.6</td>
<td>16.9</td>
<td>0.001</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>27.6</td>
<td>27.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Angiotensin II receptor antagonists</td>
<td>0</td>
<td>7.6</td>
<td>0.001</td>
</tr>
<tr>
<td>$\beta$-Blockers</td>
<td>1.6</td>
<td>5.8</td>
<td>0.057</td>
</tr>
<tr>
<td>Antiplatelet drugs</td>
<td>16.5</td>
<td>30.2</td>
<td>0.004</td>
</tr>
</tbody>
</table>

*Median (IQR; 25–75%).

BMI, body mass index; COPD, chronic obstructive pulmonary disease; ER, Emergency room.
Features

Future looks bright for mobile technologies in global health

In Spring, 2014, as green shoots poked through the thawing ground in Washington, DC, USA, an advisory board decided to wind down the mHealth Alliance—a non-profit organisation, hosted by the UN Foundation, set up in 2008 to catalyse the full potential of mobile technologies in the delivery of health care (mHealth) in resource-poor countries. The timing of the decision was symbolic. It was made not because of a mission failure, but because the Alliance had sown a fertile ground and developed enough capacity to make its own role redundant.

Since its inception, the Alliance’s Innovation Working Group mHealth Catalytic Grant programme had provided 26 grants in 14 countries to support efforts that reached more than 31 million people. It had produced more than 90 publications that have spun off into initiatives such as the Mobile Alliance for Maternal Action (MAMA) and the mHealth and eHealth Expert Learning Program (mHELP). The capabilities of mobile technology are now central to global health thinking, but what legacy has been left for respiratory medicine?

Patricia Michael, the former Executive Director of the mHealth Alliance, is now the Senior mHealth Advisor at the UN Foundation. She says that tracing applications specifically for respiratory care is difficult, but that the movement’s legacy has been in bolstering the ability of health systems to deal more effectively with all types of disorders. “Its main role has been in the integrated management of childhood illnesses and community management”, she says, “and the top three issues in most places are pneumonia, malaria, and diarrhoea. A health visitor can ask about cases, issues, signs, and symptoms and then run the information through an mHealth app. It’ll then give guidance for what they should be doing for the child or it can recommend and give educational material for them to pass on.”

The Alliance’s 2012 report pulled together mHealth’s application in managing patients with tuberculosis, and their 2013 publication outlined applications in neonatal resuscitation. Because of the nature of asphyxiation at birth, mobile technologies have been deemed inappropriate to guide care at the event, but instead have been developed to offer training for village health workers and ease supply chain management. It’s in pneumonia, though, that Michael says mHealth is having the biggest effect, but only when used in conjunction with an older technology—rapid diagnostic tests (RDTs) for malaria.

“What it’s helped to do is weed out malaria cases from non-malaria cases”, she says. “What people used to do was say ‘Oh you have flu-like symptoms and fever—you have malaria’. Now, with RDTs, if you weed out malaria it gives you a better shot at diagnosing things like pneumonia.”

Once malaria has been discounted, she says, pneumonia modules in an application can help with differential diagnosis (eg, by counting breaths per minute) and triage for referral to a central health facility.

However, one important issue prevents mHealth technology from being harnessed as a central component of global health systems: mobile internet is not yet available in many of the regions most at need of such services. Erica Weirich, Director of the Global Health Research Foundation (Los Altos, CA, USA), says that these problems can be overcome by transferring data obtained from patients to a central hub whenever a health worker has access, although this approach is less immediate than the technology would otherwise allow, especially for triage of urgent cases. Her team are experimenting with the use of drones in Bhutan to extend coverage to the most remote of villages: as the drones fly by, data from a health worker’s phone can be uploaded and synced to a central framework. She concedes that such efforts are largely a stopgap until mobile internet trickles into all corners of the world. “The other big problem, especially for respiratory health, is technological capability”, she says. “I’d expect a revolution once point-of-care tests become available to health workers in the field—so when we can actually blow into these things and diagnose that way.”

Such an approach sounds far-fetched, but it might not be all that far off, thanks to a competition set up by the XPRIZE Foundation, a non-profit organisation that aims “to bring about radical breakthroughs for the benefit of humanity”. The Qualcomm Tricorder XPRIZE offers a US$10 million bounty to any research team who can make Dr McCoy’s medical tricorder—a mobile device used by the Star Trek character to diagnose illnesses—a reality. The devices must diagnose 15 disorders: among them pneumonia, whooping cough, chronic obstructive pulmonary disease, and tuberculosis—by any non-invasive, consumer-friendly means possible. Ten teams have reached the final round. Their devices, which are in the final stages of development, will be tested in 2015 and the winner will be announced in 2016, the 50th anniversary of the original Star Trek series. The Foundation wants the fruits of this competition to be available in developing countries as soon as possible. And if the trajectory of the mobile phone is anything to go by, the future looks bright for mobile technologies in global health.

Dara Mohamadi
… a competition set up by the XPRIZE Foundation, a non-profit organisation that aims to “bring about radical breakthroughs for the benefit of humanity”. The Qualcomm Tricorder XPRIZE offers a **US$10 million bounty** to any research team who can make *Dr McCoy’s medical tricorder*—a mobile device used by the Star Trek character to diagnose illnesses—a reality. The devices must diagnose 15 disorders—among them pneumonia, whooping cough, COPD, and tuberculosis—by any noninvasive, consumer-friendly means possible.

Mohamadi D. Lancet RM 2015.
CONCLUSIONES:

- Hay aún mucha EPOC que detectar y que tratar
- Las tendencias no se explican solamente por tabaco y envejecimiento
- Medir, medir y medir